INTERNATIONAL JOURNAL
OF
INNOVATION
AND APPLIED STUDIES

International Peer Reviewed Monthly Journal

International Journal of Innovation and Applied Studies

International Journal of Innovation and Applied Studies (ISSN: 2028-9324) is a peer reviewed multidisciplinary international journal publishing original and high-quality articles covering a wide range of topics in engineering, science and technology. IJIAS is an open access journal that publishes papers submitted in English, French and Spanish. The journal aims to give its contribution for enhancement of research studies and be a recognized forum attracting authors and audiences from both the academic and industrial communities interested in state-of-the art research activities in innovation and applied science areas, which cover topics including (but not limited to):

Agricultural and Biological Sciences, Arts and Humanities, Biochemistry, Genetics and Molecular Biology, Business, Management and Accounting, Chemical Engineering, Chemistry, Computer Science, Decision Sciences, Dentistry, Earth and Planetary Sciences, Economics, Econometrics and Finance, Energy, Engineering, Environmental Science, Health Professions, Immunology and Microbiology, Materials Science, Mathematics, Medicine, Neuroscience, Nursing, Pharmacology, Toxicology and Pharmaceutics, Physics and Astronomy, Psychology, Social Sciences, Veterinary.

IJIAS hopes that Researchers, Graduate students, Developers, Professionals and others would make use of this journal publication for the development of innovation and scientific research. Contributions should not have been previously published nor be currently under consideration for publication elsewhere. All research articles, review articles, short communications and technical notes are pre-reviewed by the editor, and if appropriate, sent for blind peer review.

Accepted papers are available freely with online full-text content upon receiving the final versions, and will be indexed at major academic databases.

Table of Contents

Identifying and analyzing the gaps between the needs and desires of the customers (the case study of Pasargad Bank)

Ezzatollah Asgharizadeh[1], Ahmad Reza Ghasemi[2], and Hamid Sarbaz[2]

[1]Associate Professor, Industrial Management Department, Tehran University, Tehran, Iran

[2]Asst. Professor, Department of Industerial Management Farabi Int. Campus, Iran

ABSTRACT: The purpose of the community service organizations such as banks is providing appropriate and consent services for the customer. Since the organizations, providing financial services and especially banks work in the environment with the non-discriminative products, the quality of service is known as the first competitive weapon. The aim of this study was done to identify affecting factors on the acidity of the Pasargad Bank TC Electronic Banking Services. In this context, a questionnaire based on SERVQUAL model (servqual) and in 6 sections and 24 questions was designed and the service quality gap was measured. Then, by using the Kano model and merge it with the SERVQUAL model more significant indicators of customer satisfaction were identified. The study population sample was constituted of the Pasargadae bank customers and volumes are selected. Obtained results from a sample of 184 people of this study indicate that the seven characteristics as the main reasons for the satisfaction of customers are involved.

KEYWORDS: Quality, Service, Expectations, Service quality, SERVQUAL model, the Kano model.

INTRODUCTION

Due to the globally expansion of the Internet and bank using of e-services for customer service and their increasing need for such services, we were aimed to study the considered e-services and identify that kind of services which is more on the basis of our consideration .in this study along with identifying the needs and costumer wills and analyzing the gap between perceived services by the costumer ,it has been tried to find more significant indicators by classifying the customer needs and to provide solutions to improve e-services of banks (Pasargadae).

THE SUBJECTIVE RESEARCH LITERATURE

Quality Services in literature marketing services is defined in this way: an Overall Customers evaluation of company services. Quality Services perception is the costumer evaluation of the comparison between quality service of what was expected and what has received (Ganguli & Kumar Roy, 2011)

The concept of services quality is provided included process delivery services and the services results. Gerunrus (1984) provide a model evaluation quality services that was includes 3 dimension. These dimensions are as follows:

Technical quality of services "what user receive »

Functional quality "How user receives services, the way of services delivery »

And corporate image "the way of thinking and view of user about Corporate and service that it provide ». (Gerunrus, 1984)

SERVICE QUALITY DIMENSIONS

In 1991 (Lehtinen & Lehtinen, 1991) provide other study about services quality dimensions. These dimensions are including Physical quality , Interactive quality and corporate quality.

Physical quality is about Products tangible quality involved in delivery and services consumption.

Inter active quality refers to the interactions between customers and employees.

And corporate quality also refers to an image that costumer's percept from the company.

About technology-based services, conducted researches by different researchers have stated new dimensions as services quality dimensions. Dimensional Such as: Automated search, Relationship between Customers, Information acquisition, Content, Mass customization and Ease in usage (Brady & Cronin2001).

The concept of SERVQUAL

SERVQUAL

Growing literature continually has been developed in the quality of Service and provide continuous updating and learning from their predecessors' findings and observations. Studies on measuring service quality were begun with Gerunrus work. Gerunrus in 1984 observed that mouth communication, has many effects on the potential customers compared to traditional marketing activities and it was found that the need for quality of service, is based on consumers observations. (Cehhel mardyan, 2009: 60) Later Parasuraman &et al. modeled quality of service as the gap between the consumer and the seller at different levels in 1985. The depth, rigorous and empirical attitude of Parasuraman & et al has led to the conceptual SERVQUAL model proposal that quality of service is evaluated based on five dimensions, including the dimensions and physical aspects, reliability, responsibility, empathy warranty .The Model in 1988 was developed by Parasuraman& et al. to measure the quality of service. SERVQUAL is taken from the Service Quality or quality of service. SERVQUAL is a multi-factorial scale that is used for measuring customer perceptions from the quality of services of a retail organization or its services. SERVQUAL scale is one of the most common methods for measuring the quality of services that by Parasuraman, Berry and Zytmil was arisen. They were starting from 1983 that the services quality assessing project, was approved under the American Marketing Science Institute. By that time (1985) they could examine their findings in the service industries Such as banking, insurance, credit cards, telecommunications, maintenance, security brokers and companies, road transport. This wide range of service industries shows their work depth and reliability of their proposed results. They are designed to perform this full spectrum of research, did various interview groups with customers, employees, managers and front-line forces in the industry, that caused that Their study will be quite practical and the obtained results have fully functional aspects now.

SERVQUAL model in the following are used which are referred to as gaps (slots):

Gap 1: Difference between management perceptions of what customers expect and realistic expectations of customers

Gap 2: Difference between management perceptions and characteristics services quality (service quality standards).

Gap 3: Difference between service quality specifications and actual service delivery, whether standards are consistently adhered to?

Gap 4: Difference between service delivery and what is out of the question, whether the operation is ongoing obligations?

Gap 5: The gap between what customers expect and what they actually received on a service

The main gap in the SERVQUAL model is the fifth and includes "customer dissatisfaction with the received service from the organization." (Koshtegar, 2010: 41), previous studies on service quality expectations are introduced as an effective tool for evaluating the quality of services. Expectations are identified as the aspirations and demands of customers. Service quality that can meet customer requirements and needs and expectations of customers conform to customer expectations with what customers want and what they feel the service provider should offer to them is related. It determines the quality of the customer. Quality of service is evaluated towards what your client expects to receive services.

In the first ten elements of reliability , responsiveness , competence , Access , Courtesy , Communications , credibility , Security , understanding /knowing the customers, physical tangible and evidence were identified as services quality components (Favorite, 1384), but as a results of studies that was done in 1990 that number was reduced to five

components. While studies have been conducted using the SERVQUAL model has shown that "the ensure capability "more of other factors is impressive On Satisfaction (See Mittal And Lasar, 1998).

KANO MODEL

It's all agreed that competition in the industry is growing strongly. Due to the globalization of business, companies are faced with national and international competitors. To counter this threat, many companies are looking for long term benefits. A company's survival largely depends to its ability to identify new customer needs and the development and marketing of advanced products (goods or services). Dr. Noryaky Kano, the Rica Tokyo University professor and one of the leading experts in the science of quality management, proposed a model that is used in most models of customer satisfaction. In his model, he has divided customer requirements ie, quality products into three categories and all types of requirements in a two-dimensional graph is displayed.

Vertical axis, provide horizontal axis satisfaction and customer satisfaction, the requirements quality of the customer. The vertical axis of the graph represents respectively the highest and lowest points of customer satisfaction and customer dissatisfaction. Intersection of horizontal and vertical axis indicates where the customer is at equilibrium in terms of satisfaction or dissatisfaction. The right vertical axis indicates where the quality requirements is expected to be fully released, and the left vertical axis, is providing a quality product that doesn't have the expected and desired quality requirements is not included in any product or service at all. Kano model has three categories of requirements that include:

The basic requirements of the Kano model (BASIC QUALITY): The first group characteristics are the basic requirements of the Dr. Kano vision, which in terms of their complete product only prevent customer dissatisfaction, and do not provide the fulfillment on him.

Kano model functional requirements (PERFORMANCE QUALITY): Second category of the service quality, are the performance products that did not meet their requirements led to customer dissatisfaction and in contrast to fulfill them led to full and proper fulfillment of customer.

Motivational requirements of Kano model (ATTRACTIVE QUALITY): The third class quality in Kano model is quantitative demands that are not considered as the needs and requirements of the product when a customer wants to use them. And therefore no meeting of these qualitative requirements, are not leading to dissatisfaction Customer, but to presents them in a product, brings the high excitement and satisfaction for the customer.

There is no doubt that in a competitive market, products and goods must be brave and take advantage of all three types. Meeting essential quality prevent dissatisfaction and complaints. Accelerating on meeting the expectations in product performance, led to win the competition and innovation in the product would led to customers' motivation and loyalty.

The Kano model is used to see what the most important customers' indicators are. Kano model is defined in three categories; Attractive, single (one) dimension and should category. Slight improvement at the attractive feature led to a significant increase at the customer satisfaction. At the one-dimensional increasing in customer satisfaction is a linear function to improve the specification; But in should category, Level of customer satisfaction does not increase more than a specified amount. To identify the various classes at the Kano model a standardized questionnaire is used. In this questionnaire, the client is asked to announce his/her comment if there is specification or there is no one, in the range of 1 to 5 that the first are called functional, and the latter are non-functional. (Section V of the questionnaire) Then, by using the Kano table, various classes of Kano were identified.

For example, one of the two questions on the questionnaire for this study is

Functional form (desirable) Question What do you think about the Pasargad Bank with a different e-services?	1- very undesirable 2 -not good 3- no matter 4- Good 5 -Very good
Non-functional (non-desirable) Question how do you feel if that does not provide such a service?	1- very undesirable 2 -not good 3- no matter 4- Good 5 -Very good

RESEARCH METHODS

The methods of research on the behavioral sciences can be divided according to the two criteria of research aim and how the data is collected:

This study in terms of the aim is an applied research, applied research, is a research that uses fundamental research to improve and integrity in the conduct, methods, tools, equipment, products, structures and patterns that can be used by human societies.

The nature and mode of data collection is a descriptive study, because the researcher is never going to change the variables percentage and does not only describes what exists and due to the description nature of the study that is explaining the characteristics of a statistical society ,This study is the descriptive symbol.

As mentioned earlier, this study identified the importance of service quality indicators in technology-driven banking activities. To this end, we sought get help to identify the dimensions of the SERVQUAL model   service quality to identify the gap between the ideal situation and the current status.

THE POPULATION AND ANALYSIS UNIT

The population definition: it is a characteristic feature that distinct the population members of the others.

The population is some of the Pasargad Bank's clients, who during a specified time, say a month, referred to the 10 selected branches by researcher (randomly) to receive e-services.

SAMPLE AND SAMPLING METHOD

In this study, cluster sampling will be used.

Given the infinite sample to obtain a sample size first the questionnaire was designed and distributed among 50 clients (prototype) and eventually collected and analyzed 45 questionnaires. Variance of the obtained responses from the prototype was equal to 354/061   and by placing it in the above formula the level of confidence is (95% = α) estimation accuracy (5 = ε) and related strategic issue of sample size is 184. Since it was possible that, however, some may not returned questionnaires, 200 questionnaires were distributed and 184 questionnaires eventually were analyzed.

VALIDITY AND RELIABILITY OF THE STUDY

In this study, to assess the validity Cronbach's alpha was used. And obtained results of the questionnaire reliability analysis by using the SPSS software was % 83/3, which is higher than the minimum level (70%) and so the questionnaire has good reliability.

VALIDITY OF RESEARCH

In this study, for inquiries designing related to the quality of service SERVQUAL tool is used that is provided by Parasuraman and his colleagues and for determining the adjusted degree of importance Kano model and its standard the table is used; So we can say that the mentioned tools have high validity .

A CONCEPTUAL MODEL FOR RESEARCH AND THE NECESSARY STEPS TO DESIGN THIS MODEL

Step One: Reviewing the Customer Survey Models

Step Two: Designing the conceptual model of research

Step Three: Designing the questionnaire

Step Four: pre-test and reliability / validity

Step Five: Understanding and receive customers' demands (Voice of Customer)

Step Six: Determining the desired gap

Step Seven: Determining customer satisfaction scores

Step Eight: Integrating used models and the degree of adjustment significance level
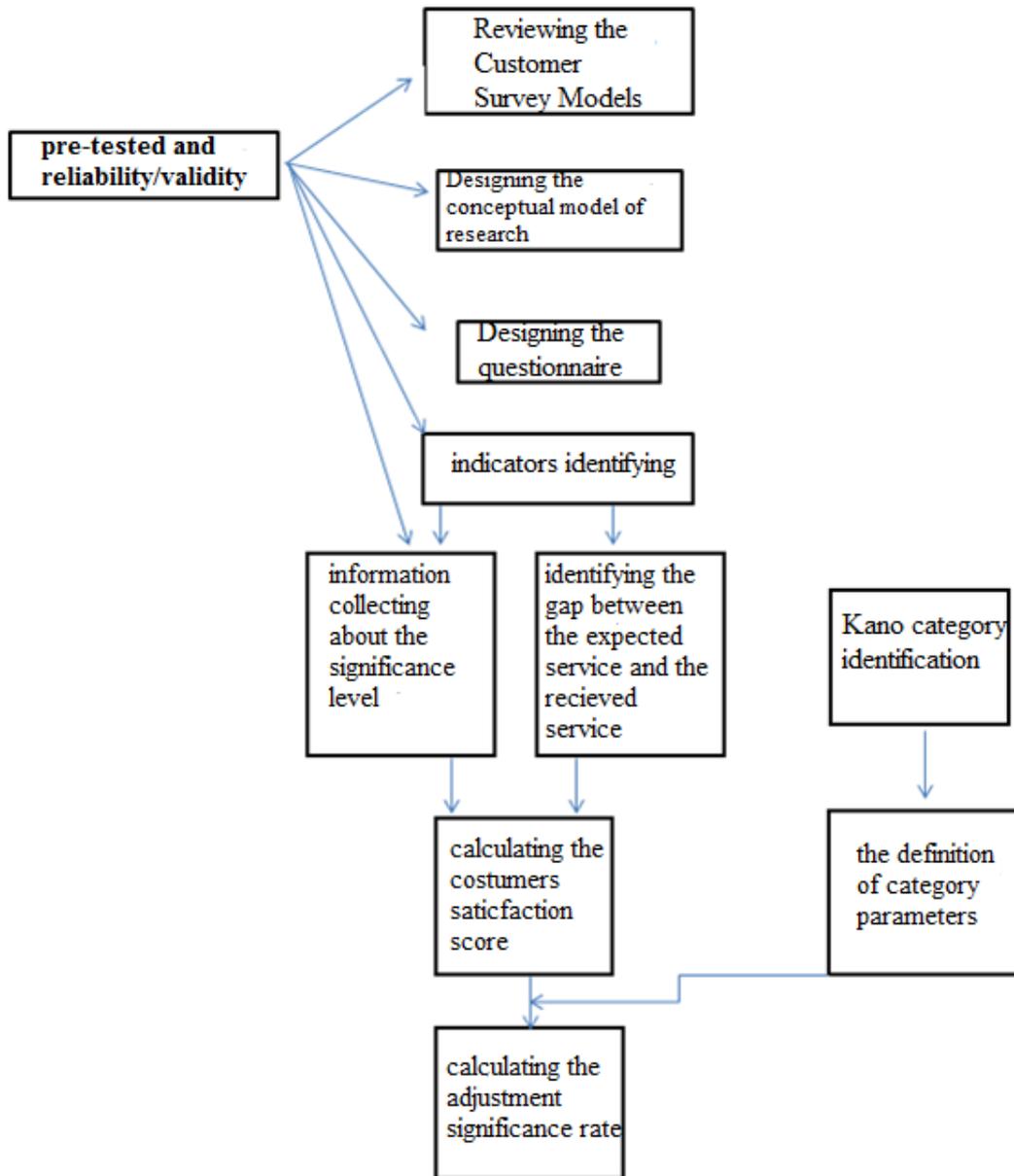
Figure 1 -Conceptual Model of Research

DATA ANALYSIS

Determining the importance extent of each dimension of service quality at each stage first according to the SERVQUAL methodology the dimensions of service quality have been identified to provide electronic banking services which are described below; And the average degree of importance of each dimension is presented.

Table 1-the obtained results of significance rate of each dimension

Dimensions	Significance rate
1- Having a variety of electronic banking services to customers' demands in this field	17.22
2- Pasargad Bank's ability to provide services in a proper manner	17.12
3- Pasargad Bank's willingness to help customers and provide prompt service to them	15.72
4- Students and staff in the implementation of electronic banking services and their ability to build customer confidence and trust in these services	17.47
5-the amount of the bank according to the needs of customers who want to use these services are	15.92
6 -According to the security of electronic services and the importance of confidentiality and customer accounts	16.52

DETERMINING THE CUSTOMER SATISFACTION SCORES FROM EACH OF THE INDICATORS

In order to assess the quality of e-banking services, according to the SERVQUAL model first Calculate the expected average quality (the third part of the questionnaire) and The perceived quality (Part IV of the questionnaire) as indicators of e-banking services in 24 districts examined in this study And Then calculate the gap from the difference between the expected quality and perceived quality. The Customer Satisfaction score is obtained by multiplying the corresponding slot on the significance level of the related dimension. Table 2 shows customer satisfaction scores of each of the indicators.

However, the satisfaction index cannot be given numerical value, but in order to facilitate analysis, the analysis attempts to measure them with the Numerical scale. As the table indicates, all the indicators are negative satisfaction score. This means that the performance of Pasargad Bank about the Electronic Services is not satisfied by the customer.

As mentioned in the Kano model emphasizes are at the three attractive single dimension and the requirements (should).in Table (3) it was determined that the any of identified characteristics of SERVQUAL model is related to which of the Kano models classes. is one of the other classes .

Here, the customers opinion is considered by averaging responses from very poor to very good considering that arrange the numbers 1 to 5 are devoted to that , For example, the mean of 184 results at the first question is number 4-for-performance (optimal) and number 1 for non-functional (unfavorable) recommendations; that is given in the table below. Assigning classes to Kano to each indicator is with respect to functional and non-functional values and the table (3).

Table 2 the customer satisfaction of each of the indicators

rows	indicators	Gaps	significance	The Customer Satisfaction
1	Having different electronic services	-1.11	17.23	-19.03
2	As an Internet service Or The Internet Bank And , ...	-0.99	17.23	-17.05
3	Provider Services Different Device Data Its ATMs	-1.08	17.23	-18.60
4	Having easier and more accessible Service, such as telephone banking, mobile banking and , ...	-0.97	17.23	-16.62
5	A plurality of ATM machines	-0.72	17.23	-12.32
6	Applications software is easily available to customers	-1.31	17.13	-22.43
7	Available to answer customer questions	-1.40	17.13	-23.98
8	Faultless service and the first time	-1.16	15.73	-18.24
9	Services at the time promised to the customer	-1.75	15.73	-27.52
10	Enthusiasm of staff for proper implementation of services	-1.43	15.73	-22.49
11	Use the quick service for bank customers	-1.42	15.73	-22.25
12	Willingness of staff to advise customers	-1.22	15.73	-19.11
13	The exact time of service	-1.82	15.73	-28.54
14	Build confidence in customers Related to electronic services	-1.29	17.48	-22.54
15	Make customers feel safe in posting personal information	-1.34	17.48	-23.33
16	Having the knowledge and skills needed to perform the services	-1.56	17.48	-27.17
17	Create Account Banned simple terms, if the theft or misuse of electronic services	-1.02	17.48	-17.82
18	The Judd Make Sense The Bread Customer The In time The Not The use of electronic services The K The	-1.12	17.48	-19.48
19	Business Hours for Customers	-1.22	15.93	-19.43
20	Identify the specific needs of customers	-1.47	15.93	-23.41
21	Service outside office hours	-1.31	15.93	-20.86
22	Demanded the best interests of clients	-1.35	15.93	-21.50
23	Equipped bank security features	-0.86	16.53	-14.13
24	Confidentiality of customer accounts in banks	-1.00	16.53	-16.44

With regard to it for the first question the M-class is achieved. Kano as well as classes for the rest of the indicators is obtained.

DETERMINING THE DEGREES OF ADJUSTED SIGNIFICANCE

Therefore the assigned values to the parameters for Kano class should be a maximum amount must be allocated to should class and the least to attractive (Shen, 2000, 105) values of 4, 2 and 1, must be used respectively for a one-dimensional, attractive and should classes for our studies. According to the characteristics of each class of Kano, when the aim was that it should seek to fully satisfy, that its characteristics must be related to the one-dimensional and attractive classes, not when the class is should. In summary, the proposed approach consists of two important points that organizations need to pay attention, determining the exact value of the parameter Kano, taking advantage of the value of the adjusted significance as the target value for characteristics and the next step is the adjusted significance degree. This determined value of the adjusted SERVQUAL and Kano's model is the main core of integrating. This number is calculated by multiplying the value of the Kano class, with the customer satisfaction score. With the merger of the SERVQUAL with Kano model customer satisfaction is guaranteed. At table (3) the degree of adjusted significance is provided that is the output of SERVQUAL integration model. We'll see how the Kano score is calculated. First from table (3) classes are removed that their Kano -class features are not only attractive, one-dimensional, and should. So just (AOM) class is extracted and according to the above categories and assigning the numbers 1, 2 and 4, respectively, Kano numbers are defined for each attribute, for example the characteristic (having the Internet services like Internet Bank ….) will be on attractive and number (4) is considered for the attractive class(A)that is presented at table.   Also for the rest of the number Kano characteristics is determined.

Adjusted important is achieved by multiplying satisfaction score (the table 3) in the Kano score that only consists of one-dimensional, attractive and should indicators.

Table (3) the degree of significance adjustment (output of SERVQUAL Kano Model Integration)

Rows	Indicators	Customer satisfaction score	class	Kano score	The adjusted significance degree
1	Having different electronic services	-19.03	M	1	-19.0
2	Having Internet services such as Internet banking ...	-17.05	A	4	-68.2
3	Different services and diversified its dairy processing device	-18.60	A	4	-74.4
4	Having services more accessible and easier such as telephone banking, mobile banking ...	-16.62	I		0.0
5	A plurality of ATM machines	-12.32	O	2	-24.6
6	Applications software is readily available to customers	-22.43	I		0.0
7	Available to answer customer questions	-23.98	I		0.0
8	Providing no wrong services and for the first time	-18.24	I		0.0
9	Services at the time promised to the customer	-27.52	I		0.0
10	Enthusiasm of staff for proper implementation of services	-22.49	O	2	-45.0
11	Use the quick service for bank customers	-22.25	M	1	-22.3
12	Willingness of staff to advise customers	-19.11	I		0.0
13	The exact time of service	-28.54	I		0.0
14	Make sure the clients in relation to electronic services	-22.54	I		0.0
15	Make customers feel safe in posting personal information	-23.33	I		0.0
16	Having the knowledge and skills needed to perform the services	-27.17	I		0.0
17	In case of theft or misuse of the account creation blocked by e-services	-17.82	A	4	-71.3
18	Create customer confidence in the use of e-services	-19.48	A	4	-77.9
19	Business Hours for Customers	-19.43	I		0.0
20	Identify the specific needs of customers	-23.41	I		0.0
21	Service outside office hours	-20.86	I		0.0
22	Demanded the best interests of clients	-21.50	M	1	-21.5
23	Equipped bank security features	-14.13	M	1	-14.1
24	Confidentiality of customer accounts in banks	-16.44	A	4	-65.8

It should be noted as it was mentioned according to the characteristics of each class of Kano, once thought must be full satisfaction of the target that its feature will be for the attractive and one-dimensional classes not when it must be on the should class; so the classes must be removed and at the end specifications based on the degree of adjusted significance level are sorted.

Table (4) the degrees of adjusted significance after removing the should

Characteristics	Kano score	The adjusted significance degree
Having Internet services such as Internet banking and ...	4	-68.2
Different services and diversified device processor	4	-74.4
A plurality of ATM machines	2	-24.6
Enthusiasm of staff for proper implementation of services	2	-45.0
Banned Account simply when if the theft or misuse of electronic services	4	-71.3
Create customer confidence in the use of e-services	4	-77.9
Confidentiality of customer accounts In the banks	4	-65.8

CONCLUSIONS AND RECOMMENDATIONS

The final important task of integrating is determined by Kano model by the significance level moderator   of integrating Kano's satisfaction score. The ultimate significance increased about the demands of a fascinating story. The increase was due to higher adjusted level of significance. For example, in the case of requests (create customer confidence in the use of e-services) an important modulator level is 77.

Adjusted significance level about the demands of a single class is less than attractive. For example, in the case of (desire of employees to properly perform the service) 45 is the ultimate significance that has minor importance compared to the attractive class.

The following diagram the preference parameters differences in the SERVQUAL

Model, SERVQUAL integrating and Kano model is visible.
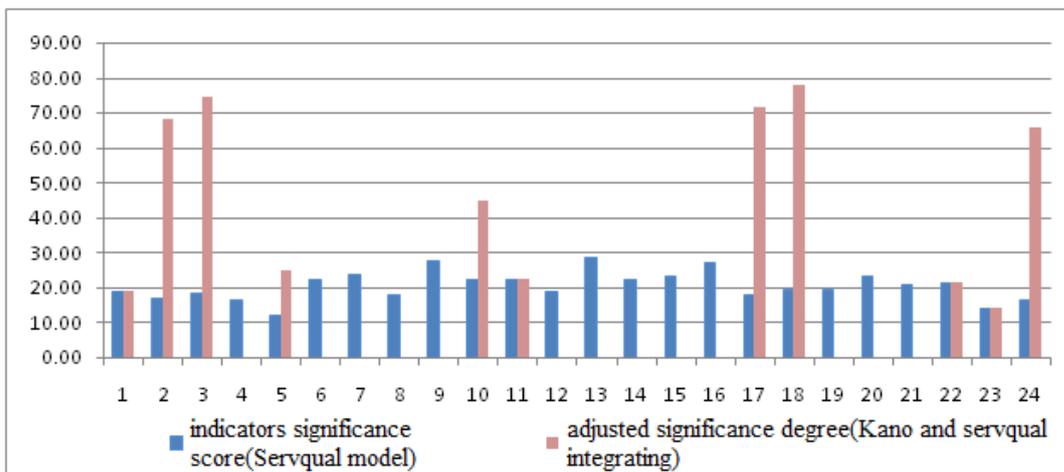
Chart (1) comparing the priority indicators before and after the merging with Kano model

As it was explained only attributes that after the merging were located at attractive and should classes gain the most adjusted significance degree and sort them.

The obtained results of the first more significant that is related to (to create customer confidence in the use of electronic services) Show that It is at attractive classes; i.e. a little in it Led to a significant increase at the customer satisfaction.

The obtained results of the more second significant that are related to the demand (providing different and varied services and ATMs devices) Show that this demand is located at the attractive class .i.e. its little improvement leads to significant increase at customer satisfaction.

The obtained results of the more third significant that are related to the demand (creating conditions to banned Account If was theft or abusive Through Services E) Show that this demand is located at the attractive class .i.e. its little improvement leads to significant increase at customer satisfaction.

The obtained results of the more fourth significant that are related to the demand (having internet services such as internet bank and …..) Show that this demand is located at the attractive class .i.e. its little improvement leads to significant increase at customer satisfaction.

The obtained results of the more fifth significant that are related to the demand (costumer account privacy at the bank) Show that this demand is located at the attractive class .i.e. its little improvement leads to significant increase at customer satisfaction.

The obtained results of the more sixth significant that are related to the demand (employee interest to do services correctly) Show that this demand is located at the single dimension class .i.e. the increase in the customer satisfaction is a linear function of increasing improvement in the specification and there is a direct relationship between those two.

The obtained results of the more seventh significant that are related to the demand (multiplicity of ATMs devices) Show that this demand is located at the single dimension class .i.e. the increase in the customer satisfaction is a linear function of increasing improvement in the specification and there is a direct relationship between those two.

APPLYING RECOMMENDATIONS

In this study, some demands of customers were identified and investigated. If the bank use, the results of their decisions for designing and improving their internet services will be able to avoid dissatisfaction among customers and in addition attract customer satisfaction. In this section these solutions are considered for using at the decision by the Bank.

At the first priority that create customer confidence in the field of electronic services, creating customer confidence is subject to create a sense of security on the use of these services and banks often by using the password for customers banking activities give this assures to the client, that only themselves can use their personal information. For example, Pasargad Bank for using Mobile Banking urged customers to receive password bank for mobile operations in addition to the second password, from the branch of the bank. So as to increase access ensuring to personal information on the customers at the banking activities such as bills.

Regarding the second priority i.e. the different services and different devices as mentioned in chapter two common banking in traditional- is virtual so the majority of clients do most of their banking activities through ATMs . Thus increasing the number of possible operations through these devices may involve customer satisfaction. Such as possibility to withdraw larger amounts or transfer between different cards or bank accounts.

With the increasing use of electronic and non-face to face services to customers and to the possible misuse of their account, Banks should provide conditions that concerns in this area may be reduced to a minimum and Customers can banned simply their account, For example, if their ATM card was theft or misuse of the password and account, and its consequences, For example, Pasargad Bank provided conditions that If the customer is using the Internet and telephone banking ,Received an sms from his/her application to be heard and If the client does not used himself /herself of the account with a turnover informed sms and clear the conditions of abuse it. However, some banks have stepped beyond and inform their customers in case of any deposit and withdrawal at branch by sending a sms and also provide context for customer tracking with tracking numbers after banking activities for example, paying bills. Providing such services Provides more satisfaction for customers.

Having various Internet services such as Internet banking mobile banking and... Was identified as the fourth priority, to achieve this goal and increase customer satisfaction it is proposed that along with creating and the advertising of the services provide conditions for teaching clients how to better use also make sure customers when they use this service. For example, Pasargad in some of its branches provided Email service training to their clients.

To achieve the fifth priority i.e. the confidentiality of customer accounts in banks bank needs to refer it on its advertises And according to the official rules step more to complete realization of this goal. Enthusiasm of staff for proper implementation of services is identified as the six priorities: Since the last decade, with the advent of private banking on Iran it has been welcomed by the public, It can be concluded that changes in management practices of private banks and greater respect for costumer was the success factors of these banks in the past .It is also clear that the attempt and employees interest for the proper implementation of services have particular importance.

Due to the fact that many bank customers in Iran still tend to use their physical locations to do their banking activities, in other words virtual banking is not yet fully implemented in Iran and since peoples welcoming to do their banking from ATM machines it is recommended that banks wants to increase its number of devices Or create the field of using other Internet services and electronic banking by teaching and encouraging their customers

SUGGESTIONS FOR FUTURE RESEARCH

Present study is an example of the application of SERVQUAL and Kano model for services designing. It is suggested that some studies will be done at future research on the applicability of integration study SERVQUAL and TOPSIS method. In this study, due to time constraints and the costs Only 24 characteristics of customer demands derived from the SERVQUAL model was evaluated that If possible, can be used in future studies of other models, including models Gerunrus (1984) To determine the number of parameters to compare them with each other.

REFERENCES

[1] Azar Adel & Mansour Momeni (2001). Statistics and Its Applications Management, Volume II, Tehran, SAMT publication,
[2] hafez-nia. Mohammad Reza, (2006), Introduction to Research Methods in the Human Sciences, Tehran, SAMT publication, Twelfth Edition,
[3] Dell Khah.A. Dyvandari Ali (2005), designed and developed a model for measuring customer satisfaction in the banking industry, according to the bank's customer satisfaction measurement, Journal of Business, 11: 197-200
[4] Shirshendu Ganguli, Sanjit Kumar Roy, (2011) "Generic technology-based service quality dimensions in banking: Impact on customer satisfaction and loyalty", International Journal of Bank Marketing, Vol. 29 Iss: 2, pp.168 - 189
[5] Grönroos, C. (1984). A service quality model and its marketing implications. European Journal of Marketing, 18(4), 36–44
[6] Lehtinen, U. and Lehtinen, J. (1991) Two Approaches to Service Quality Dimensions. *The Service Industries Journal,* 11, 287-303.
[7] Michael K. Brady and J. Joseph Cronin, Jr. (2001) Customer Orientation: Effects on Customer Service Perceptions and Outcome Behaviors *Journal of Service Research*; 3; 241
[8] Zeithaml, V.A. (1988), Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence , Journal of Marketing, 52, 2-22.
[9] Shen, X.X. Tan, K.C. and Xie, M. (2000), An integrated approach to innovative product development using Kano's model and QFD , European Journal of Innovation Management, 3 (2), 91-9.
[10] Parasuraman, A. Zeithaml, V.A. and Berry, L.L. (1988), SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality , Journal of Retailing,64(1), 12-40.
[11] Kano, N. Seraku, N. Takahashi, F. and Tsuji, S. (1984), Attractive quality and must be quality , Quality, 14(2), 39-48.
[12] Parasuraman, A. Zeithaml, A.V. and Berry, L.L. (1988). SERVQUAL: a multiple-item scale for measuring perceptions of service quality. Journal of Retailing, 64 (1), 12-40.
[13] Zeithaml, v. a. and Bitner, M.J. (1996). Service marketing. McGraw-hill international editions, New York, NY
[14] Gronroos, C (2000). Service Management and Marketing, John Wiley & Sons Ltd, p 46.editions,

The relationship between audit opinion change and timing of disclosure

Farzin Rezaei[1] and Parandis Shahroodi[2]

[1]Assistant Professor in Accounting, Member of Management and Accounting Faculty,
Qazvin Branch, Islamic Azad University,
Qazvin, Iran

[2]M. A. Student, Management and Accounting Faculty, Qazvin Branch, Islamic Azad University,
Qazvin, Iran

ABSTRACT: Companies have been found to report positive information more quickly than they report negative information (i.e., good news early, bad news late). This research investigates the impact of audit opinion change on the timeliness of financial disclosures; with improvements in audit opinion considered to be good news and deteriorations in audit opinion is considered to be bad news. Both the direction and the magnitude of audit opinion change is considered, with magnitude measuring how far the opinion is from an unqualified opinion (i.e., an unqualified opinion with emphasis of matter paragraph is closer to an unqualified opinion than a qualified opinion is). Data of 103 firms listed in Tehran Stock Exchange from 2003 to 2013 were used. Findings reveal that firms experiencing an improvement in their audit opinions disclose their financial results earlier, while those with audit opinion deteriorations report their financial results later, and it is also found that the magnitude of audit opinion deterioration is related to delay but there is not significant relationship between the magnitude of audit opinion improvement and timeliness of disclosure.

KEYWORDS: Audit opinion, change in audit opinion, signaling theory, timeliness, unexpected earnings.

1 INTRODUCTION

Financial statements are a structured representation of the financial position and financial performance of an entity. The objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions. With the increasing complexity of business operations and the growth of the investment community, investors are making greater demands for more relevant and more timelyinformation[1].

Timing of financial reports representation is considered as one of the decisions about information disclosure which should be made by the managers. From the perspective of financial statements users, the timeliness of financial reporting is one of the important features in usefulness of accounting information [2]. Therefore, late disclosure of financial information is ineffectual for the economic agents and financial statement users, despite being complete, reliable and comparable.

Auditing is undoubtedly a trusty process about reliability and relevancy of financial statements information. Auditing as an efficient mechanism, assures that whether managers stepped parallel to shareholder's interests or not?[3].In the current social-economical system, the task of optimizing the economic reports and accreditation of the financial statements has been left to the auditors. Auditing report determines the scope of investigation of financial informationand declares auditing findings with the help of audit opinions. Predicting the type of audit opinion has been of great importance during the recent years [4].

The investigation of disclosure strategies and financial reporting choices by firm represents an important and influential domain of accounting research. Prior research suggests managers tend to withhold the release of bad news relative to good

news [5], [6], [7]. Several possible causes of this "good news early, bad news late" phenomenon have been advanced in the literature, such as proprietary reporting costs, the desire to allow more time to disseminate bad news and long horizon career concerns[8]. This paper is dedicated to this part of literature by examining the relationship between audit opinion change and timing of disclosure.

2   PROBLEM DEFINITION

Accounting information including qualitative features released by the firms with the help of a determined periodic timing is one of the information resources used by people participating in capital market to make decision [4]. This information should be disclosed in appropriate time to affect people's decision; accordingly, timeliness of information is one of the mentioned qualitative features. On the other hand, while making financial decisions, investors rely mostly on new information; because they believe previous information has affected the share price and so this sort of information won't lead to make earnings [9].

The timing of earnings disclosure has been examined from a variety of perspectives. These studies are often based on signaling theory, which was originally proposed by Spence (1973) to explain job market behavior[10].Signaling theory helps to explain the behavior of two parties when they have access to different information [11]. Strategic signaling refers to actions taken by a signaler to influence views and behaviors of receivers [12].Signaling theory has been widely used in accounting and auditing studies which proposed that management may signal something about the firm through various aspects of financial information disclosure, which can be viewed as a signal by investors.One of these aspects of disclosure is earnings timeliness. The timing of information disclosures may be seen as a signal of whether the firm has good news or bad news to tell. Early release of financial information may signal some underlying good news (such as earnings increases) that management wants the market to know as soon as possible. Delayed disclosure suggests bad news (such as earnings declines). This proposed relationship can be summed up as "good news early, bad news late" [10].

If there is unfavorable earnings news, however, management may fear a drop in share price resulting from prompt disclosure of this unfavorable news. The share price drop could increase the company's cost of capital and lead to a reduction of manager's compensation. These factors may encourage managers to delay the disclosure of their financial results [10]. Thus career concerns can tempt managers to withhold bad news. These career concerns are arising from the effect of disclosure of bad news on the management compensation which leads managers to undergo the loss of less compensation payment resulting from a drop in the share price [7].

Investors have been found to adversely react to modified audit opinions (typically a qualified audit opinion) with these modified opinion being perceived as unfavorable news[13], [14], [15], [16]. This research stream indicates that investors prefer unqualified audit opinions.

According to an information content perspective, accounting uses the language and algebra of valuation to convey information. The audit report, which is formed within the norms of a professional, standardized language and basic concepts and is transmitted to the capital market through the company's financial reporting supply chain, should have a wealth of information content. Therefore, it is reasonable to suggest that different types of (qualified) audit opinions should contain different types of (bad) news to the investors. For example, the bad news contained in a qualified opinion should be less severe than that in a disclaimer [17].

Given that modified audit opinions are perceived as bad news by the stock market, management may also postpone disclosure when the company has experienced an audit opinion modification, so as to delay the release of this "bad news" [10].

One measure of good news is an improvement in a company's audit opinion and one measure of bad news is deterioration in a company's audit opinion. Therefore it is expected that managers of firms who receive a better audit opinion than the previous year will signal this good news to investors by disclosing their earnings on a more timely basis andIt is also expected managers of firms who receive worse audit opinion than previous year will time disclosure of this news so that they can take advantage of reduced attention of investors. On the other hand, managers conceal bad news in noteworthy time for investors to decrease negative stock market reaction[18].

Some audit opinion changes may be perceived to be better or worse than others. It is also predicted that the magnitude of the change in audit opinion may influence the timeliness of earnings. For example, while going from a qualified opinion to an unqualified opinion with emphasis of matter is good news, going from a qualified opinion to an unqualified opinion (without emphasis of matter) is better news. The greater the improvement in audit opinion, the more motivated management may be to accelerate transmission of the news to the public.

3 BACKGROUND

3.1 ANTECEDENTS OF THE EFFECTIVE FACTORS ON TIMELY REPORTING

Behroozi and soleimani (2013) have studied the relationship between auditing fees and timeliness of accounting information of listed firms in Tehran stock exchange during 2003-2011. They concluded that when the auditing fee increases or audit opinion is unqualified, financial statements are presented more timely. They also realized that some of variables like loss, delay the time of presenting information. Hypotheses testing didn't prove the relationship between debt ratio and timeliness of accounting information [19].

Asli (2010) showed that the earning sign, type of audit opinion and auditing firm are positively related to timeliness while the type of industry and timeliness are negatively related [20].

Dogan et al. (2007) selected their own sample about timeliness of financial reporting, among listed firms in the international stock exchange. This research aimed at examining the relationship between four independent variables; good and bad news about firm, financial risk, size and type of firm industry and timeliness of financial reporting. Results reveal that timeliness of financial reporting is affected by profitability of firm. The firms with good news, have released their financial statements earlier than firms with bad news. Results also showed that firm size and high financial risk have affected timeliness of firm's financial reporting [21].

Ansah and Leventis (2006) have examined efficient factors on annual timely financial reporting procedures in a sample including 95 listed non-financial firms in Athens stock exchange. They studied the relationship between the firm size, leverage, a part of stock which is controlled directly or indirectly by the people inside the organization, number of explanatory paragraph in qualifiedopinion, type of industry and delayed reporting. Results of their research reveal that delayed reporting is related to a part of stock which is controlled directly or indirectly by the people inside the organization, number of explanatory paragraph in qualified opinion, and the size of auditing firm [22].

3.2 ANTECEDENTS OF THE AUDIT OPINION AND THE SHARE PRICE

Anvar Khatibi et al. (2012) have examined the effect of audit opinion on the share price and return on equity in listed firms in Tehran stock exchange during 2002-2008. To do that, they divided audit opinion into qualified and unqualified categories. Results of research showed that there is no significant relationship between audit opinion and share price in confidence level of 0.95. In fact, audit opinion lacks information content in Iran [23].

Hassas Yeganeh and Yaghoubi Manesh (2003) have examined the effect of different types of audit opinion on share price. Results revealed that there is a significant relationship between audit opinion type and share price [24].

3.3 ANTECEDENTS OF THE OUTCOMES OF THE TIMELINESS OF EARNINGS INFORMATION

Studies such as Chambers and Penman (1984), Givoly and Palmon (1982), and Kross and Schroeder (1984) examined the stock market's reaction to the timeliness of financial reporting. These studies have generally found that financial reports published earlier than their expected dates are associated with positive abnormal returns, while disclosures later than expected are related with negative abnormal returns. These results indicate that timeliness can be used as a signal to discern companies with good news from those with bad news, and that investors recognize this signal during their investment decision-making process [25], [26], [27].

3.4 ANTECEDENTS OF THE CHANGES IN EARNINGS AND THE TIMELINESS OF EARNINGS

Researchers such as Givoly and Palmon (1982) and Kross and Schroeder (1984) have examined whether positive earnings news is released earlier than negative earnings. In these studies, positive unexpected earnings were considered to be good news, and negative unexpected earnings were considered as bad news. Using dichotomous variables to measure news type(good or bad news),it was found that "good news" was released earlier than "bad news". These studies generally found support for the notion that good news is disclosed earlier than bad news [26], [27].

3.5 ANTECEDENTS OF THE AUDIT OPINION AND TIMELINESS OF EARNING

Cullinan et al. (2012) investigated the potential impact of audit opinion change on the timeliness of financial disclosures. They found that firms experiencing an improvement in their audit opinions disclose their financial results earlier, while those

with audit opinion deteriorations report their financial results later, and that these effects were related to the magnitude of the opinion change. What's more, there is an asymmetric response to good audit opinion news vs. bad audit opinion news, with bad audit opinion news having a larger effect on earnings timeliness than the effect on earnings timeliness of good audit opinion news [10].

Whittred (1980), Elliot (1982) and Soltani (2002) have examined how a qualified opinion may influence the timeliness of earnings disclosure, based on the notion that qualified opinions are bad news, and that management would prefer to delay the release of bad news. These results show that firms with qualified opinions report their earnings later than firms receiving unqualified opinions [28], [13], [29].

3.6 ANTECEDENTS OF THE JOINT EFFECTS OF CHANGE IN EARNINGS AND AUDIT OPINIONS ON EARNINGS TIMELINESS

Haw et al. (2003) used a sample of Chinese audit opinions from 1995 to 1999 to examine the relationship between audit reports and the timeliness of earnings releases. They also included whether the earnings were good news or bad news (based on whether the earnings were higher or lower than the previous year). Haw et al.(2003) found that both the unexpected earnings and the type of audit opinion affect the timeliness of financial reports. Specifically, firms with positive unexpected earnings news and qualified opinions announce their earnings significantly later than companies with negative earnings surprises but unqualified audit opinions [30].

4 RESEARCH HYPOTHESIS

1) Audit opinion improvement and timeliness of information disclosure are directly related.

2) Audit opinion deterioration and timeliness of information disclosure are inversely related.

3) Magnitude of audit opinion improvement and timeliness of information disclosure are directly related.

4) Magnitude of audit opinion deterioration and timeliness of information disclosure are inversely related.

5 RESEARCH DESIGN

5.1 SAMPLE SELECTION

Statistical population of present research is all the listed firms in Tehran stock exchange from the year 2003 to 2013. Studied samples in this research are selected by screening method and according to the following criteria:

1) Financial period is ended to 12/29 of each year.

2) They shouldn't have any change in fiscal period during the research period.

3) Full information of each firm should be available during the time period of research.

4) Firms should be of the production type.

Considering above items, we have chosen 103 active companies in Tehran stock exchange during the time period of 2003-2013 in order to hypotheses testing.

5.2 DEPENDANT VARIABLE

5.2.1 TIMELINESS OF INFORMATION DISCLOSURE

In this research, timeliness of information disclosure is measured as the reporting delay in comparison with the previous year and is shown by DEL.

$DEL_{i,t} = LAG_{i,t} - LAG_{i,t-1}$

$LAG_{i,t}$ = The number of days from 12/29 of each year (fiscal end-year) to the audit report date (reporting delay of the current year)

If $LAG_{i,t} > LAG_{i,t-1}$, then $DEL_{i,t} > 0$ and it means there is delay.

If $LAG_{i,t} < LAG_{i,t-1}$, then $DEL_{i,t} < 0$ and it means timeliness of information disclosure.

5.3 INDEPENDENT VARIABLES

In the present research, audit opinion improvement (improve), audit opinion deterioration (deter), magnitude of audit opinion change (OPNCHG), magnitude of audit opinion improvement (D_{IMP}*OPNCHG) and magnitude of audit opinion deterioration (D_{DETER}*OPNCHG) are considered as independent variables.

5.3.1 AUDIT OPINION IMPROVEMENT (IMPROVE)

It will take the value of 1, if there is audit opinion improvement which means the audit opinion in year t is better than that in the previous year and 0 otherwise.

5.3.2 AUDIT OPINION DETERIORATION (DETER)

It will take the value of 1, if there is audit opinion deteriorationwhich means the audit opinion in year t is worse than that in the previous year and 0 otherwise.

5.3.3 AUDIT OPINION(AUDOPN)

Ordinal variables AUDOPN are proxy for audit opinion which can take the values of 1, 2, 3, and 4 based on the severity of audit opinion modifications. The larger the value of this variable, the more severity of audit opinion modifications; accordingly, ranks are allocated as followings:

AUDOPN

1: Unqualified opinion
2: Unqualified opinion with emphasis of matter paragraph
3: Qualified opinion with less number of explanatory paragraph than the average number of firms' explanatory paragraph during research period (low-risk qualified opinion)
4: Qualified opinion with more number of explanatory paragraph than the average number of firms' explanatory paragraph during research period (high-risk qualified opinion).

5.3.4 THE MAGNITUDE OF THE CHANGE IN AUDIT OPINION (OPNCHG)

Following the method ofDeFond (1992), we measure improvement and deterioration in audit opinion by subtracting the current audit opinion from the opinion in the previous year to determine the magnitude of audit opinion change (OPNCHG).Thus, the values are among (-3,-2,-1,0,1,2,3). For example, from an unqualified opinion with emphasis of matter to unqualified opinion, the change would be one (2−1=+1), indicating the direction of change is positive. It means there is an improvement in audit opinion, and the magnitude of improvement is one.

$OPNCHG_{i,t}=AUDOPN_{i,t-1} − AUDOPN_{i,t}$

$OPNCHG_{i,t}$ is the change in audit opinion for firm i in year t.

$AUDOPN_{i,t}$is the audit opinion for firm i in year t.

5.3.5 MAGNITUDE OF AUDIT OPINION IMPROVEMENT (D_{IMP}*OPNCHG)

It shows the magnitude of audit opinion improvement and can take the values of 0, 1, 2 and 3.

5.3.6 MAGNITUDE OF AUDIT OPINION DETERIORATION (D_{DETER}*OPNCHG)

It shows the magnitude of audit opinion deterioration and can take the values of 0,-1, -2, and -3.

5.4   CONTROL VARIABLES

In this research, unexpected earnings, audit switch, CEO duality, leverage, firm size and number of pages of financial reports are control variables.

5.4.1   UNEXPECTED EARNINGS (UE)

Firms with successful result (good news) will report faster than firms with unsuccessful operations or firms with accumulated loss (bad news). Obviously, performance of one firm affects significantly its exchange market price and represents applied management skills in the firm. Profitability, measures the efficiency of firm operations. Market uses firm performance for compensating management.Firms with good news (positive performance) for market can expect to enhance the value of their shares and their management team. In this way, firms with bad news (weak or negative performance) will face a drop in their share value. Therefore, management of successful firms are supposed to provide timely news of their performance for the public representation [31]. In the present research, we have used the method of Haw et al. (2003)[30] for measuring unexpected earning which equals to net income changes that are homogenized by total assets.

$$UE_{i,t} = \frac{NI_{i,t} - NI_{i,t-1}}{TA_{i,t-1}}$$

5.4.2   AUDITOR SWITCH (AS)

It takes time for the new auditor to familiarize themselves with the company and to complete the auditing process. Therefore, we anticipate a negative relationship between auditor switch and the timeliness. The binary variable, AS, is used to reflect the change of auditor, and it takes the value of 1 if the auditor is changed, and 0 otherwise.

5.4.3   CEO DUALITY (DUAL)

If the CEO and chairman of the board is the same person, then DUAL=1, and 0 otherwise. It is expected to be positively related to the reporting delay, due to the agency conflicts.

5.4.4   LEVERAGE (LEV)

Leverage is measured by the debt-to-asset ratio. Under the pressure from creditors, firms have less free cash flow, and managers are less likely to benefit themselves at the cost of the firm. Thus, the higher the leverage, the more stimulated the managers are to accelerate the disclosure of financial reports [10].

$$LEV_{it} = \frac{TD}{TA}$$

5.4.5   FIRM SIZE (SIZE)

Usually, large companies are timely reporters forseveral reasons. First, large companies have more resources, moreaccounting staff, and sophisticated accounting information systems thatresult in more timely annual reports. Second, large companies tend tohave strong internal control systems with the consequence that auditorsspend less time in conducting control tests. Delays are, thereforeminimized and this enables the companies to report promptly to thepublic. Third, large companies tend to be followed by a relatively largenumber of financial analysts who usually rely on timely release of annualreports to confirm and revise their expectations of companies' present andfuture economic prospects [20]. Firm size is measured by total assets of firm in the end of financial year. To increase the power of this control variable, natural logarithm of total assets has been used in the model.

$SIZE_{i,t}= LN(TA_{i,t})$

Table 1.Measurements of variables

Measurement	symbol	Variable name	Variable type
Number of days from 12/29 of each year to the auditing report date	LAG	Reporting delay of the current year	Dependent variable
$DEL_{i,t}=LAG_{i,t} -LAG_{i,t-1}$ IF $LAG_{i,t}> LAG_{i,t-1}$ ~~$DEL_{i,t}$~~ > 0 there ~~is~~ →delay IF $LAG_{i,t}< LAG_{i,t-1}$ ~~$DEL_{i,t}$~~ < 0 it sho~~ws~~→ timely disclosure	DEL	Reporting delay in comparison with the previous year	
If there is improvement in audit opinions, Then improve =1, and 0 otherwise.	improve	Audit opinion improvement	Independent variable
If there is deterioration in audit opinions, Then deter =1, and 0 otherwise.	deter	Audit opinion deterioration	
Ordinal variables of AUDOPN are some criteria for audit opinion which can take the values of 1, 2, 3, and 4 based on severity of audit opinion modifications. 1: Unqualified audit opinion 2: Unqualified opinion with emphasis of matter 3: Qualified opinion with less number of explanatory paragraph than the average number of firms' explanatory paragraph during research period (low-risk qualified opinion) 4: Qualified opinion with more number of explanatory paragraph than the average number of firms' explanatory paragraph during research period (high-risk qualified opinion).	AUDOPN	Audit opinion	
$OPNCHG_t = AUDOPN_{t-1} - AUDOPN_t$	OPNCHG	Magnitude of Audit opinion change	
Represents whether there is improvement in audit opinions, and coded 1 if OPNCHG is positive and 0 otherwise.	D_{IMP}	Audit opinion improvement	
Measure the magnitude of audit opinion improvement and can take the values of 0, 1, 2 and 3.	$D_{IMP}*$ OPNCHG	Magnitude of Audit opinion improvement	
Represents whether there is deterioration in audit opinions, and coded 1 if OPNCHG is negative and 0 otherwise.	D_{DETER}	Audit opinion deterioration	
Measure themagnitude of audit opinion deterioration and can take the values of 0,-1, -2, and -3.	$D_{DETER}*$ OPNCHG	Magnitude of Audit opinion deterioration	
$UE_{i,t} = \dfrac{NI_{i,t} - NI_{i,t-1}}{TA_{i,t-1}}$ NI: Net Income Before Extraordinary Items TA: Total assets	UE	Unexpected earnings	Control variable
if the auditor is changed → AS=1	AS	Auditor switch	

otherwise $\longrightarrow$ AS=0			
If the CEO and chairman of the board is the same person, then DUAL=1, and 0 otherwise.	**DUAL**	**CEO Duality**	
$LEV_{it} = \dfrac{TD}{TA}$ TD: Total Debts TA: Total Assets	**LEV**	**Leverage**	
$SIZE_{it} = LN\ (TA_{it})$	**SIZE**	**Firm Size**	

6 DESCRIPTIVE STATISTICS

Table 2.Descriptive Statistics of variables

variable	Symbol	Observations	Average	median	Maximum	Minimum	Standard deviation
Reporting delay in comparison with the previous year	DEL	1133	-1.218	-1.000	62.000	-64.000	15.477
leverage	LEV	1133	0.647	0.652	1.938	0.041	0.191
Magnitude of Audit opinion change	OPNCHG	1133	0.067	0.000	3.000	-3.000	0.878
Number of Pages of financial reports	PAGE	1133	43.142	41.000	90.000	21.000	12.313
Firm size	SIZE	1133	13.062	12.855	18.438	9.778	1.432
Unexpected earnings	UE	1133	0.019	0.014	0.554	-0.727	0.090

7 HYPOTHESIS TESTING

1) Audit opinion improvement and timeliness of information disclosure are directly related.

Table 3.   Regression of timeliness on audit opinion improvement

$DEL_{i,t} = \beta_1 + \beta_2 improve + \beta_3 UE + \beta_4 AS + \beta_5 DUAL + \beta_6 LEV + \beta_7 SIZE + \beta_8 PAGE + \varepsilon_{i,t}$									
symbol	Pooled sample			UE<0			UE>0		
	Coef.	t-Test	Prob	Coef.	t-Test	Prob	Coef.	t-Test	Prob
C	-4.194	-1.024	0.306	-5.568	-1.666	0.096	-3.810	-1.096	0.273
improve	-2.620	-2.238	0.026	-2.668	-2.800	0.005	-2.765	-3.384	0.001
UE	-9.960	-1.875	0.061	-15.639	-0.900	0.369	-8.746	-1.013	0.311
AS	-0.521	-0.403	0.687	-0.514	-0.320	0.749	-0.522	-0.334	0.739
DUAL	0.315	0.203	0.839	0.557	0.389	0.697	0.190	0.135	0.893
LEV	-1.647	-0.745	0.456	-1.139	-0.320	0.749	-1.480	-0.401	0.688
SIZE	0.420	1.253	0.211	0.465	1.232	0.218	0.401	1.054	0.292
PAGE	-0.017	-0.439	0.661	-0.023	-0.581	0.561	-0.016	-0.416	0.678
R^2	0.063			0.063			0.061		
Adjusted R2	0.055			0.055			0.053		
Fstat. (P.Value)	7.691 (0.000)			7.626 (0.000)			7.409 (0.000)		
D.W Stat.	2.016			2.014			2.014		

According to the coefficient of audit opinion improvement variable(improve) (-2.620) and its significance level which equals to 0.026 and so is less than error level of 0.05, we can say in confidence level of 0.95, audit opinion improvement is negatively and significantly related to delayed information disclosure. On the other hand, audit opinion improvement is positively and significantly related to timeliness of information disclosure. As a result, the first hypothesis is accepted.

2) Audit opinion deterioration and timeliness of information disclosure are inversely related.

Table 4.   Regression of timeliness on audit opinion deterioration

$DEL_{i,t} = \beta_1 + \beta_2 deter + \beta_3 UE + \beta_4 AS + \beta_5 DUAL + \beta_6 LEV + \beta_7 SIZE + \beta_8 PAGE + \varepsilon_{i,t}$									
symbol	Pooled sample			UE<0			UE>0		
	Coef.	t-Test	Prob	Coef.	t-Test	Prob	Coef.	t-Test	Prob
C	-3.692	-1.727	0.085	-6.229	-1.872	0.062	-4.422	-1.247	0.213
deter	3.344	4.650	0.000	3.352	2.433	0.015	3.480	2.702	0.007
UE	-10.033	-2.505	0.012	-15.616	-0.882	0.378	-9.410	-1.092	0.275
AS	-1.305	-1.555	0.120	-0.552	-0.354	0.723	-0.561	-0.373	0.710
DUAL	-0.084	-0.103	0.918	0.397	0.284	0.777	0.014	0.010	0.992
LEV	-0.938	-0.604	0.546	-1.272	-0.354	0.723	-1.656	-0.448	0.654
SIZE	0.201	1.004	0.316	0.380	0.998	0.319	0.311	0.801	0.423
PAGE	0.009	0.352	0.725	-0.008	-0.198	0.843	0.000	-0.006	0.995
R^2	0.074			0.065			0.064		
Adjusted R2	0.065			0.057			0.056		
Fstat. (P.Value)	9.017 (0.000)			7.940 (0.000)			7.752 (0.000)		
D.W Stat.	2.067			2.012			2.012		

According to the coefficient of audit opinion deterioration variable (deter) (3.344) and its significance level which equals to 0.000 and so is less than error level of 0.05, we can say audit opinion deterioration is positively and significantly related to delayed information disclosure. As a result, the second hypothesis is accepted.

3) Magnitude of audit opinion improvement and timeliness of information disclosure are directly related.

Table 5. Regression of timeliness on magnitude of audit opinion improvement

$DEL_{i,t} = \alpha + \beta_1 D_{IMP} + \beta_2 OPNCHG + \beta_3 D_{IMP} * OPNCHG + \beta_4 UE + \beta_5 AS + \beta_6 DUAL + \beta_7 LEV + \beta_8 SIZE + \varepsilon_{i,t}$								
symbol	Pooled sample			UE<0			UE>0		
	Coef.	t-Test	Prob	Coef.	t-Test	Prob	Coef.	t-Test	Prob
C	-3.187	-1.623	0.105	-5.340	-1.519	0.129	-3.806	-1.010	0.313
D_{IMP}	0.315	0.193	0.847	-2.352	-1.594	0.111	-2.346	-1.577	0.115
OPNCHG	-1.825	-3.435	0.001	-1.456	-1.705	0.089	-1.540	-1.957	0.051
D_{IMP}*OPNCHG	0.662	0.558	0.577	1.494	1.152	0.250	1.522	1.177	0.239
UE	-9.588	-2.337	0.020	-14.191	-0.781	0.435	-8.456	-0.956	0.339
AS	-1.204	-1.431	0.153	-0.455	-0.290	0.772	-0.462	-0.304	0.762
DUAL	-0.042	-0.052	0.958	0.462	0.329	0.742	0.128	0.093	0.926
LEV	-1.075	-0.679	0.497	-1.180	-0.327	0.744	-1.516	-0.404	0.687
SIZE	0.231	1.628	0.104	0.347	1.097	0.273	0.315	0.975	0.330
R^2	0.071			0.065			0.064		
Adjusted R2	0.062			0.056			0.055		
F stat. (P.Value)	7.727 (0.000)			7.014 (0.000)			6.875 (0.000)		
D.W Stat.	2.064			2.014			2.014		

With respect to the coefficient of magnitude of opinion change variable (OPNCHG) (-1.825) andits significance level which equals to 0.001 and so is less than error level of 0.05, it's obvious that magnitude of opinion change is negatively and significantly related to delayed information disclosure. Considering magnitude of audit opinion improvement (D_{IMP}*OPNCHG) and its significance level which equals to 0.577 and so is more than error level of 0.05, its undeniable that magnitude of audit opinion improvement is not significantly related to timeliness of information disclosure. As the result, third hypothesis is not accepted.

4) Magnitude of audit opinion deterioration and timeliness of information disclosure are inversely related.

Table 6. Regression of timeliness on magnitude of audit opinion deterioration

$DEL_{i,t} = \alpha + \beta_1 D_{DETER} + \beta_2 OPNCHG + \beta_3 D_{DETER} * OPNCHG + \beta_4 UE + \beta_5 AS + \beta_6 DUAL + \beta_7 LEV + \beta_8 SIZE + \varepsilon_{i,t}$								
symbol	Pooled sample			UE<0			UE>0		
	Coef.	t-Test	Prob	Coef.	t-Test	Prob	Coef.	t-Test	Prob
C	-4.179	-1.088	0.277	-5.455	-1.539	0.124	-3.800	-0.996	0.320
D_{DETER}	6.703	3.092	0.002	6.656	3.277	0.001	6.488	2.967	0.003
OPNCHG	-1.207	-1.812	0.070	-1.251	-1.780	0.075	-1.315	-2.179	0.030
D_{DETER}*OPNCHG	4.285	-2.640	0.008	4.286	2.845	0.005	4.142	2.491	0.013
UE	-10.117	-1.518	0.129	-15.397	-0.870	0.385	-9.066	-1.008	0.314
AS	-0.557	-0.374	0.708	-0.548	-0.355	0.723	-0.554	-0.370	0.711
DUAL	0.254	0.164	0.870	0.487	0.334	0.739	0.127	0.088	0.930
LEV	-1.838	-0.520	0.603	-1.319	-0.379	0.705	-1.675	-0.462	0.644
SIZE	0.306	0.937	0.349	0.325	1.014	0.311	0.291	0.887	0.375
R^2	0.070			0.069			0.068		
Adjusted R^2	0.061			0.060			0.059		
F stat. (P.Value)	7.612 (0.000)			7.530 (0.000)			7.363 (0.000)		
D.W Stat.	2.019			2.017			2.017		

According to the coefficient magnitude of opinion change variable (OPNCHG) (-1.207) and its significant level which equals to 0.070 and so is less than error level of 0.10, we can conclude that in error level of 0.10, magnitude of audit opinion change is significantly and negatively related to delayed information disclosure; And based on magnitude of audit opinion deterioration variable (D_{DETER}*OPNCHG), its coefficient (4.285) and its significance level which equals to 0.070 and so is less than error level of 0.05, we can say that magnitude of audit opinion deterioration is significantly and positively related to delayed information disclosure; on the other hand, the relationship between magnitude of audit opinion deterioration and timely disclosure is significant and negative. Accordingly, the fourth hypothesis is accepted.

8   CONCLUSION AND INTERPRETING RESULTS

Empirical evidence in the literature of timely information disclosure indicates that companies release good news earlier than bad news. Theoretical foundations have presented several reasons for positive relationship between audit opinion improvement and timeliness of information disclosure and also negative relationship between audit opinion deterioration and timeliness of information disclosure. Results ontesting the first and second hypotheses suggest that there is a significant relationship between audit opinion change and timing of information disclosure. Audit opinion improvement is regarded as good news and audit opinion deterioration as bad news.

Managers tend to inform the market of good news as soon as possible and also time bad news (unfavorable) so that they can take advantage of investor's reduced attention. On the other hand, managers conceal bad news in noteworthy time for investors to decrease negative stock market reaction. on the other side, signaling theory states timing of information disclosure may be seen as a signal of whether the firm has good news or bad news to report. Early release of financial information may signal some underlying good news (such as earning increase) that managementwants the market to know as soon as possible. Similarly, delayed information disclosure may signal bad news. If there is bad news, management mayfear a drop in the share price resulting from prompt disclosure of this bad news. Drop in the share price can increase the company's cost of capital and lead to a reduction of manager's compensation. This relationship can be summarized as follows: good news early, bad news late. Obtained results by the first and second hypotheses testing support this relationship. These results coincide with those of cullinan et al. (2012) who demonstrated that there is a significant and positive relationship between audit opinion improvement and timeliness of information disclosure and also a significant and negative relationship between audit opinion deterioration and timeliness of information disclosure.

Results ontesting third hypothesis shows that magnitude of audit opinion improvement doesn't affect timeliness of information disclosure but results of fourth hypothesis demonstrates that magnitude of audit opinion deterioration is inversely related to timeliness of information disclosure. When there is good news of audit opinion improvement, it leads management to disclosethe information on a more timely basis and this effect is not related to the magnitude of audit opinion improvement. When there is bad news of audit opinion deterioration, it leads management to delay information disclosure and this effect is related to the magnitude of audit opinion deterioration. Results reveal that the nature of news is more important than the magnitude of its goodness or badness.These results coincide with those of Begley and Fischer (1998) who showed the size of good news is not related to timeliness of disclosure. In contrast, there is a significant relationship between the size of bad news and timeliness of information disclosure and in general, firms with worse newswill delaythe disclosure of earnings longer than those with less bad earnings news.

9   RESEARCH LIMITATIONS

1-Audit opinions are of several qualified type; however, all qualified audit opinions are not equal in terms of severity of audit opinion modifications. Classification of qualified opinions into two categories based on severity of audit opinion modifications is accompanied by complicated judgments.

2-With respect to limited statistical population of disclaimer opinion, companies which had received disclaimer opinion were put aside.

3-Auditing is fundamentally an evaluation process which can lead to useful judgmental information. Accordingly, the type of audit opinion is related to the judgment of auditors of fairness of the financial statements. Variant auditing teams lead to different judgments and consequently, are considered as other limitations of this research.

10 SUGGESTION FOR THE FUTURE RESEARCH

1-This research is supposed to be repeated by separating the types of industry.

2- Since Conservatism proposes an alternative relationship in which bad news is reported earlier, while good news is reported later, future researchers are supposed to consider the effect of conservatism on the relationship between audit opinion change and timing of firm disclosure.

3-Since manager's decisions are not only affected by the rationality and economic criteria, with respect to behavioral and financial topics, categories such as tolerance of risk, self-confidence, culture and type of manager's personalities can also affect the type of relationship between audit opinion change and timing of firm disclosure. Therefore, considering the effects of these factors can be another suggestion for the future research.

REFERENCES

[1]   B. Vuran and B. Adiloglu, " Is Timeliness of Corporate financial reporting related to Accounting Variables? Evidence from Istanbul Stock Exchange, " *International Journal of Business and Social Science*, vol.4, no. 6, pp. 58-70, 2013.

[2]   V. Khodadadi, M. Arabi and F. Taheri deh qotboldini, "The relationship between financial performance and timing of financial reporting of listed companies in Tehran Stock Exchange," *Empirical studies of financial accounting*, no. 34, pp. 151-172, 2012. .

[3]   P.L. Walker, W.G. Shenkir and T.L. Barton, "ERM in practice," *Internal Auditor*, vol. 60, no.4, 2003.

[4]   M. Zeranezhad and A. Jafari, "Factors affecting the timeliness of financial reporting of listed companies in Tehran Stock Exchange," *Journal of the faculty of social science of Semnan university*, no.27, pp. 102-124, 2009.

[5]   J. Patell and M. Wolfson, "Good news, bad news, and the intraday timing of corporate disclosures*. Accounting Review*,vol. 57, no. 3, pp. 509–527, 1982.

[6]   M. Bagnoli, W. Kross, and S. Watts, "The information in management's expected earnings report date: a day late, a penny short," *Journal of Accounting Research*, vol. 40, no. 5, pp. 1275–1296,2002.

[7]   S.P. Kothari, S. Susanand D. Peter, "Do Managers Withhold Bad News?," *Journal of Accounting Research*,vol. 47, no. 1, pp. 241-276,2008.

[8]   A.D. Crabtreeand T.R. Kubick, "Corporate tax avoidance and the timeliness of annual earnings announcements," *Review of Quantitative Finance and Accounting*, vol. 42, no. 1,pp. 51-67,2014.

[9]   H. Etemadi and A. Yarmohamadi, "An investigation of factors affecting the timeliness of mid-term financial reporting of listed companies in Tehran Stock Exchange," *Journal of humanities and social science of Shiraz university*, vol. 19, no. 2, pp. 87-99, 2003.

[10] C.P. Cullinan, F. Wang, B. Yang, andJ. Zhang, "Audit opinion improvement and the timing of disclosure," *Advances in Accounting, incorporating Advances in International Accounting*, vol. 28, no. 2, pp.333-343, 2012.

[11] B. L. Connelly, T. Certo, D. Ireland and C. R. Reutzel, "Signaling theory: a review and assessment," *Journal of Management*, vol. 37, no.1, pp. 39–67, 2011.

[12] T. R. Mavlanova, Benbunan-Fich and M. Koufaris, "Signaling theory and information asymmetry in online commerce," *Information & Management*, vol. 49, Issue 5, pp.240-247, 2012.

[13] J. A. Elliot, ""subject to" audit opinions and abnormal security returns outcomes and ambiguities," *Journal of Accounting Research*, vol. 20, no. 2, pp. 617-638, 1982.

[14] S. Fleak and E. Wilson, "The incremental information content of the going concern audit opinion," *Journal of Accounting Auditing and Finance*, vol.9,pp. 149-166, 1994.

[15] F. Jones, " The information content of the auditor's going concern evaluation," *Journal of Accounting and Public Policy*, vol.15, Issue1, pp. 1-27, 1996.

[16] K. Menon and D. D. Williams, " Investor reaction to going concern audit reports," *The Accounting Review*, vol.85, no.6, pp. 2075-2105,2010.

[17] D. Pei and P. A. Hamill, " Do modified audit opinions for Shanghai listed firms convey heterogeneous information? ," *Journal of International Accounting*, Auditing and Taxation, vol. 22, no.1, pp.1-11, 2013.

[18] H. Qaemi, H. Jahanfar and F. Rezaei, " Management of earnings report day," *Journal of knowledge and accounting*, no.11, pp. 85-104,2012.

[19] A. Behrouzi, B. Banimahd and A. Soleymani, " Audit Fees and Timeliness of Accounting Information: Evidence from iran," *Journal of Basic and Applied Scientific Research*, vol. 3, no. 6, pp. 481-487,2013.

[20] G. T. Asli, "Timeliness of Financial Reporting in Emerging Capital Markets: Evidence from Turkey," *European Financial and Accounting Journal*, vol. 5, no. 1, pp. 113-133, 2010.

[21] M. Dogan, E. Coskun and O. Celik," Is Timing of Financial Reporting Related to Firm Performance? An Examination on Listed Company*," Journal of Financial Markets Research*, ISSN 1986-4310, Issue3,2011.

[22] S. O. Ansah and S. Leventis," Timeliness of Corporate Annual Financial Reporting in Greece," *European Accounting Review*, vol. 15, no. 2, pp. 273-287, 2006.

[23] S. Anvarkhatibi, M. Safashur and J. Mohammadi," The Effect of Auditors Opinions on Shares Prices and Returns in Tehran Stock Exchange," *Research Journal of Management Science*,vol. 1, no. 1, pp. 23-27,2012.

[24] Y. Hassasyegane and S. Yaqubimanesh," The effect of Audit reports on share price," *Journal of Accounting studies*, no. 3, pp. 27-59,2003.

[25] A. E. Chambers and S. H. Penman," Timeliness of reporting and the stock price reaction to earnings announcements,"*Journal of Accounting Research*, vol. 22, no. 1, pp. 21-47,1984.

[26] D. Givoly and D. Palmon, "Timeliness of Annual Earnings Announcements: Some Empirical Evidence,"*The Accounting Review*, vol. 57, no. 3, pp. 486-508, 1982.

[27] W. Kross and D. A. Schroeder,"An empirical investigation of the effect of quarterly earnings announcement timing on stock returns,"*Journal of Accounting Research*, Vol. 22, no. 1, pp. 153-176,1984.

[28] G. P. Whittred,"Audit qualification and the timeliness of corporate annual reports,"*The Accounting Review*, vol. 55, no. 4, pp. 563-577, 1980.

[29] B. Soltani," Timeliness of corporate and audit reports:Some empirical evidence in the French context,"*The International Journal of Accounting*, vol. 37, pp. 215-246, 2002.

[30] G. Haw, K. Park, D. Qi, and W. Wu,"Audit qualification and timing of earnings announcements: Evidence from China," *A Journal of Practice and Theory*, vol. 22, no. 2, pp. 121-145, 2003.

[31] Q. Soleymani amiri and A. Rahimi tamrin," The relationship between timeliness of financial reporting and performance of firms listed in Tegran Stock Exchange," *Empirical Research In Accounting*, no. 11, pp. 21-35, 2014.

Responsibility and optimal financial performance of the companies listed on Tehran stock exchange (TSE)

Seyed Khosro Amiri[1] and Mojtaba Sobhani[2]

[1]Department of Accounting,
Tehran central Branch,
Islamic Azad University, Iran

[2]Department of Accounting,
Qazvin Branch,
Islamic Azad University,
Qazvin, Iran

ABSTRACT: The importance of considering the corporate social responsibility in today's global conditions and new business environments makes it necessary for the leaders and managers of large organizations and companies in the global market to establish a balance among social, economic, and environmental sectors of their business. The aim of this research is to evaluate the commitment of the top companies listed on TSE to corporate governance and social responsibility. In this regard, the performance of 92 companies listed on TSE during the years of 2002 through 2011 were measured, categorized by 10 industries, in three steps of optimization by meta-heuristic algorithms (AMH), social responsibility pattern by DEA method, and ranking corporate governance via G-Score approach. Then, top companies in each criterion were evaluated with their reassigned codes by mean comparison test in SPSS. The results indicate the significant relationship among the companies with the top rank in each index.

KEYWORDS: Corporate governance, social responsibility, optimal financial performance.

1 INTRODUCTION

The current conditions of the world and new business environments required the leaders and managers of organizations of large companies with active participation in global markets take good governance and establish a balance between social, economic and environment sectors of their business. Thus, they can take their responsibilities to all people in the organization and the entire society. It can be said, governance as a concept has emerged with various forms of human organizations. This concept merely includes the concepts and tools by which the organizations manage themselves (Arash and Crowther, 2012). The recent scandals of the companies attracted the attentions to good corporate governance, trust, accountability and economic ethical performance (Marsiglia, and Falautano, 2008). However, the role and governance power are not considered seriously and only net profit and its increase are emphasized mostly (Jamili, 2008). According to a wide survey of "Mackenzie" institution (2009), among 2245 top managers of successful companies all over the world, 75% believe investment in successful plans in various social and non-profit fields can lead to high stock value and good performance via good reputation and universal credit for the relevant company (Khadivifard, 2011). To perform social responsibility of the companies, the economic enterprises should perform four responsibilities (voluntary, ethical, legal and economic responsibilities)(Rahimian, 2012). Under corporate governance, the companies are encouraged to be improved from ethical issues, fairness, performance transparency and accountability and they are expected to continue profitability and at the same time keep their high standards of internal governance. This study evaluated the relations of corporate governance, social responsibility and optimal performance of the companies listed on TSE.

---

2   THE THEORETICAL BASICS AND REVIEW OF LITERATURE

2.1   THE CONCEPT OF SOCIAL RESPONSIBILITY

Today, new problems are created with the development of industries and various business units and it is due to the outcomes and effects of business unit activities on environment and society. Thus, the method of evaluation of organizations performance and their criteria is changed and moving toward social and environmental responsibilities is a vital factor for organizations activity in long-term (Sikka, 2011). Also, the companies with different types consider their success depends upon the society demand for the business activity (Matsoshita, 2010). Besides accountability responsibility to their owners, the companies should perform their social responsibility to protect the health of society (Rahimian, 2012). Today, by raising corporate governance system and its necessity of using, the companies are encouraged to use it in the frameworks as social responsibility in the form of ethics, fairness, transparency and accountability and etc. and with expectation to increase profit in long-term (Abdzade and Beik, 2013). Harvard Boven, the father of social responsibility (1953) defines social responsibility "the obligations of tradesmen to follow the policies, taking decision or following the measures that are good in terms of goals and values of the society (Merfi and Eschel, 2013). Today, corporate social responsibility is used as a concept widely and there is no unit definition for it (*Freeman* and Amir Hasnaoui, 2011). Carol (1999) mentions social responsibility as a multi-dimensional variable evolved in recent decades and it includes various definitions (Font Ethal, 2012). Today, social responsibility is used as monitoring and reliable mechanism to adapt the company with the law and ethical standards (Hejazi et al., 2013). Social responsibilities of companies direct the goals and commercial activities along the social values and society welfare (Emrahzade and Sabet, 2013). Social responsibility of the companies emphasizes on creating wealth via responsible business (Marfue et al., 2013).The commission of the European communities (2001) defines social responsibility as the voluntary integration, by companies, of social and environmental concerns in their commercial operations and in their relationships with interested parties (Mellat Parast, M., Adams, 2012). Social responsibility is the activity performed for the progress of some of social goals beyond the financial goals (Harjoto, 2011). Corporate social responsibility in society except the shareholders is beyond what is described by law and union contract (Johnson, 2010). The main component of social responsibility is ethical accountability (Setayesh et al ., 2013). The useful perception of corporate social responsibility should be based on the attitude of interested parties and both directive and instrumental aspects are considered (Yegane and Barzegar, 2012). Generally, social responsibility follows extra- role duties of enterprise and improving the behavior of enterprise to the condition consistent with the environment and society benefits (Soheil, 2012) as it leads to the consistency of economic benefits with environment and on the other hand the growth and sustainability of business in companies (Qasemi, 20120.

2.2   THE CONCEPT OF CORPORATE GOVERNANCE

Today, protecting public benefits, observing the rights of shareholders, improving the transparency of information and obligation of the companies to play the social responsibility role are the ideals of various executive and monitoring organizations. These ideals are fulfilled based on suitable stable regulations and executive mechanisms, namely corporate governance system (Ahmadpour and Montazeri, 2011). The changes in commercial environments lead to the great corporate renovation in all over the world and fundamental changes in corporate strategy principles (Mehrabi, 2010). The development of corporate governance system mechanism is necessary for sustainable development and economic growth. Definitely, the countries applying corporate governance system mechanism experience high development and capabilities to absorb capital and finally they have better economic condition. In addition, using high quality governance system not only maximizes the wealth of shareholders but also reduces the expenditures of financing (Sheikh and Wang, 2012). Corporate governance is a basic element in the top list of international development and it increases the trust of investor, improves competitiveness and improves economic growth (Mosavi and Ghadakforushan, 2013). Corporate governance establishes balance between economic and social goals of a company regarding the effective use of resources, accountability to use power and behavior of company in social environment. Corporate governance is one of the main issues as the concern of business managers, accountants and auditors, investment managers and state authorities all over the world. The methods of corporate governance restrict various aspects of management roles of companies and establish balance and also are used to develop control mechanism to increase share value and satisfaction of other beneficiaries (Cretu, 2012). The investigations show that famous companies' good reputation depends upon having efficient board of directors and observing corporate governance principles (Babayi and Bakhshayesh, 2013). Corporate governance plays important role in capital markets and it also emphasizes on the fact that from where, how and by which costs, the investment is provided by investors. Creating high participation of micro investors in company is an important issue to create an efficient corporate governance system (Asadi and Khori, 2011). Corporate governance establishes balance between economic and social goals of a company in effective use of resources, accountability to use power and behavior of company in social environment. Corporate governance is

defined as a mechanism to solve the contradiction between the benefits of shareholders and managers (Horn, 2012). To be sure of corporate governance operation, there should be collaboration among the various components of governance system, internal audit, executive management, financial manager, board of directors, shareholders and external auditors (Yassin et al ., 2012).

2.3 THE RELATIONSHIP BETWEEN SOCIAL RESPONSIBILITY AND CORPORATE GOVERNANCE AND ITS IMPACT ON THE PERFORMANCE OF COMPANIES

Based on above mentioned items, there is a definite overlapping between corporate governance and corporate social responsibility. While considering wide principles of corporate governance, corporate governance performs specific responsibilities and it is affected in this regard from the view of all main shareholders (Kendall, 1999) and it guarantees good outcomes for all shareholders (Dunlop, 1998). This assumption is raised regarding corporate governance and social responsibility and based on the principles, the companies should be accountable to their financial and ethical responsibilities (Setayesh et al., 2013). Financial activity is a vital factor to achieve profit and maintaining the trust of financial investors and other shareholders (Page, 2005). Corporate governance and social responsibility of the companies are based on transparency, accountability and honesty (Van and Louche, 2005). Marsiglia, E. and Falautano (2005) proposed that these two factors are developed from various humanitarian aids to investors of company and management strategies and the goal is achieving customers trust and at wide level society. Windsor and Priston (1988) state that in the framework of legal theory, corporate governance and corporate social responsibility are complexly relate to the concepts between the organizations and internal and external social environment and each case is considered as the main pre-requirements of sustainable growth of world trade environment (Van and Louche, 2005). These concepts have long-term and important benefits to guarantee the durability of commercial activities.

2.4 REVIEW OF LITERATURE

Jo, H., Harjoto (2011) investigated the causal the causal effect of corporate governance on corporate social responsibility. After controlling the various features of company, the results showed that lag of corporate social responsibility does not affect corporate governance variables, the lag of corporate governance variables positively affects firms' corporate social responsibility engagement. In another study, they examined the impact of internal and external governance and monitoring mechanism on selecting corporate social responsibility and the value of the companies involved in these activities. They found that selecting corporate social responsibility is positively associated with internal and external governance, monitoring mechanisms including board leadership, board *independence*, institutional ownership and etc. Khan et al., (2012 examined the relationship between corporate governance and the extent of corporate social responsibility disclosures in the annual reports of Bangladeshi companies. A legitimacy theory framework was adopted to understand the extent to which corporate governance characteristics (managerial ownership, public ownership, foreign ownership, and etc.). Various studies have been conducted regarding social responsibility and its effects on performance and it had positive and negative results. One of the reasons is the difference of these results is the variety of cultural, legal, social and economic context of countries and some of the researches are referred briefly as:

Salehi et al., (2013) in a study regarding social responsibility and financial performance of companies listed in TSE found that financial performance has not significant association with corporate social responsibility to the environment employees but financial performance had significant relation with corporate social responsibility to the existing customers and institutions in society. Scott et al., (2010) in a study " corporate social responsibility and financial performance of company" evaluated the relationship between financial performance and social performance of firms. The results of their study showed the positive association between financial performance and social performance of company. Choi et al., (2010) conducted a study among 1222 firms of Korea and the results showed that positive and significant association between financial performance and social responsibility. Neling and Web (2008) evaluated the relationship between financial performance and social responsibilities. The results of the study showed a negative and weak association between financial performance and corporate social performance. Azam et al., (2011) evaluated the impact of corporate governance and corporate performance in oil companies in Pakistan. The results of the study showed that there is a positive effect between corporate governance and corporate performance and by improving corporate governance, return on assets, return on equity, sale ratio margin are increased. Heibatollah Esmi et al., (2011) investigated the impact of corporate governance on performance and value of companies in Chinese companies. They applied an integrated index for corporate governance. They found that integrated criterion of corporate governance has positive and significant association with the value and performance of companies. Vincent O Nicole (2010) evaluated the relationship between performance of companies and size and composition of board of directors. To evaluate the performance, profit before tax and interest and sum of assets and Q-Tobin are used in the study.

The results showed that the size of board of directors and performance are associated inversely and this negative impact is less for small companies and the percent of non-executive managers had positive impact on performance of firms.

3   STUDY METHODOLOGY

3.1   STUDY HYPOTHESIS

There is a significant association between high rank of corporate governance, performing good social responsibility and optimal performance of companies.

3.2   STUDY METHOD

This study is in supporting accounting researches. It is applied and descriptive-correlation in terms of study purpose. This study is app lied as the companies consider social responsibility and corporate governance and this leads to the survival of companies and good reputation and their universal fame in long-term.

3.3   DATA ANALYSIS METHOD

3.3.1   SOCIAL RESPONSIBILITY MODEL

Charns and Cooper raised a new method to evaluate performance and calculation of efficiency of decision making units as "Data envelopment analysis". It is a main factor for inputs and outputs with production function and it shows the maximum output value obtained by a combination of input values. The production function shows efficiency by considering inputs and out puts (Mirhosseini, 2012). The calculation of social responsibility coefficient is performed based on the following model by "data envelopment analysis" with suitable changes.

Fig. 1.   Social responsibility model

The values of output coefficients of social responsibility by DEA method are ranging 0-1. All the companies are identified in each year-company as full value 1 and by considering the sum of highest total score, they are ranked.

3.3.2   THE MODEL OF CORPORATE GOVERNANCE/ THE EVALUATION OF MONITORING (G-SCORE)

To evaluate the monitoring, we can focus on two mechanism involved directly in monitoring of managers on financial reporting decisions and five characteristics of board of director include:1- Size of board of directors, 2- Percent of executive managers, 3- Duality of the role of managing director, 4- tenure of managing director in board of directors, 5- percent of share ownership of managers and two characteristics of institutional shareholders include 6-Share of institutional ownership, 7-Number of institutional shareholders are identified and we compute the monitoring extent via main components analysis. The companies are ranked based on these indices and G-score of each company is computed. For ranking the companies, we score to each of the above characteristics based on the amount and type of effect in monitoring extent and then the score of all items is added and the company with the lowest score has the best rank and the rest of companies are ranked as the same. For example, board of directors' size, if the board of directors is 7, the supervision and decision making for the benefit of the stockholders is more than the time board of directors is 5. Thus, the lower the G-score, the shareholders rights are observed much. The statistical sample is divided into mild, moderate and severe monitoring company-year based on each of monitoring factors (score) and based on the mean of factors (score).

3.3.3   OPTIMIZATION MODEL OF META HEURISTIC ALGORITHMS

Assigned gen Number	Type of performance
1	(ROA) Return on asset
2	(ROE) Return on equity
3	(Q tobin) Index
4	(R_i) Actual return on stock
5	(EVA)Economic value added
6	(MVE)Market value of equity
7	(CE)Cost of equity

Fig. 2.   *Defined variables of algorithm*
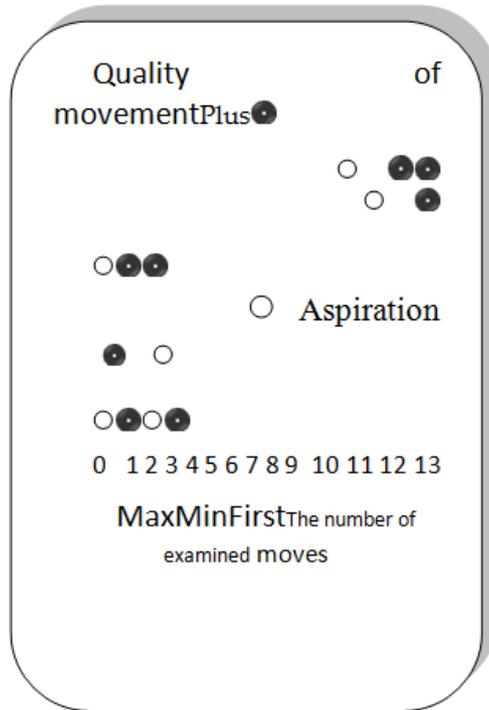
Fig. 3.   *Aspiration plus strategy*

When the total movements are small and are not costly from evaluation aspects, the candidate list can include all present moves. Candidate list strategies considerably can be effective on quality and speed of solution. The present study applied different types of candidate list strategies and Aspiration plus strategy. Aspiration plus considers a threshold for the move being selected and it is based on the previous search information and the answers are tested to find the first answer satisfying this limit. At this moment, other answers equal to the plus is tested and then the best answer is selected. In order to prevent the very little or very much number of answers being tested, this method determines Max and Min of tests. This method is used to adjust threshold limit. If the answers are improved, the threshold limit is increased and if the answers direct to non-improvement, threshold limit is adjusted in iteration based on minimum number of initial moves.

3.3.4   STATISTICAL ANALYSIS METHOD

SPSS software is used to test normality of data (kolmogorov smirnov test) and final test of means comparison (kruskal wallis test) of optimized performance and corporate governance mechanism with the following conditions is used.

The final test of means comparison in 50% of initial top companies is performed based on the assigned code for each company with the aim of identification of the significant relation between the indices (all the companies are identified by a math code to the software and they are identified by these codes to the end of statistical test. This test is performed among the top companies of each index with the assigned code to each company.

Support hyptohesis H_0	$\mu_{k\ 3} = \mu_2 = \mu_1 = \mu_0 = H$	$> Sig\ 0$
Support hypothesis H_1	$H_1 = \mu_1 \neq \mu_2 = \mu_3 = \mu_4$ $H_1 = \mu_1 \neq \mu_2 \neq \mu_3 = \mu_4$ $H_1 = \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_k$	$Sig \leq 0$

Fig. 4.   *The conditions of means comparison test*

3.4   THE STUDY PERIOD AND STATISTICAL SAMPLE

The study population is all the non-financial companies (manufacturing) listed on TSE during 2002 to the end of 2011. The study population is selected by screening and based on the following criteria:1- The activity is manufacturing and the financial institutions, investment, banks, insurance, leasing and holding companies are not included. 2- The companies with maximum 6 months trading stop in the study period, 3- Fiscal year leading to the end of Esfand and those not changing their fiscal period in the study. 4- Their fiscal data is available from the beginning of fiscal year (2001) to the end of fiscal year (2011) (time scope). 5- Book value of their equity is not negative as to obtain growth, the equity book value should be positive. By stratified sampling method, 92 companies of 10 industries (mine extraction, different food and drinking products except sugar, car and parts manufacturing, metal products, other mineral and non-metal products, basic metals, plastic and rubber, machineries and equipment, electric devices and machineries and chemical products) are selected.

3.5   THE OPERATIONAL DEFINITION OF STUDY VARIABLES

Measuring social responsibility variables of DEA model to calculate Efficiency	
Voluntary responsibility	Number of employees(OMP) / Number of owners(Own)
Ethical responsibility	Total accruals (TAC)
Legal responsibility	Share of /Tax on paid performance (Tax)/ Disclosure rank(Dis) employer insurance (OMP)
Economic responsibility	Stock return(Return$_i$)/ Sale growth(Δs)/ Qtobin
Social Responsibility	By conceptual model DEA efficiency coefficient of CR method with the symbol in Figure 1
Measuring corporative governance variables of G-score model designed by Gompers., Ishii,J.,Metrick,A.(2003)	
The monitoring extent and to calculate it by data collection of the characteristics of board of directors (e.g. size of board of directors, percent of executive managers, duality of managing director duty and tenure of managing director) and institutional shareholders feature (e.g. number of institutional shareholders and percent of share ownership of institutional shareholders) and ranking of the sample companies based on the above features and dividing the companies into three levels of high, moderate and low is used. Monitoring by main components analysis method on above variables, two components of variables are extracted and after finding the scores of companies on components, if the score of both components is less than the median of components, value 1 and monitoring low is assigned. If it has 1 on one component and 0 on another component, moderate variable is considered. The multiple data analysis has main role in data analysis. Generally, this method is used to reduce the number of variables and relationship between variables that is classification of variables.	
Measuring optimal performance variables	
OI :Operational profit T :Cost of paid tax $$Qtobin = \frac{OI + D - (T + I + Div)}{TA}$$ I :Paid financial cost FC :Free cash flow Div :Dividend :TA Total assets D :The cost of depreciation of fixed tangible and intangible assets	
$Return \, On \, Asset_{i,t} = \dfrac{NI_{i,t}}{TA_{i,t}}$ NI: Net income / TA :Total assets	

Figure .5   The table of dependent variables of study

$$Return\ On\ Equity_{i,t} = \frac{NI_{i,t}}{TE_{i,t}}$$

NI: Net income /TE :Total equity

$$Cost\ Equity_{i,t} = \frac{EPS_{i,t}}{P_{i,t}}$$

EPS$_{i,t}$: Net earnings per share for future year/

Pi,t: Final price of each share in current year of this variable is calculated by the model based on fixed growth of Gordon.

5)

Economic Value Added =NOPAT- [(TA-CL)*WACC]

NOPAT: net *operating* profit after tax/

TA: Total assets/CL: Current assets/WACC: **Weighted Average Cost of Capital**

Weighted Average Cost of Capital $= \frac{D}{D+E} \times K_d \times (1-t) + \frac{E}{D+E} \times K_e$

WACC: Weighted average cost of capital/D: Sum of interest liabilities/E: Equity/t: Tax rate/Kd: Interest rate

$k_e = R_f + \beta(R_m + R_f)$

R$_f$: Risk-free return rate: R$_m$/ Market return. R$_f$/ Systematic risk : β / .Risk-free return

(6

MVE=LN(NS*MS)

LN: natural logarithm/NS: Number of shares at the end of period/MS: Value of market at the end of period.

(7

R$^i_{k,t}$: Annual return of company k in industry I in period t/

β: Percent of increasing capital from the accumulated profit/

$$R^i_{k,t} = \frac{p_t^i(1+\alpha+\beta)-(p_{t-1}+C\alpha)+D_t}{P_{t-1}+C\alpha}$$

Pt: The price of share market at the end of period t/ Dt:Cash earnings per share for the number of shares in period t/Pt-1: Price of share market at the end of period /C:t-1 Nominal price paid by investors for increasing capital of the claims and cash revenue as equal to 1000Rials.

Fig.6. the table of descriptive statistics

Kurtosis	Skewness	SD	Mean	Min	Max	Sample	Variable
Performance							
40.9325	-43.00	17.2586	3.721	-43.00	181.83	920	Low Monitoring
15.9959	-133.64	24.4257	7.7360	-133.6	163.99	920	Moderate Monitoring
Optimization							
6.893	2.353	17.858	23.33	-0.25	0.77	920	ROA
22.329	-16.161	41.672	28.19	-0.46	0.89	920	ROE
16.755	2.344	13.17	12.63	-0.79	.86	920	R$_l$
-1.056	0.675	10.17	3.23	0.60	124.53	920	MVE
11.598	1.493	8.598	0.095	-0.98	0.88	920	EVA
72.849	6.659	3.747	1.13	-8.82	10.21	920	Q tobin
95.653	13.200	1.119	0.124	-0.81	0.98	920	CE
Social Responsibility							
-0.127	-0.335	0.30061	0.6790	0.00	1.00	920	CR

Fig.7. Descriptive statistics

3.6 THE TEST OF VARIABLES NORMALITY

Normality kolmogorov smirnov test for the variables of the study is based on supporting H0 of data of normal variables, H1 is regarding the distribution of the data of non-normal variables. As shown in Figure 5, Shapiro-Wilk value as sig indicating

significance level is less than confidence interval 0.05 for the data of each variable. Thus, H0 is rejected and H1 hypothesis is supported and the data of the variables are non-normal with high confidence of distribution.

Significance level	Most severe changes			Normal parameters)a.b(		Variables (dependent and independent)
$0 \text{ Sig} \le H_0$ $0 \text{ Sig} > H_1$	Absolute value	Positive	Negative	Mean	SD	
H_1	0.332	.332	-0.290	49.50	13.422	Governance Corporate Monitoring
H_1	0.203	.143	-0.203	41.84	33.718	Social Responsibility
H_1	0.046	0.046	-0.036	42.50	23.422	Optimizing

Max	Min	SD	Mean	N	Variable
66	4	13.422	49.50	46	Governance Corporate Monitoring
84	12	33.718	41.84	46	Social Responsibility
72	2	23.422	42.50	46	Optimizing

Fig.7. kolmogorov smirnov test

3.7 THE TEST OF MEANS COMPARISON (KRUSKAL-WALLIS)

Test statistics (Optimizing, Performance, Social Responsibility)	
141.875	chi-Square statistics
9.00	Degree of freedom
0.368	Significance level

Fig.8. Descriptive statistics of test

The test statistics as the result of test is as H0: The assigned codes of each company in all indices of corporate governance, social responsibility, financial performance have significant relation with each other). H1: The assigned codes of

each company in all indices of corporate governance, social responsibility, financial performance have not significant relation with each other. Chi-square statistics is observed with 9 degree of freedom and significance level p-value 0 and it shows the rejection of H1 hypothesis and supporting H0. Based on the above output, the final result shows that best indices of corporate governance, social responsibility, financial performance are similar in top companies.

4   CONCLUSION

The wealth growth in developed communities increased the consideration to social responsibility and accountability of companies by social groups. The society cost is high with the managers who are not responsible to it. If the companies don't fulfill their social goals, environment pollution, disease, discrimination and disorder will be increased and if required measurements are not taken, they will be encountered with these problems. The present study has been conducted in four stages:

- Designing a good model of social responsibility in Iran without survey research (questionnaire) by DEA model to investigate the social responsibility of companies based on Archive information. 2- Ranking corporate governance to determine the extent of corporate governance by Coomps et al., (2003) method.
- Optimization of the performance of companies by category of each industry with meta heuristic algorithms, 4- The investigation of the significant relation between top companies in corporate governance, social responsibility and financial performance by non-parametric tests (means comparison). 92 companies are studied in the period 2002-2011 (10 years). The results showed the significant association between top companies regarding social responsibility and corporate governance and financial performance of the companies. In other words, the companies with high rank of corporate governance and social responsibility can experience optimal financial performance in industry.

STUDY LIMITATION

- Disclosure rank is issued since 2003 in TSE. The lack of access to 1 year (2002) is considered as the basic limitation in the study.

STUDY RECOMMENDATIONS

THE APPLIED STUDY RECOMMENDATIONS

- Social responsibility creates a good general image. The customers trust in the company observing the social responsibility principles and are anxious regarding paying price to goods or services. If the companies perform their social responsibility well, they can create fame for themselves but not consideration of the companies to this field, the company value and brand are damaged.
- Considering social responsibility encourages the employees to social participation and this creates loyalty to company as the specialized labor force honors the company.
- The consideration of companies to social responsibility and corporate governance is with achieving customers trust and at widely level society.

THE RECOMMENDATIONS FOR FURTHER STUDIES

- Using meta heuristic algorithms to design social responsibility model
- Using fuzzy systems to rank social responsibility and corporate governance
- Using more variables in designing social responsibility model as financial leverage, company size and etc.
- The investigation of the impact of corporate governance on social responsibility with neural networks

REFERENCES

[1] Ahmadpour, Ahmad; Montazeri, Hadi. 2011. The type of earnings management and the impact of firm size, ownership structure and corporate governance on it. Accounting progress. Fall and Winter. 2011. Third period. No. 2, p. 1, 35.

[2] Asadi, Qolamhossein; Khuri, Mehdi. 2011. The theory of shareholders or beneficiary theory. Journal of accounting. NO. 230, p. 60-61.

[3] Emrahzade, Leila. Heidari Sabet, Sare. 2013. Corporate social responsibility, new wave in corporate governance with CSR-CG management system framework. The first national conference of corporate governance of Alzahra University.

[4] Babayi, Mohammad Ali; Bakhshayesh, Zofa. 2013. Corporate governance and control system in Holding companies. First national conference of corporate governance. Alzahra University.

[5] Hejazi, Rezvan; Kamreyi, Marzie and Momenzade, Marzie. 2013. The role of reporting of social responsibility in corporate governance and the performance of firms. First national conference of corporate governance. Alzahra University.

[6] Khadivifard, Ayda. 2011. Shahrivar 16, Reviewing the large companies in the world in encountering with social issues, Economic world newspaper. Pages 28, 29. www.donya-e-eqtesad.com/Default_view.asp?@=268347.

[7] Rahimian, Nezamoldin; Tavakolnia, Esmail; Asadi, Zeinab. 2012. Accounting of social responsibilities/social responsibilities and stability of firms. Formal accountant. Spring 2012, NO. 29, pages 32-40.

[8] Setayesh, Mohammad Hossein; Salimi, Elham; Salemizade, Khadije. 2013. Corporate governance and social responsibilities of organizations. First national conference of corporate governance. Alzahra University.

[9] Salehi, Mehdi Arab; Sadeghi, Qazal, Moinoldin, Mahmood. 2013. The relationship between social responsibility and financial performance of the companies listed on TSE. Year 3. No. 9, pages 1-20.

[10] Qasemi, Parya. 2012. The importance and introduction of social responsibility of companies. Commerce chamber. NO. 70, p. 84.

[11] Marfu, Mohammad; Hassani Alghar, Mohsen; Tavusi, Samane, Tavusi, Mohammad Reza. 2013. Corporate governance and social responsibility in economic enterprises. First national conference of corporate governance, Alzahra University.

[12] Mosavi, Mirhossein; Ghadakforushan, Maryam. 2013. Corporate governance and control system in Holding companies. First national conference of corporate governance. Alzahra University.

[13] MEhrabi, Seyed Mehdi. Corporate governance and its challenges. Economic world. No. 2139. Tir. 2010.

[14] Arash , G. & Crowther, D.(2012). Global Perspectives on Corporate Governance and CSR on Corporate Governance and CSR. Gower Publishing Limited, England.

[15] Cretu, R. F. (2012), Corporate Governance and Corporate Diversification Strategies, Review of International Comparative Management, Volume 13, Issue 4.

[16] Choi, Jong-Seo; Kwak, Young-Ming; Choe, Chong woo. (2010) .Corporate social responsibility and corporate financial performance: Evidence from Korea. Australian Journal of Management, 53 (3), P 291-311

[17] Gompers, P., Ishii, J.,Metrick,A., (2003). Corporate governanceand equity prices.Quarterly Journal of Economics 118, 107–155.

[18] Dunlop, A. (1998). Corporate Governance and Control. CIMA Publishing, London Elkington, J. (2006) Governance for sustainability. Corporate Governance an International Review, 14, 522-529.

[19] Font, X., Walmsley, A., Cogotti, S, . McCombes, L, . And Husler, N., (2012), corporate social responsibility.

[20] Jamali, D., Safoeddine, A. M., Rabbath, M.,(2008). Corporate Governance and Corporate Social Responsibility Synergies and Interrelationship. Corporate Governance International Review. 16, 433-495.

[21] Johnson, Brian R.; Connolly, Eric; Carter, Timothy S. (2010) . Corporate social responsibility: The role of fortune 100 companies in domestic and international natural disasters. Journal of Corporate Social Responsibility and Environmental Management, 18 (6), 352-369.

[22] Jo, H., Harjoto, M. A., (2011). Corporate Governance and Firm Value: The impact of Corporate Social Responsibility. Journal of Business Ethics, 103, 351-383.

[23] Harjoto, Maretno A. (2011). Corporate Governance and CSR nexus. Journal of Business Ethics, 100 (1), 45-67.

[24] Kendall, N. (1999). Good corporate governance. Accounting' Digest. Issue 40. The ICA in England.

[25] Khan, A., Badrul Muttakin, M., Siddiqui, J., (2012). Corporate Governance and Corporate Social Responsibility Disclosures: Evidence from an Emerging Economy. Journal of Business Ethics.

[26] Marsiglia, E. and Falautano, I. (2005). Corporate social responsibility challenges for a Banc assurance Company, The Geneva Paper, 30, 485-397.

[27] Murphy, P.E. And Schlegelmilch, B. B. (2013). Corporate social responsibility and corporate social irresponsibility: Inttoduction to a special section. Journal of Business Research.

[28] Mellat Parast, M., Adams, S.G., (2012), corporate social responsibility, benchmarking, and organizational performance in the petroleum industry: A quality management Perspective, Int.J.Production Economics, Vol. 139.

[29] Nadeem Ahmed Sheikh, Zongjun Wang, (2012),"Effects of corporate governance on capital structure: empirical evidence from Pakistan", Corporate Governance, Vol. 12 Iss: 5 pp. 629 – 641.

[30] Page, J. P. (2005). Corporate Governance and Value Creation. Research Foundation of CFA Institute, University, University of Sherbrook.

[31] Sikka, Prem(2011), Accounting for human right: The challenge of globalization and foreign investment agreements, Journal of Critical Perspective on Accounting. London: Nov 2011, Vol.22, Iss. 8: p, 811.

[32] Saahil Kaul. (2012) "Corporate Governance and Corporate Social Responsibility Post Companies Bill 2012: An Analysis" Electronic copy available at: http://ssrn.com/abstract=2243319.

[33] Van den Berghe, L. and Louche, C.(2005). The link between corporate governance and corporate social responsibility in insurance. The Geneva Papers, 30, 425-442.

[34] Vincent O_Connell a,*, Nicole Cramer b, The relationship between firm performance and board characteristics in Ireland,European Management Journal (2010) 28, 387– 399

[35] Yassin, N. and Ghanem, M. and Rustom, L. (2012) ,"The role of internal audit function in corporate governance: empirical study on commercial banks in Lebanon", international conference Orlando, available at: http://www.aabri.com.

Fulfillment of social responsibility in active political and non- political companies in Tehran Stock Exchange

Seyed Khosro Amiri[1] and Mojtaba Sobhani[2]

[1]Department of Accounting,
Tehran central Branch,
Islamic Azad University, Iran

[2]Department of Accounting,
Qazvin Branch,
Islamic Azad University,
Qazvin, Iran

ABSTRACT: The social responsibility tends to something beyond the primary tasks of enterprise and in fact upgrading the corporate behavior level to a situation that is consistent and coordinated with benefits of environment and community where in light of this factor on the one hand it causes coordination in economic interests with environment and on the other hand it leads to growth and stability of businesses of enterprises. The present investigation is intended to examine making effort for social responsibility in political and non- political companies. The period of researching studies is related to career (2002-2011) with statistical sample including 92 enterprises. This research has been carried out at three phases: (1-Measurement of social responsibility with DEA model; 2- Measurement of political and non- political companies by means of TOPSIS technique; and 3- Implementation of statistical tests). The given results have signified the difference among political and non- political enterprises in playing role of social responsibility.

KEYWORDS: Social Responsibility, Political Enterprises, Non- Political Enterprises.

1   INTRODUCTION

Today, the business unit may not escape from the community and at the same time the society could not survive without the commercial unit. Thus, there is two-way relationship among the commercial unit with the community (Salehi et al, 2013). Although, most of people and environment, which constitute the surroundings of the economic enterprises, are the main audiences in theory of beneficiaries, the other major audiences such as government, personnel, and other non-governmental organizations (NGOs) may intervene and in contrast they may prepare the appropriate grounds for development and progress of business units with providing the needed conditions for acquisition of the return and equity by the investors and creating confidence for the beneficiaries regarding lack of arbitrages and unfair activities (Sandhu and Kapoor, 2010). ISO26000 assumes the social responsibility as the task of enterprises regarding the effects of their decisions and activities for the community and environment through transparent and moral behavior (ISO, 2010). The Corporate Social Responsibility (CSR) consists of the process of creating wealth, upgrading the corporate competitiveness advantage, and maximization of value and the created wealth for the community (Zhu, 2008) that in general considers the commitment and paying attention to business toward quality of life for personnel, customers, local community, and total society in the course of sustainable economic development (Holme & Watts, 2000). In the conducted polling in Mac Kinsey great leading institute in 2009, of 2245 Top managers (CEOs) from the prosperous companies throughout the world, about 75% of them argued that investment in execution of strong and successful plans in various social and benevolent fields might be followed by higher stock value and thus appropriate performance for the enterprise by creating reputation and comprehensive credit in the long

run (Khadivi Fard, 2011). To fulfill the corporate social responsibility, the economic enterprises are required foe execution of four responsibilities (voluntary, moral, legal, and economic responsibilities) (Rahimian, 2012). The present essay is aimed at the effort made by political and non- political enterprises regarding social responsibility. Initially, the coefficients of social responsibility of political and non- political companies have been extracted according to the archived data by employing TOPSIS model through dividing them into political and non- political types and then by means of DEA technique and finally the difference among the values of the coefficients specified to any year- for political and non- political enterprises are proved by test of means comparison and the preference of political or non- political type of enterprises is determined by independent t-test.

2 THEORETICAL BASES AND RESEARCH HISTORY

2.1 CONCEPT OF SOCIAL RESPONSIBILITY

Today along with growth and developing of various industries and commercial units, some new issues and problems have been created which caused by consequences and effects of activities in commercial units on environment and community. Therefore, the quality of evaluation of performance in organizations and their criteria have been transformed and moving in the course of social and environmental responsibilities has been turned into a requisite and vital factor for continuance of organizational activity in long term (Sikka, 2011). Also, the enterprises know this point well that in whatever type of companies they are, they are owed to the demand of community for their business activity in order to survive their foundation and success (Matsoshita, 2010). Rather than fulfillment of accountability to their owners, the enterprises are required for fulfillment of their own social responsibility to preserve health of community (Rahimian, 2012). Today, following to presentation of corporate leadership system and necessity for its application, the enterprises are encouraged to employ it within some frameworks such as social responsibility within the limit of morality, fairness, transparency, and accountability etc with hoping for rising return and profit in the long run (Abd Zadeh & Baik, 2013). Howard Bowen as father of social responsibility (1953) defines the social responsibility as 'the merchants' liabilities to follow the policies, decision making, and or obeying the appropriate measures in terms of goals and values in the community' (Murphy & Schlegelmilch, 2013). Today, the Corporate Social Responsibility (CSR) is employed widely and generally as a concept and there is no single definition that is unanimously agreed by all of people (Freeman & Hasnaoui, 2011) and Carol (1999) also refers to social responsibility as a multidimensional variable that has been evolved during recent decades and it includes various definitions (Font et al, 2012).

Today, the social responsibility is utilized as a regulatory and trustful mechanism to adjust the enterprise with spirit of law and ethical standards (Hejazi et al, 2013). The social responsibilities put the enterprises and commercial goals and activities in the course of social values and welfare in the community (Amrah Zadeh & Sabet, 2013). The corporate social responsibility emphasizes on quality of creation of wealth by responsive business (Marfo et al, 2013). European Commission (2001) defines the social responsibility as 'A voluntary composition of social and environmental considerations in commercial operation of enterprises and their relations with the interest groups' (Mellat Parast & Adams, 2012). The social responsibility is an activity that is done to advance some of social goals beyond the financial objectives (Harjoto, 2011). Regarding corporate social responsibility, rather than shareholders the other groups are further responsible beyond what it has been described by the regulation and contract of union (Johnson, 2010). The main essence of social responsibility is the ethical responsiveness (Setayesh et al, 2013). The useful imagination and perception of corporate social responsibility should be based on attitude of beneficiaries and both instructive and instrumental aspect of this paradigm should be addressed (Yehaneh & Barzgar, 2012). Overall, social responsibility tends to find something beyond the corporate primary tasks and in fact upgrading the corporate behavior level toward a consistent and coordinated status with the environmental and social interests (Kaul, 2012) that under the light of this factor on the one hand it may cause coordination of economic interests with the environment and on the other hand it leads to developing and stability of business in the enterprises (Ghasemi, 2012).

Tendency and persistence of commercial unit to commitment to social responsibility in all its dimensions may noticeably affect on financial performance; in fact, tendency to social responsibility may encourage the commercial unit for improving the environment, utilization from lesser energy and materials, management of wastes etc (Sandhu & Kapoor, 2010). As a result, the commercial unit can voluntarily maximize their long- term efficiencies and returns with reducing their negative effects on the community so that today this paradigm has formed growingly among commercial units as a result their long-term achievement may be realized by managing corporate operation simultaneously with creation of confidence for environmental support and advancement of corporate social responsibility as well (Samy et al, 2008). Hence, the corporate social responsibility leads to improving corporate achievement in long run and finally it causes economic growth and rising of corporate competitive advantage and improvement in its financial performance (Sanchez et al, 2010). On the other hand, the social responsibility may affect on all dimensions of corporate (organizations) performance from two aspects at macro level.

First is that investors (consumers) ask for investment (goods purchase) in their trusted enterprises (organizations) and secondly the corporate social responsibility acts as an important element in their strategy, which will be assumed as vital in 21st century due to some reasons including rising wealth, expectations of social variables like consumer, globalization, and data free stream, and also rational use of energy and ecologic resources (Chandler, 2006). The internal practice of social responsibility may lead to improving corporate position and eventually rising efficiency and profitability and at last their survival in the long run (Cardebat & Sirvan, 2010). The advantages of corporate social responsibility are as follows: 1) Reduced management risk (ease of access to credits, increased value of assets for investors, and supporting from beneficiaries etc); 2) Lower direct costs (energy, materials, and wasted time etc); 3) Rising of personnel's productivity (increased motive and reduced absenteeism etc); 4) Improved corporate competitive image (Pettenella, 2010). The financial directors and accountants play vital role in the organizations in the related fields of social responsibilities such as reporting, transparency, ethical principles, compliance to law, communication with beneficiaries and consumption of resources (Albo, 2014) while the major part of accounting data in social responsibility has non- financial nature. Instead of being assumed as a part of main report, this information is usually found in part of notes from annual reports (Nik Mohammad et al, 2011). It necessitates for financial directors and accountants to know this point that the current commercial environment has provided several opportunities and threats for the accountants and accounting profession should be changed with increasing importance of ecologic issues, social responsibility, and risk management and reporting (Carnegie & Napier, 2010).

2.2   POLITICAL AND NON- POLITICAL ENTERPRISES

The financial reporting should provide information about financial status performance, and flexibility (elasticity) of business unit for the users of financial statements by means of the financial reports so that they are able to make the best decision with respect to the given information. But, the financial reports may not be actually proposed for managerial objectives. The accounting return (profit) is one of elements in financial reports, which is assumed as the foremost criterion in corporate performance and as a basis for making decisions for investment, financing, and measurement of directors' performance and serves as a criterion for performance of economic sector of the community at macro level that highly affects on macro and micro policies of the governments. The conducted studies have indicated that the directors balance the reported profits by taking certain accounting policies, judgment, changing in accounting estimations and managing of accruals and for this reason, the reported profit may be far away from the actual return and has no the adequate objectivity (Stoloy & Bereton, 2004).

The more recent studies have shown that the directors affect on quality of financial reporting by political communications (i.e. the possibility of corporate interaction with the government and governance). Johnson and Mitton (2003), Leos and Eberhelzer (2006), Guedhami and Pitman (2006), Bertrand et al (2007), Eighul et al (2011), Chaney et al (2011), Kian et al (2011), Blasé and Goal (2012), and Boubakri et al (2012) indicated in their studies that the political relations might act as tool for profit management, manipulation of results, performance etc in enterprises.

2.3   RESEARCH HISTORY

Many studies have been conducted regarding social responsibility and its effects on performance and they have been followed by several positive, negative, and neutral results. The cultural, legal, social, and economic texture of the countries is one of the reasons for difference in these outcomes so it is referred briefly to some of these investigations in the following: In an investigation under title of 'the relationship between social responsibility and financial performance of listed companies on the Stock Exchange', Salehi et al (2013) studied on this issue. The results of this survey showed that there was no significant relationship among financial performance with corporate social responsibility toward the customers and the existing items in the community. In their study titled as 'the corporate social responsibility and financial of performance of enterprise', Scott et al (2010) examined the relationship among financial performance and corporate social responsibility in which the results of their study signified the existing positive relationship among financial performance and corporate social responsibility. Choi et al (2010) conducted a research among 1222 enterprises in Korea where the results of their study suggested the existing positive and significant relationship among financial performance with social responsibility. Nelling and Web (2008) explored the relationship among financial performance and corporate social performance. The results of this investigation signified the existing negative and weak relationship among the financial performance and corporate social performance. Similarly, in a study under title of 'Financial performance and corporate social performance', Vanderlan et al (2008) examined the relationship among financial performance and social performance of enterprises in which the results of this study reflected the negative relationship among financial performance and corporate social performance. Simpson and Kohers (2002) investigated into the relationship among performance and corporate social performance in banking industry of Netherland in a research under title of 'the relationship among performance and corporate social performance' where the

results of their survey indicated the existing positive relationship among this financial performance with social performance. Tsoutsoura (2004) explored that relationship among corporate social responsibility with their financial performance. The results of this investigation showed a positive and significant relationship among financial performance with corporate social performance. The neutral relationship (lack of relation) among these two variables has been proved by these studies. This investigation expresses that whereas the general status of company and community is very complicated thus there is no direct relationship among corporate responsibility with its financial performance (Simpson & Kohers, 2002) (Tsoutsoura, 2004).

3   RESEARCH METHODOLOGY

3.1   RESEARCH QUESTION

Is social responsibility identical in both political and political enterprises?

3.2   METHODOLOGY

This investigation is done in the field of accounting confirmatory researches and it is assumed as one of the applied descriptive- correlation studies in terms of objective. What it leads this study to its applied nature is paying attention to subject of social responsibility by the enterprises, which may cause survival for enterprises and growth and reputation and their comprehensive credit in the long run.

3.3   ANALYSIS TECHNIQUE

3.3.1   SOCIAL RESPONSIBILITY MODEL

Charnes and Copper proposed a new method for evaluation of performance and calculation of efficiency in decision-making units under title of Data Envelopment Analysis (DEA) that is considered as a basis for relations between inputs and outputs with concept of production function where this production function indicates the maximum value for outputs and it is derived from a composition of input values. The production function indicates rate of efficiency by considering inputs and outputs (Mirhassani, 2012). The social responsibility coefficient has been calculated by the following model with appropriate variance by means of Data Envelopment Analysis (DEA).

Fig. 1.   Social responsibility model

The values of social responsibility coefficients, which are derived from DEA method, ranged within interval (0-1). All of the studied enterprises have been identified in any year- company including full number 1 and then they have been ranked by considering sum of the greatest full score.

3.3.2   THE DETERMINATION MODEL FOR POLITICAL AND NON- POLITICAL ENTERPRISES

The political enterprises in this study have been measured by means of Multi- Criteria Decision Making (MCDM) model with TOPSIS techniques and through weighting by entropy method. To separate political companies from non- political enterprises, the indices of political costs have been utilized with respect to Diagram (6). The decision matrix for separation of political companies from non- political enterprises is shown by TOPSIS technique in Diagram (2):

Employer's premium & unemployment insurance (down-payment)	Sum of exported sale	Number of personnel	Income tax	Sum of assets	value in stock exchange market	Separation variables of enterprises / companies in year
X_{1m}	...	...	...	X_{12}	X_{11}	X
X_{2m}	...	...	...	X_{22}	X_{21}	X_2
⋮	⋮	⋮	⋮	⋮	⋮	⋮
X_{nm}	...	...	...	X_{n2}	X_{n1}	X_n

Fig. 2.   Decision matrix for separation of political from non- political enterprises

This technique is based on this concept that the selected choice should be located at the minimum distance from the ideal positive solution (profit index) and the maximum distance from the negative ideal value (cost index) (Asgarpoor, 2004). In this matrix, the return (equity) index has the incremental uniform utility (positive aspect) and also cost parameter is the decremental uniform utility (negative aspect). In this survey, the parameters for separation of companies with widely political interactions with government have incremental uniform utility (positive aspect) and therefore they are considered as return (profit) index. Similarly, whereas the indices are not identically important for the decision-makers thus weights of indices have been determined by Shannon entropy technique and they entered as input into TOPSIS algorithm. After weighting them by means of TOPSIS technique and measurement and ranking by entropy method, the enterprises were classified into three groups in which the enterprises with wide political interactions were ranked as the higher class and the companies with the limited political relations were identified as the lowest rank while the companies in middle group were excluded from this study.

3.3.3   THE PHASES OF PROBLEM SOLVING BY TOPSIS METHOD

Step I: Normalization of decision matrix

At this step, we compare the existing scales in decision matrix by means of Eq. (6). As a result, each of values is divided by values of the related vector to the given index.

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}} \qquad \textbf{Eq. (1)}$$

Step II: Weighting the normalized decision matrix

The weighted normalized matrix is derived from Eq. (2):

$$V_{ij} = r_{ij} \times w_j \quad W = (w_1, w_2, \ldots, w_j, \ldots, w_n) \qquad Eq. (2)$$

Step III: Determining the positive and negative ideal solutions

$$A^+ = \{(Max\ V_{ij} \mid j \in J), (Min\ V_{ij} \mid j \in J') \mid (i = 1,2,\ldots,m)\} = (V_1^+, V_2^+, \ldots, V_n^+)$$

$$A^- = \{(Min\ V_{ij} \mid j \in J), (Max\ V_{ij} \mid j \in J') \mid (i = 1,2,\ldots,m)\} = (V_1^-, V_2^-, \ldots, V_n^-)$$

$$J = \{j = 1,2,\ldots,n \mid J \ related\ to\ positive\ indices\} \quad J' = \{j = 1,2,\ldots,n \mid J'\ related\ to\ negative\ indices\}$$

Two virtual created choices of A^+ (Positive ideal choice) and A^- (negative ideal choice are the best and worst solutions, respectively. It should be noted that the positive ideal value of any index is its maximum value and the negative ideal value of any index is its minimum value.

Step IV: Acquisition the size of distances

The distance of ith choice of positive and negative ideal values is calculated respectively as follows:

$$d_i^+ = \sqrt{\sum_{j=1}^{n}(V_{ij} - V_j^+)^2} \qquad i = 1,2,\ldots,m \qquad \textbf{Eq. (3)}$$

$$d_i^- = \sqrt{\sum_{j=1}^{n}(V_{ij} - V_j^-)^2} \qquad i = 1,2,\ldots,m \qquad \textbf{Eq. (4)}$$

Step V: The calculation of relative proximity A_i to ideal solution A^+

$$CL_i^+ = \frac{d_i^-}{d_i^- + d_i^+} \quad i = 1,2,\ldots,m \qquad 0 \le CL_i^+ \le 1 \qquad \text{Eq. (5)}$$

CL_i^+: The relative proximity of ith to ideal solution

Step VI: Ranking of choices

Finally, we rank the choices based on CL_i^+ descending order.

3.3.4 SHANNON ENTROPY TECHNIQUE

In the current study, weights of indices have been determined according to Shannon entropy technique (Azar & Rajabzadeh, 2002:143) and they entered as inputs into TOPSIS algorithm. This technique is based on this point that as the values of an index are more dispersed, that index will be more important (Akbari & Zahedi Keyvan, 2008: 46). In order to weight them by Shannon entropy technique, the following phases should be implemented respectively:

Step I: Formation of decision making; *Step II*: Quantization of decision matrix; *Step III*: Normalization of decision matrix

$$r_{ij} = \frac{X_{ij}}{\sum_{i=1}^{m} X_{ij}} \qquad \text{Eq. (6)}$$

r_{ij}: descaled value of ith choice with respect to j^{th} index;

X_{ij}: value of ith choice in respective of jth index;

m: number of choices that can be ranked

Step IV: Calculation of entropy for each of indices

$$E_j = -K \sum_{i=1}^{m}[(r_{ij} \times \ln r_{ij})] \Rightarrow \begin{cases} j = 1,2,\ldots,n \\ K = \frac{1}{\ln(m)} \end{cases} \qquad \text{Eq. (7)}$$

E_j: Entropy for each index

It should be mentioned that the value of entropy for each of indices ranged from zero to one.

Step V: Calculation of non- confidence (uncertainty) or deviation degree in each of indices

$$D_j = 1 - E_j \qquad \text{Eq. (8)}$$

D_j: Uncertainty or deviation degree for any index

Step VI: Calculation of weight for each of indices

$$W_j = \frac{D_j}{\sum_{j=1}^{n} D_j} \quad j = 1, 2, \ldots, n \qquad \text{Eq. (9)}$$

W_j: weight of each index

It should be noted that the sum of acquired weights for the given indices to decision-maker should set as one (Akbari; 2008:46-49). More simply:

$$\sum_{j=1}^{n} w_j = 1 \qquad \text{Eq. (10)}$$

3.4 STATISTICAL ANALYSIS METHOD

3.4.1 TESTING COMPARISON OF MEANS (KRUSKAL- WALLIS)

SPSS software has been utilized to test normality of data (Kolmogorov- Smirnov) as well as final test of comparison of means (Kruskal-Wallis). This test is a series of non-parametric tests that has been used by aiming at proving difference in mean values of social responsibility coefficients in political and non- political companies.

Confirmation of H_0 hypothesis	$H_0 = \mu_1 = \mu_2 = \mu_3 = \mu_k$	Sig > 0
Confirmation of H_1 hypothesis	$H_1 = \mu_1 \neq \mu_2 = \mu_3 = \mu_4$ $H_1 = \mu_1 \neq \mu_2 \neq \mu_3 = \mu_4$ $H_1 = \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_k$	Sig ≤ 0

Fig. 3.   Conditions for means comparison test

3.5 STUDY PERIOD AND STATISTICAL SAMPLE

Research statistical population includes all of non- financial (production) enterprises, which were admitted in Tehran Stock and Exchange Organization (TSEO) from 2002 to the end of 2011. The studied statistical population in this investigation is selected by means of screening and with respect to the following criteria: 1) Type of activity of enterprise should be production and therefore the financial and investment institutes, banks, insurance companies, leasing and holding corporate are not included in this sample; 2) The companies, which have maximally six months transactional stop period during the given time; 3) The fiscal year of companies should be ended to 21st March of next year (end of Iranian calendar year) and financial period of companies was not changed during studied period; 4) Their financial data should be available from the beginning of fiscal year 2001 to the end of fiscal year 2011 (time range); 5) The book value of rights of their shareholders should not be negative. As a result, during step-by-step sampling 92 enterprises from 10 industries (mine extraction, types of food and drinking products except sugar and sucrose, automotive and parts manufacturing, metallic products manufacturing, other minerals and non metallic products, basic metals, rubber and plastics etc) were selected.

3.5.1 OPERATIONAL DEFINITION OF RESEARCH VARIABLES

Measurement of variables of social responsibility/ DEA model for calculation of Efficiency	
Number of owners (Own)/ Number of personnel (OMP)	Voluntary responsibility
Total arbitrary accruals (TAC)	Moral responsibility
Disclosure degree (Dis.)/ tax on payable performance (Tax)/ Employer's premium share (OMP)	Legal responsibility
Q-Tobin Index (Q-Tobin)/ Sale growth (Δs)/ Stock return (Return$_i$)	Economic responsibility
With DEA conceptual model of efficiency coefficient resulting from execution of CR technique with listed symbol in Diagram (1)	Social Responsibility

Fig. 4.   Table of research dependent variables

Measurement of independent variables (Recognition of political and non- political enterprises) / TOPSIS Model
Stock market value: The higher stock market value exists in Stock and Exchange Organization (SEO), the subsystem in Ministry of Finance and Economic Affairs (MFEA) assumes greater importance for the given enterprise.
Sum of assets, income tax: The greater sum of assets and income tax is; the given enterprise will be further related to Ministry of Labor and Social Affairs.
Number of personnel: The more number of personnel exists in company; there is more relationship among the company with Ministry of Commerce.
Sum of exported sale: The higher sum of exported sale exists, the greater relationship will be among the enterprise and Ministry of Commerce.
Employer's premium share and unemployment insurance: The higher rate of employer's premium and unemployment insurance exists; the company has further relationship with Ministry of Labor and Social Affairs.

Fig. 5.   Table of research independent variables

3.5.2 VARIABLES NORMALITY TEST

Kolmogorov- Smirnov normality test was used for observations of more than 2000 samples and for dependent variable in this survey by accepting null hypothesis (H_0) when the related data for each of variables are normally distributed and hypothesis (H_1) is accepted when the given data for each of variables are not distributed normally. As you observe in Diagram (5), (Shapiro- Wilk) value that shows significance level by abbreviation (Sig.) is smaller than confidence level (0.05) for data in any variable. Thus, H_0 hypothesis is rejected and H_1 hypothesis is accepted and data in dependent variable are assumed with abnormal distribution at high level of confidence.

Variables (Independent and dependent)	Normal parameters (a.b)		Most intensive variance			Significance level H₀ = Sig ≤ 0 H₁ = Sig > 0
	Standard deviation	Mean	Negative	Positive	Absolute value (Modulus)	
Social responsibility in political enterprises	0.24854	0.8079	-0.216	0.220	0.220	H₁
Social responsibility in non-political enterprises	0.24325	0.8384	-0.272	0.253	0.253	H₁

Fig. 6.   Kolmogorov- Smirnov test

3.6   RESULTS OF TEST

(Social Responsibility) tested statistic	
Chi-Square statistic	4.771
Degree of Freedom	1.00
Significance level	0.029

Fig. 7.   Table of descriptive statistic and test statistics

Table of testing statistic, which includes result of test with respect to this definition, comprises of H₀: (Social responsibility is the same in political and non- political enterprises) and H₁: (Social responsibility differs in political and non- political enterprises). One can observe value of chi-square statistic with 9 degrees of freedom as well as testing significance level (p-value = 0) that indicates rejection of hypothesis H₁ and acceptance of null hypothesis H₀. With respect to above output, the final result is that social responsibility is the same in political and non- political enterprises.

4   CONCLUSION

The growth of wealth in developed communities has caused to draw further attention toward social responsibility and attitude of seeking responsibility from the enterprises by the social groups while the cost will become very high in a community where directors do not feel the sense responsibility toward them. If the enterprises do not respect their social objective, the environmental pollution, poverty, disease, discrimination, and disorder will encompass their environment and these problems will also entangle them if they do not look at this issue with a little foresightedness.

In this course, this study is primary intended to design an appropriate model of social responsibility in Iran without using surveying research (questionnaire) so that it can measure corporate social responsibility based on the archived data. The secondary goal of this investigation was to explore the relationship of social responsibility in political and non- political enterprises. In this regard, 92 companies have been studied during 9- year period of research (2003-2011) and coefficients of their social responsibility were extracted by means of DEA model. Then, the political and non- political enterprises were identified by application of TOPSIS model and finally the variable of social responsibility was explored in them by employing mean values comparison test. The results signified the identical effort made by political and non- political enterprises for social responsibility.

Variable	Quantity	Maximum	Minimum	Mean	Standard deviation	Skewness coeffcient	Kurtosis coeffcient
Social Responsibility	730	1.00	0.00	0.24667	0.24667	-1.335	0.431

During recent years in Iran, the corporate social responsibility has been proposed by owners of industries and private sector, non- governmental companies, intellectuals, and academicians. The first conference on social responsibility was held by some of industrial institutes such as Iran Chamber of Commerce (ICC), confederation of industry, some of private companies and non- governmental organizations was the start point to propose concept and literature of this subject in Iran and it is expected that with respect to more competitive nature of some industries and free economic climate in enterprises, they notice some issues such as responsibility versus personnel, consumers, and community and take the interests of beneficiaries into consideration in their own plans and activities.

5 RESEARCH CONSTRAINTS

Disclosure degree has been spread by Tehran Stock and Exchange Organization (TSEO) since 2003. In this study, lack of access to data from these companies during one year (2002) has been considered as the basic limitation.

6 RESEARCH SUGGESTIONS

6.1 RESEARCH APPLIED SUGGESTIONS

- Social responsibility causes creating a general appropriate image. The customers trust in an enterprise that observes principles of social responsibility and even they are eager to pay fund against receiving goods or services. If the enterprises fulfill their social responsibility well, they can create reputation and fame for them while overlooking this issue by the companies leads to damaging of corporate trade name and value.
- Paying attention to social responsibility causes encouraging personnel to social participation and this in turn leads to create sense of loyalty to the organization so that the expert manpower will admire their organization.

6.2 SUGGESTIONS FOR THE FUTURE RESEARCHES

- Application of metaheuristic algorithms to design social responsibility model
- Employing fuzzy systems for ranking corporate social responsibility (CSR)
- Utilization from more variables in design of social responsibility model like financial leverage, size of enterprise, and age of enterprise etc.

REFERENCES

[1] Amrah zadeh., Leila. And Haider sabet, Sareh, (1392), Corporate Social Responsibility Management System is a new wave in corporate governance framework stating CSR-CG. First National Conference on Corporate Governance, University of Al-zahra.
[2] Azar,Adel and Ali Rajabzade(1381).Applied decision making(M.A.D.M approach). Publication of Negah Danesh. First Edition.
[3] Asghar poor, Mohamad jawad(1383), Multi-criteria Decision making, Publication of Tehran University, third Edition.
[4] Akbari,Nematollah and Mahdi Zahedi Kaiwan(1387), application of rating method and Multi-Attribute decision making, Ministry of Interior, publication of Municipalities organizations.
[5] Abd Zadeh kanafi, moahmmad, Baik Boshruyeh, Salman (1392), Social Responsibility and corporate governance, the first national conference on corporate governance, university.
[6] Boubakri, N., Guedhami, O., Mishra, D., Saffar, W., (2012). Political connections and the cost of equity capital. Journal of Corporate Finance 18, 541–559.
[7] Cardebat,J and Sirvan, N, (2010), "What corporate social responsibility reporting adds to financial return?", Journal of Economic and International Finance Vol.2(2), pp. 020-027, Februrary, 2010, http://www,academicjournals.org/JEIF.
[8] Chandler, David and William B, (2006), Strategic corporate social Responsibility as global brand insurance: Journal of Business Horizonss, Vol 48, 317-324.

[9]   Fernandez Sanchez, Jose Luis; Luna Sotorrio, Ladislao; Baraibar Diez,Elisa. (2010). The relationship between corporate governance andcorporate social behavior: A structural equation model analysis.Journal of Corporate Social.

[10]   Faal ghaumi, ali. Momeni, mansoor. (1389), Statistical analysisusingspss, Author, Tehran.

[11] Choi, Jong-Seo; Kwak, Young-Ming; Choe, CHongwoo. (2010) .Corporate social responsibility and corporate financial performance: Evidence from Korea. Australian Journal of Management, 53 (3), P 291-311.

[12] Font, X., Walmsley, A., Cogotti, S, . McCombes, L, . And Husler, N., (2012), corporate social responsibility: The disclosure-performance gap, Tourism Management Vol.33.

[13] Free man, I., and Hasnaoui, A., (2011), the meaning of corporate social responsibility: the vision of four nations, Journal of Business Ethice, Vol. 100, No .3.

[14] Ghasemi, Pariya. (1391) - "importance and applied introduction of corporate social Responsibility" Chamber of Commerce, No. 70, page 84.

[15] Harjoto, Maretno A. (2011). Corporate Governance and CSR nexus. Journal of Business Ethics, 100 (1), 45-67.

[16] Holme, R & Watts, P. (2000). Corporate Social Responsibility making good business sense. Geneva: World Business Council for Sustainable Development, page 1-32. ISO 26000 - Social responsibility International Organization for Standardization/ http://www.iso.org/iso/home/standards/iso26000.htm.

[17] ISO 26000 - Social responsibility International Organization for Standardization
http://www.iso.org/iso/home/standards/iso26000.htm.

[18] Johnson, Brian R.; Connolly, Eric; Carter, Timothy S. (2010) . Corporate social responsibility: The role of fortune 100 companies in domestic and international natural disasters. Journal of Corporate Social Responsibility and Environmental Management, 18 (6), 352-369.

[19] Hejazi, Rezvan.,kamaree, marzieh,. Momen zadeh, marzieh,. (1392), the role of corporate governance practices in corporate social responsibility reporting, the first national conference on corporate governance, university.

[20] Khadivi Fard, Aida, (1390) (16 September), the rethinking of world's great companies in the face of social, economic world newspapers, pages 28 and 29,

[21] www.donya-e-eqtesad.com/Default_view.asp?@=268347

[22] Murphy, P.E. And Schlegelmilch, B. B. (2013). Corporate social responsibility and corporate social irresponsibility: Inttoduction to a special section. Journal of Business Research.

[23] Marfo, Muhammad,. Hasaniakfar,.tavoosi, samaneh,. tavoosi,. Mohammad reza., Peacock, MR, (1392), corporate governance and social responsibility of enterprises, the first national conference on corporate governance, university.

[24] Mellat Parast, M., Adams, S.G., (2012), corporate social responsibility, benchmarking, and organizational performance in the petroleum industry: A quality management Perespective, Int.J.Production Economics, Vol. 139.

[25] Nik Muhammad, N. M., Johari, R.J., Wan Mustafa, W.M.(2011), Social Responsibility Accounting (SRA) in Malaysia Challenge and Opportunity, Available at: www.pdfcari.com.

[26] Omidvar Alireza., (1386), "Corporate Social responsibility, complementary and alternative policies and tasks of government," MS Thesis, Tehran University, Faculty of Law and Political Science.

[27] Pettenella, D., (2010). CSR, what it is, what Issues it incorporates? What costs/benefits of implementation? In: United Nations Economic Commission for Europe, UNECE Workshop on Corporate Social Responsibility. Belgrade, Serbia, 13-14 April. Belgrad: UNECE.

[28] Rahimian, Nezamodin., tavakoolnia, Ismail And asadi, Zeinab (1391), Accounting for Social Responsibility / Corporate Social Responsibility and Sustainability, CPA » Spring 1391 - Page 29 - from 32 to 40.

[29] Sandhu, H S; Kapoor, Shveta. (2010). corporate social responsibilityinitiatives: An analysis of voluntary corporate disclosure. South AsianJournal of Management, 17 (2), 47-80.

[30] Salehi, Mehdi Arab,.ghazal,sadeghi., Moein doleh-Mahmoud,. (1392), the relationship between social responsibility and financial performance of listed companies on the Stock Exchange, Vol III, Issue 9, Page (1-20).

[31] Sikka, Prem(2011), Accounting for human right: The challenge of globalization and foreign investment agreements, Journal of Critical Perspective on Accounting. London: Nov 2011, Vol.22, Iss. 8: p, 811.

[32] Samy, Martin; Odemilin, Godwin; Bampton, Roberta. (2010). Corporatesocial responsibility: a strategy for sustainable business success. Ananalysis of 20 selected British companies, Journal of CorporateGovernance, 10 (2), 203-217.

[33] Simpson, W. Gary; Kohers, Theodor. (2002). the link between corporatesocial and financial performance: evidence from the banking industry.Journal of Business Ethics, 35 (2), 97-109.

[34] Saahil Kaul. (2012) "Corporate Governance and Corporate Social Responsibility Post Companies Bill 2012: An Analysis" Electronic copy available at: http://ssrn.com/abstract=2243319.

[35] Setayesh, Mohammad Hossein, . Salimi, Elham and S. Salemi, Khadijeh, (1392), corporate governance and corporate social Responsibility, the First National Conference on Corporate Governance, University of Al-zahra.

[36] Stolowy, H., Bereton, G. (2004). A framework for the classification of accounts manipulations. International Journal of Accounting. June.

[37] Social Responsibility and Firm Risk: Theory and Empirical Evidence", (2014), Available at SSRN: http://dx.doi.org/10.2139/ssrn.1961971 .

[38] Tsoutsoura, Margarita. (2004). Corporate social responsibility andfinancial performance. University of California at Berkeley, financialproject.

[39] Zhu, D & Tan, K.H (2008). Issues and challenges of CSR practices in textile industry: an empirical study in Suzhou, China. Management and Enterprise Development Journal, 5(6): 759-772.

The Effect of Social Responsibility on Financial Performance of Companies

Seyed Khosro Amiri[1] and Mojtaba Vakil Zadeh Rohol Amini[2]

[1]Department of Accounting,
Tehran central Branch,
Islamic Azad University, Iran

[2]Department of Governmental management-Financial Orientated,
University of Tehran, Iran

ABSTRACT: In addition to being responsible for their owners, economic enterprises are required to fulfill their social responsibilities for public health as well. Social responsibility, on the one hand, leads to the consistency of economic benefits with environment and on the other hand, leads to the growth and sustainability of the company's business. The purpose of this study is to investigate the impact of social responsibility on corporate performance. The sample of the study consists of (92) companies that are active in the Stock Exchange during the period of (2002-2011). Designing a new pattern of social responsibility is done using DEA method and corporate performance measures include (return on assets, return on equity, real stock returns, Q-Tobin ratio, the market value of equity, economic value added, and cost of common stock). Models were tested using linear regression method in Eviews software. Results showed a significant relationship between social responsibility and corporate performance.

KEYWORDS: Social responsibility, corporate performance, DEA model, Eviews software.

1 INTRODUCTION

Today, the business units cannot escape from society and society cannot exist without business unit, so there is a reciprocal relationship between business unit and society (Salehi et al., 2013). Although the society including community and environment that make up economic enterprises are the main audience for stakeholder theory, but the main audiences such as the government, staffs and other non-governmental organizations can intervene and provide the suitable context for business units' development and progress by providing required conditions to gain profits by investors and assuring stakeholders that there is no arbitrage and unfair activity (Sandho and Capo, 2010). ISO 26000 considers social responsibility as the firms' responsibility for the impact of their decisions and activities on society and the environment, through transparent and ethical behavior (ISO, 2010). Social responsibility of firms is the process of creating wealth, improving the company's competitive advantage and maximizing the value of wealth created for society (Zhu, 2008) that generally considers business's commitment and attention to the quality of life for employees, customers, the local community and the whole society to sustainable economic development (Holm and Watts, 2000). In a wide poll conducted by an accredited institution ((MacKenzie)) in 2009; from among the company 2245 senior directors of successful companies worldwide, about 75% believed that investment for implementing robust and successful programs in different social and charity areas can in long term create higher stock value and thus bring good performance for the company through creating a good name and reputation (Khadivi Fard, 2011). To fulfill corporate social responsibility, business enterprises are required to perform four responsibilities (volunteer responsibility, moral responsibility, legal responsibility, economic responsibility) (Rahimian, 2012). The purpose of this paper is to investigate the impact of corporate social responsibility on corporate performance. By applying the new model using DEA, CSR coefficients have been extracted and then these coefficients that are assigned to each year-company and their performance indices are measured using linear regression in Eviews.

2   THEORETICAL FOUNDATION AND RESEARCH BACKGROUND

Today, with the development of industries and different business units, new problems have emerged that are arising from the implications and impacts of business unit's activities on the environment and society. So, how to evaluate the performance of the organization and its standards have changed and the pursuit of social and environmental responsibility is a crucial factor for long-term sustainability of the organization's activities (Sika, 2011);

Companies are well aware that of any kind that they are, their foundation and success owes to the demands of society for its business activities (Matsushita, 2010).

In addition to being responsible for their owners, economic enterprises are required to fulfill their social responsibilities for public health as well (Rahimian, 2012). Today, with the introduction of corporate governance and the need to use it, companies are encouraged to apply it in the contexts such as social responsibility in the form of ethics, fairness, transparency and accountability and etc. hoping to increase profits in the long term (Abd Zadeh and Beik, 2013). Harvard Bowen, father of Social Responsibility (1953), defines social responsibility as "the obligations of businessmen to pursue policies and make decisions or to follow the steps that are appropriate for the goals and values of society" (Murphy and Schell, 2013). Today, corporate social responsibility is a concept that is widely used and there is no unit definition that is acceptable by the public (Freeman and Hasnoy, 2011). In 1999, Carol called social responsibility as a multidimensional variable that has evolved in recent decades and involves different definitions (Font et al, 2012).

Today, social responsibility is used as a monitoring and ensuring mechanism for compliance with the spirit of the law and ethical standards (Hejazi et al., 2013). Corporate social responsibilities put business objectives and activities in line with social values and welfare of society (Emrahzadeh and Sabet, 2013). CSR emphasizes on how to create wealth through responsible business (Marfo et al., 2013). Council of Europe (2001) defines social responsibility as "voluntarily incorporation of social and environmental considerations in business operations of companies and their relationships with interest groups" (Melat Parast and Adams, 2012). Social responsibility is an activity that is carried out to advance some social objectives that are beyond financial objectives (Harjoto, 2011). Corporate social responsibility in society has the duty other than stockholders and beyond what the law and the union contract has described (Johnson, 2010). The main essence of social responsibility is moral accountability (Setayesh et al., 2013). Useful perception and understanding of corporate social responsibility should be based on stakeholder's attitudes and both its obligatory and tool dimension should be considered (the one and Sower, 1391). In general, taking social responsibility looks for something beyond the basic duties of the firm and in fact, looks for the promotion of the firm's behavior to a state of harmony with environmental and social interests (Kavol, 2012), that on the one hand, leads to the consistency of economic interests with environment and on the other hand, leads to the growth and sustainability of firms' business (Ghasemi, 2012).

Business unit's desire for and insisting on commitment to social responsibility in all aspects has a significant effect on the financial performance; in fact, the trend toward social responsibility encourages business unit to try to improve the environment, use less energy and materials, and manage wastes (Sandho and Kapoor, 2010). Thus, business units can maximize their long-term returns through reducing their negative impacts on the community. So that this idea is now increasingly shaped among business units that their long term success can be realized through managing the company's operations, at the same time ensuring environmental protection and the development of corporate social responsibility (Sami et al., 2008). Therefore, corporate social responsibility leads to improved long-term corporate success and ultimately leads to increased economic growth and competitiveness of the company and improvement of its financial performance (Sanchez et al., 2010). On the other hand, social responsibility can affect all aspects of (organizations') firms' performance from two major aspects. First, the investors (consumers) want to invest in (purchase) enterprises (organizations) that are trusted; second, corporate social responsibility is as an important element in their strategy that will be considered crucial due to the reasons such as the increase of wealth, expectations of social variables such as consumer, globalization and the free flow of information, rational use of energy and ecological resources in the 21st century (Chandler, 2006). The internal function of social responsibility can lead to improvement of firm's position and ultimately improvement of efficiency and profitability, and ultimately their long-term survival (Kardebt and Sirvan, 2010). Benefits of Corporate Social Responsibility are: 1- reducing management risk (easy access to credit, rising asset value for investors, supported by stakeholders, etc.), 2- reducing direct costs (energy, materials, waste of time and ...) 3- increasing employee productivity (increased motivation, reduced absenteeism, etc.) 4- improving the firm's competitive image (P. Ten La, 2010). Financial managers and accountants play a crucial role in organizations in the fields related to social responsibility, including reporting, transparency, ethics, legality, communication with stakeholders and resource consumption (Albo, 2014). While the majority of social responsibility accounting information is has a non-financial nature, this information is usually found in the notes to the annual report instead of being in the original report (Nick Mohammed et al., 2011). It is required for financial managers and accountants to know that the current business environment has created both opportunities and risks for accountants and the increase in

importance of environmental issues, social responsibility and risk management and reporting, the accounting profession must change (Carnegie and Napier, 2010).

Several studies in relation to social responsibility and its impact on performance have been conducted and have had positive, negative and neutral results. One reason for these different results is the variety of cultural, legal, social and economic texture of countries; the summary of them will be mentioned as follows: Salehi et al (2013) conducted a research entitled the relationship between social responsibility and financial performance of companies engaged in the Tehran Stock Exchange. The results showed that financial performance has no significant relationship with corporate social responsibility towards environment employees, but financial performance had a significant relationship with corporate social responsibility toward clients and established units in the community. Scott et al (2010) in a study entitled "Corporate Social Responsibility and Financial Performance" examined the relationship between corporate social performance and financial performance and the results of their study showed that there was a positive relationship between corporate social performance and financial performance. Choi et al (2010) conducted a research among 1,222 companies from Korea, the results showed a significant positive correlation between financial performance and social responsibility. Knelling and Webb (2008) examined the relationship between financial performance and social responsibility. They concluded that there is a weak negative correlation between the financial performance and social performance of the company. Vanderlan et al (2008) in a study entitled "Corporate Social Performance and Financial Performance," examined the relationship between financial performance and social performance and the results suggested a negative relationship between corporate social performance and financial performance. Sismon Kuhran (2002) in a study entitled "The relationship between performance and corporate social performance" examined the relationship between corporate social performance and performance in the banking industry in the Netherlands and the results indicated that there is a positive relationship between financial performance and social performance. Tsoutsoura (2004) examined the relationship between CSR and financial performance; the results showed a significant positive relationship between corporate social performance and financial performance. Neutral relationship (no relation) between these two variables has been proved through some researches. This study suggests that since the general position of the company and the community is very complex, so there is no direct link between corporate responsibility and financial performance (Sismon and Kuhran 2002) (Tsoutsoura, 2004).

3 RESEARCH METHODOLOGY

3.1 RESEARCH HYPOTHESES

According to the literature review and the results of the previous researches, the following primary and sub-hypotheses were designed:

(Using linear regression model in Eviews software)	
Hypothesis 1 (the main hypothesis)	There is a significant relationship between social responsibility and corporate social responsibility. $Social\ Responsibility = \alpha_i + \alpha_1 (performance)_i + \varepsilon_i$
Sub-hypothesis 1-1	There is a significant relationship between social responsibility and return on firms' assets. $Social\ Responsibility = \alpha_i + \alpha_1 (Return\ on\ Asset)_i + \varepsilon_i$
Sub-hypothesis 1-2	There is a significant relationship between social responsibility and return on equity. $Social\ Responsibility = \alpha_i + \alpha_1 (Return\ on\ Equity)_i + \varepsilon_i$
Sub-hypothesis 1-3	There is a significant relationship between social responsibility and return on real stock. $Social\ Responsibility = \alpha_i + \alpha_1 (Real\ Stock\ Returns)_i + \varepsilon_i$
Sub-hypothesis 1-4	There is a significant relationship between social responsibility and firms' Q-tobin ratio. $Social\ Responsibility = \alpha_i + \alpha_1 (Tobin's\ Q\ Ratio)_i + \varepsilon_i$
Sub-hypothesis 1-5	There is a significant relationship between social responsibility and market value of equity. $Social\ Responsibility = \alpha_i + \alpha_1 (Market\ Value\ of\ Equity)_i + \varepsilon_i$
Sub-hypothesis 1-6	There is a significant relationship between social responsibility and economic value added. $Social\ Responsibility = \alpha_i + \alpha_1 (Economic\ Value\ Added)_i + \varepsilon_i$
Sub-hypothesis 1-7	There is a significant relationship between social responsibility and cost of common stock. $Social\ Responsibility = \alpha_i + \alpha_1 (Cost\ of\ Common\ Stock)_i + \varepsilon_i$

3.2 RESEARCH METHOD

This study is in the field of positive accounting researches and it is considered as applied research and descriptive-correlation in terms of its objectives. What leads this research to be applied is the attention of firms to the subject of social responsibility, which leads to the growth and survival of companies and being well known and universally valid in the long term.

3.3 ANALYSIS METHOD

3.3.1 SOCIAL RESPONSIBILITY MODEL

Charnels and Cooper proposed a new method for assessing the performance and calculating efficiency of decision-making units called "data envelopment analysis". With the concept of the production function, it is essential for the relationship between inputs and outputs and the production function represents the maximum value of outputs that is achieved by a combination of input values. The production function shows the efficiency by taking inputs and outputs into account (Mir Hassani, 2012). Coefficient of social responsibility has been calculated using the following model with the method of "data envelopment analysis" with proper changes.
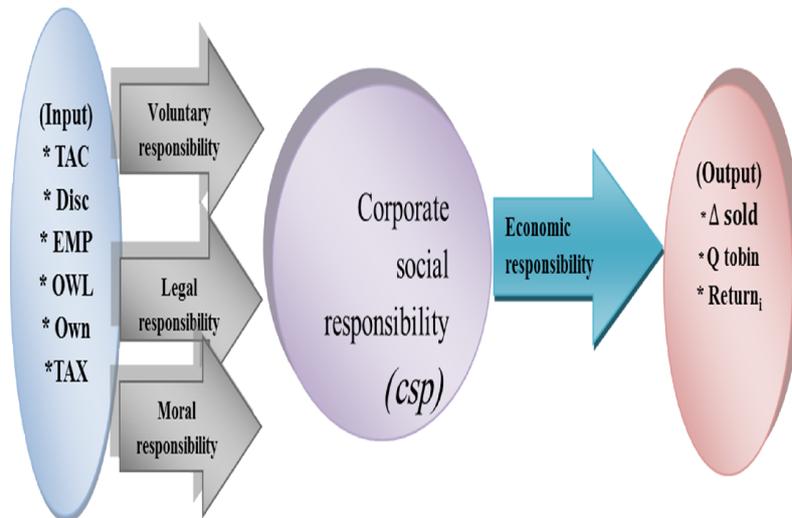
Fig. 1.   Social responsibility model

3.4   STATISTICAL ANALYSIS METHOD

Eviews software has been used for the table of descriptive statistics and linear regression has been used to test the hypotheses. The main hypothesis has been defined in the form of 7 sub-hypotheses with distinct models. The main hypothesis is not tested due to its sub-hypotheses. Each hypothesis has a significance level and distinct Durbin-Watson value for its model.

3.5   TIME SCOPE OF THE STUDY AND STATISTICAL SAMPLE

The population of the study includes all non-financial (manufacturing) companies listed in Tehran Stock Exchange from 2002 until the end of 2011. The population is selected using the screening method and according to the following measures: 1. Type of business should be manufacturing and therefore, financial institutions, investment banks, insurance, leasing andholding companies are not included in the sample. 2. Companies that have a maximum of six months trading stop in the time of study. 3. The fiscal year should be ended in March and their fiscal course should not have changed during the time of research. 4. Their financial information from the beginning of fiscal year 2002 to fiscal year 2011 should be available (Time domain). 5. The book value of equity should not be negative. Thus, during the sampling phase, 92 companies from 10 industries (mining, food and beverage products except sugar, automotive and constructing spare parts, constructing steel products, and other non-metallic mineral products, basic metals, rubber and plastics etc.) were selected.

3.6 OPERATIONAL DEFINITION OF RESEARCH VARIABLES

Table 1. Dependent variables of the research

Measuring dependent variables (optimum performance)	
$ROA_{i,t} = \dfrac{NI_{i,t}}{TA_{i,t}}$ NI: net income; TA: total assets	$Qtobin = \dfrac{OI + D - (T + I + Div)}{TA}$ OI: operational income T: paid tax cost I: paid financial cost FC: free cash flow; Div: dividend; TA: total assets; D: Amortization expense of intangible and tangible fixed assets
$ROE_{i,t} = \dfrac{NI_{i,t}}{TE_{i,t}}$ NI: net income; TE: Total equity	EVA=NOPAT- [(TA-CL)*WACC] NOPAT: operational income after deducting tax (tax ratio is 22.5%) TA: total asset; CL: total current asset; WACC: weighted average of capital cost $WACC = \dfrac{D}{D+E} \times K_d \times (1-t) + \dfrac{E}{D+E} \times K_e$ WACC: weighted average of capital cost D:total debts of ; E: equity; t: tax rate; Kd: $k_e = R_f + \beta(R_m + R_f)$ R_f: return rate without risk (15%); R_m: market return; β: systematic risk; R_f: return without risk
$CE_{i,t} = \dfrac{EPS_{i,t}}{P_{i,t}}$ $EPS_{i,t}$: net income per share for next year $P_{i,t}$: final price per share in the current year This variable is calculated using the model based on constant growth of Gordon.	$R^i_{k,t} = \dfrac{p_t(1 + \alpha + \beta) - (p_{t-1} + C\alpha) + D_t}{P_{t-1} + C\alpha}$ P_{t-1} : market price of share at the end of the period of t-1 P_t: market price of share at the end of the period of t D_t: cash income per share according to number of shares at the period of t $R^i_{k,t}$: annual return of firm K in the I industry at the period of t β: the percent of capital increase from reserves and retained aernings C: the nominal amount paid by the investor for the capital increase from receivables and cash earned equal to 1000 Rial.
MVE=LN(NS*MS) LN: natural logarithm NS: number of shares at the end of the period MS: market value of share at the end of the period	

Table 2. Dependent variables of the research

Measuring the variables of social responsibility/DEA pattern for calculating efficiency	
Number of owners (Own)/number of employees (OMP)	Voluntary responsibility
Discretionary accruals (TAC)	Moral responsibility
Disclosure rate (Dis)/tax on payment performance (Tax)/ employer's insurance share (OMP)	Legal responsibility
Q-tobin index (Qtobin)/slaes growth (Δs)/ return on stock (Return_i)	Economic responsibility
With the conceptual model of DEA/ efficiency coefficient from implementing the model	Social responsibility
CR with the sign in table 1	Social responsibility

3.7 DESCRIPTIVE STATISTIC'S TABLE

Table 3.   descriptive statistic

Variable	Sample	Maximum	Minimum	Mean	SD	Coefficient of skewness	Elongation coefficient
ROA	920	0.77	-0.25	23.33	17.858	2.353	6.893
ROE	920	0.89	-0.46	28.19	41.672	-16.161	22.329
R_i	920	0.86	-0.79	12.63	13.17	2.344	16.755
MVE	920	124.53	0.60	3.23	10.17	0.675	-1.056
EVA	920	0.88	-0.98	0.095	8.598	1.493	11.598
Q tobin	920	10.21	-8.82	1.13	3.747	6.659	72.849
CE	920	0.98	-0.81	0.124	1.119	13.200	95.653
CR	920	1.00	0.00	0.6790	0.30061	-0.335	-0.127

(Due to restrictions on the number of pages, the details were not included.)

3.8 HYPOTHESES TESTING

The results of statistical analysis of hypotheses are summarized in Table (5).

Hypotheses	(Social Responsibility $=\alpha_i + \alpha_1(\text{performance})_i + \varepsilon_i$) Independent variable = social responsibility Dependent variable = performance						
Title	Dependent variable	Independent variable	Durbin-Watson	F-statistics	Sig. level	Adjusted R	result
Sub-hypothesis 1-1	Return on assets	Social responsibility	1.9284	4.8513	0.0000	0.9643	H_1 is confirmed
Sub-hypothesis 1-2	Return on equity	Social responsibility	1.9177	3.998	0.000	0.9745	H_1 is confirmed
Sub-hypothesis 1-3	Real income	Social responsibility	1.91387	4.059	0.0000	0.9933	H_1 is confirmed
Sub-hypothesis 1-4	Q-tobin ratio	Social responsibility	1.9343	0.3305	0.1325	-0.7678	H_0 is confirmed
Sub-hypothesis 1-5	Market value of equity	Social responsibility	1.90330	0.16458	0.2809	0.8531	H_0 is confirmed
Sub-hypothesis 1-6	Economic value added	Social responsibility	1.9150	0.4462	0.1300	0.5834	H_0 is confirmed
Sub-hypothesis 1-7	Cost of equity	Social responsibility	1.9525	0.1645	0.2851	0.56466	H_0 is confirmed

3.8.1 INTERPRETING HYPOTHESES

Hypothesis 1 (the main hypothesis): There is a significant relationship between social responsibility and corporate social responsibility.

Sub-hypothesis 1-1: There is a significant relationship between social responsibility and return on firms' assets. Sig. level is (0.000), it is accepted at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is significant.

Sub-hypothesis 1-2: There is a significant relationship between social responsibility and return on equity. Sig. level is (0.000), it is accepted at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is significant.

Sub-hypothesis 1-3: There is a significant relationship between social responsibility and return on real stock. Sig. level is (0.000), it is accepted at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is significant.

Sub-hypothesis 1-4: There is a significant relationship between social responsibility and firms' Q-tobin ratio. Sig. level is (0.132), it is rejected at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is not significant.

Sub-hypothesis 1-5: There is a significant relationship between social responsibility and market value of firms. Sig. level is (0.2809), it is rejected at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is not significant.

Sub-hypothesis 1-6: There is a significant relationship between social responsibility and economic value added. Sig. level is (0.1300), it is rejected at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is not significant.

Sub-hypothesis 1-7: There is a significant relationship between social responsibility and cost of firms. It is rejected at (100%)-(.05%)-90% / (100%)-(95%)-5% / (100%)-(99%)-1% confidence level and the relationship is not significant.

4 CONCLUSION

Wealth growth in developed countries has caused increase in paying attention to social responsibility and the attitude of taking responsibility of firms by social groups. However, cost of the society that its managers do not feel responsible is very high. If the firms do not respect their social objectives, pollution, poverty, disease, discrimination and ravages will surround their environment and if they don't see this issue with a little foresight, they will ultimately suffer from these problems, too.

In this regard, the primary objective of this research was to design an appropriate model of social responsibility without using survey research (questionnaire) so as to measure corporate social responsibility according to archival data. The secondary goal is to examine the relationship between social responsibility and corporate performance. In this regard, 92 companies during the 9-year study period (2002-2011) were examined and hypotheses were tested using linear regression in Eviews software. The results showed a significant relationship (between CSR and ROA, return on equity, real stock returns) and no significant relationship (between CSR and Q-Tobin ratio, market value of equity, value-added, cost of equity) in the hypotheses.

Corporate Social Responsibility in Iran in recent years has been proposed by industry owners and private sector, NGOs, intellectuals and academics. Holding the first conference on social responsibility by some industry associations such as the Chamber of Commerce, Confederation of Industry, some private companies and NGOs was the starting point in discussing the concept and literature of this issue in Iran and it is expected that according to the more competitive environment of some industries and freedom of economic environment, companies pay attention to issues such as responsibility toward employees, consumers and the community and take the interests of these stakeholders into account in their programs and activities.

5 RESEARCH LIMITATIONS

- Level of disclosure by Tehran Stock Exchange has been disseminated from 2003 onward, in this study, lack of access to one year (2002) is considered as the fundamental limitations.

6 RECOMMENDATION

6.1 APPLIED RECOMMENDATIONS

Social responsibility creates a favorable public image. Customers trust a company that respects the principles of social responsibility and are even eager to pay premium in exchange for goods or services. If firms fulfill their social responsibility as well, they can make a reputation for themselves, while lack of attention to this area, causes damage to the brand and the company's value. Paying attention to social responsibility encourages employers for social participation and this in turn, creates a sense of loyalty to the company, so that specialized labor is proud of its company. Paying attention to social responsibility and corporate governance ultimately leads to achieve the trust of customers and the wider community as well.

6.2 RECOMMENDATIONS FOR FUTURE RESEARCHES

*Using innovative algorithms to design social responsibility model
* Using fuzzy systems for ranking social responsibility and corporate performance
* Using more variables in the design of social responsibility, including financial leverage, firm size, firm age and etc.
* Investigating the effect of social responsibility in the performance of family and nonfamily companies

REFERENCES

[1] Albuquerque, Rui A., Durnev, Art . ,Koskinen, Yrjo,(2014), "Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence", (2014), Available at SSRN: http://dx.doi.org/10.2139/ssrn.1961971 .
[2] Amrah zadeh., Leila. And Haider sabet, Sareh, (1392), Corporate Social Responsibility Management System is a new wave in corporate governance framework stating CSR-CG. First National Conference on Corporate Governance, University of Al-zahra.
[3] Abd Zadeh kanafi, moahmmad, Baik Boshruyeh, Salman (1392), Social Responsibility and corporate governance, the first national conference on corporate governance, university.
[4] Cardebat,J and Sirvan, N, (2010), "What corporate social responsibility reporting adds to financial return?", Journal of Economic and International Finance Vol.2(2), pp. 020-027, Februrary, 2010, http://www,academicjournals.org/JEIF.
[5] Chandler, David and William B, (2006), Strategic corporate social Responsibility as global brand insurance: Journal of Business Horizonss, Vol 48, 317-324.
[6] Fernandez Sanchez, Jose Luis; Luna Sotorrio, Ladislao; Baraibar Diez,Elisa. (2010). The relationship between corporate governance andcorporate social behavior: A structural equation model analysis.Journal of Corporate Social.
[7] Faal ghaumi, ali. Momeni, mansoor. (1389), Statistical analysis using spss, Author, Tehran.
[8] Choi, Jong-Seo; Kwak, Young-Ming; Choe, CHongwoo. (2010) .Corporate social responsibility and corporate financial performance: Evidence from Korea. Australian Journal of Management, 53 (3), P 291-311.
[9] Font, X., Walmsley, A., Cogotti, S, . McCombes, L, . And Husler, N., (2012), corporate social responsibility: The disclosure-performance gap, Tourism Management Vol.33.
[10] Free man, I., and Hasnaoui, A., (2011), the meaning of corporate social responsibility: the vision of four nations, Journal of Business Ethice, Vol. 100, No .3.
[11] Ghasemi, Pariya. (1391) - "importance and applied introduction of corporate social Responsibility" Chamber of Commerce, No. 70, page 84.
[12] Harjoto, Maretno A. (2011). Corporate Governance and CSR nexus. Journal of Business Ethics, 100 (1), 45-67.
[13] Holme, R & Watts, P. (2000). Corporate Social Responsibility making good business sense. Geneva: World Business Council for Sustainable Development, page 1-32. ISO 26000 - Social responsibility International Organization for Standardization/ http://www.iso.org/iso/home/standards/iso26000.htm.
[14] ISO 26000 - Social responsibility International Organization for Standardization/ http://www.iso.org/iso/home/standards/iso26000.htm.
[15] Johnson, Brian R.; Connolly, Eric; Carter, Timothy S. (2010) . Corporate social responsibility: The role of fortune 100 companies in domestic and international natural disasters. Journal of Corporate Social Responsibility and Environmental Management, 18 (6), 352-369.
[16] Hejazi, Rezvan.,kamaree, marzieh,. Momen zadeh, marzieh,. (1392), the role of corporate governance practices in corporate social responsibility reporting, the first national conference on corporate governance, university.
[17] Khadivi Fard, Aida, (1390) (16 September), the rethinking of world's great companies in the face of social, economic world newspapers, pages 28 and 29,
[18] www.donya-e-eqtesad.com/Default_view.asp?@=268347

[19] Murphy, P.E. And Schlegelmilch, B. B. (2013). Corporate social responsibility and corporate social irresponsibility: Inttoduction to a special section. Journal of Business Research.

[20] Marfo, Muhammad,. Hasaniakfar,.tavoosi, samaneh,. tavoosi,. Mohammad reza., Peacock, MR, (1392), corporate governance and social responsibility of enterprises, the first national conference on corporate governance, university.

[21] Mellat Parast, M., Adams, S.G., (2012), corporate social responsibility, benchmarking, and organizational performance in the petroleum industry: A quality management Perespective, Int.J.Production Economics, Vol. 139.

[22] Nik Muhammad, N. M., Johari, R.J., Wan Mustafa, W.M.(2011), Social Responsibility Accounting (SRA) in Malaysia Challenge and Opportunity, Available at: www.pdfcari.com.

[23] Omidvar Alireza., (1386), "Corporate Social responsibility, complementary and alternative policies and tasks of government," MS Thesis, Tehran University, Faculty of Law and Political Science.

[24] Pettenella, D., (2010). CSR, what it is, what Issues it incorporates? What costs/benefits of implementation? In: United Nations Economic Commission for Europe, UNECE Workshop on Corporate Social Responsibility. Belgrade, Serbia, 13-14 April. Belgrad: UNECE.

[25] Rahimian, Nezamodin., tavakoolnia, Ismail And asadi, Zeinab (1391), Accounting for Social Responsibility / Corporate Social Responsibility and Sustainability, CPA » Spring 1391 - Page 29 - from 32 to 40.

[26] Sandhu, H S; Kapoor, Shveta. (2010). corporate social responsibilityinitiatives: An analysis of voluntary corporate disclosure. South AsianJournal of Management, 17 (2), 47-80.

[27] Salehi, Mehdi Arab,.ghazal,sadeghi., Moein doleh-Mahmoud,. (1392), the relationship between social responsibility and financial performance of listed companies on the Stock Exchange, Vol III, Issue 9, Page (1-20).

[28] Sikka, Prem(2011), Accounting for human right: The challenge of globalization and foreign investment agreements, Journal of Critical Perspective on Accounting. London: Nov 2011, Vol.22, Iss. 8: p, 811.

[29] Samy, Martin; Odemilin, Godwin; Bampton, Roberta. (2010). Corporatesocial responsibility: a strategy for sustainable business success. Ananalysis of 20 selected British

Empowerment and customer-oriented behavior of employees

Behrooz Rezayimanesh[1], Reza Vaezi[1], and Seyed Amir Raza Alavi[2]

[1]Faculty member of management and accounting department,
Allameh Tabataba'i University,
Tehran, Iran

[2]MA student of administrative management,
Allameh Tabataba'i University,
Tehran, Iran

ABSTRACT: By giving priority to the customer interests and desires, the interests and goals of organization are considered and based on the customers, the long-term benefits of organization are provided. Based on the importance of the role of human resources, increasing empowerment of employees in organizations has received much attention. The present study considered both mechanic and organic approaches of empowerment and also evaluated their impact on customer-oriented behavior of great importance for current organizations namely service organizations. The present study is applied in terms of purpose and descriptive and correlation in terms of method. The study population is including 124 employees of educational services units of Medical Sciences University of Isfahan. Three questionnaires applied in the previous valid researches are distributed among 80 people. This study tested the reliability and validity by Cronbach's alpha coefficient and confirmatory factor analysis and in second order factor analysis, the model fitness was supported. The data were analyzed by descriptive and inference statistics techniques. The study hypotheses are investigated by regression and the impact of demographic variables on study variables was investigated by variance analysis test. The results showed the impact of organizational empowerment on customer-oriented behavior of employees and the lack of impact of psychological empowerment on customer-oriented behavior of employees. It was found that demographic factors had no significant impact on the views of respondents.

KEYWORDS: Organizational empowerment, Psychological empowerment, Customer-oriented behavior of employees

1 INTRODUCTION

In organizations and offices related mostly with their customers, the lack of correct relationship with customer can have negative outcomes for organizations. The employees namely in service companies should behave well with their customers. Thus, the environment in service organizations should be as the employees can and try to develop their customer-oriented behavior. According to Christian Gronroos (1984) in his triangle theory of services, external customers can be satisfied with the products and services, if the employees are considered as internal customers. Customer-oriented training for employees should be mostly regarding changing attitudes than training the skills. The training should be as the employees themselves "want" to help the customer than telling them or ordering them. This goal is not fulfilled unless by employees empowerment. People empowerment means encouraging people for more participation in decision making effective on their activity. The space should be provided for people to create good ideas and turn them into practice. Empowerment is a vital element of business in new world. Some goals as close relation to customer, improving after sale services, continual presentation of innovation, increasing productivity and competitiveness are achieved for organizations finding new methods for empowerment of their employees (Smith Jane, 2000).

Training is one of the basic infrastructures of development in any country and considering training namely high education is one of the important concerns of decision makers and planners. The missions of high education are universal as they are not considered as a section activity. In recent years, the increase of effective demand of people and households for high education services and the increase of investment in high education and increasing demand for boarding schools and non-profit universities and creating a good ground for diversity of high education and the increase of demand for parallel movements of high education can be observed. The development of social demand to enter high education in case of increasing admission changes cultural, social and political attitude in society (The report of management and planning organization of country, 2005). Thus, among other service sectors, education sector is of great position. In addition, in our country, a developing field is toward to exiting state exclusion. Thus, the investigation of the methods of improving performance is one of the necessities.

Bowen &lawler (1995) described the benefits of employees' empowerment in service organizations as:

- Empowered employees meet the customers' demands rapidly and timely during service delivery.
- Empowered people give rapid and timely responses to the dissatisfied customers during returning the services.
- Empowered employees have better feeling to themselves and their job
- Empowered employees accept customers warmly
- Empowered employees can be a great source of service thoughts

As educational services units of high education institutions present one of the most important services to people, in case of having empowered forces based on the increasing demand of education has great influence on satisfaction in society. Other requirements of this study are environment changes including technology progress and maximum use of capacity of people with the reduction of human resources. Today, most of the managers know empowerment of experts and dealing with it are not only real competitive advantage of organizations, people and their experts, but also for the success of organization, the experts are actively involved in works. The term empowerment is consistent via thoughtful use of human resources to achieve organizational effectiveness with this issue. Conger and Kanungo (2005) consider it the main component of organizational and management effectiveness.

The present study aimed to evaluate the impact of organizational and psychological empowerment on customer-oriented behavior of the employees to use the relevant processes of empowerment of human resources to affect the good behaviors of organization and achieving expected results. There are two main hypotheses and eight subhypotheses as follows:

MAIN HYPOTHESIS

1. Organizational empowerment is effective on customer-oriented behavior of employees.

2. Psychological empowerment is effective on customer-oriented behavior of employees.

SUBHYPOTHESIS

1. Dynamic structural framework is effective on customer-oriented behavior of employees.

2. Controlling the organization decisions is effective on customer-oriented behavior of employees.

3. Information sharing is effective on customer-oriented behavior of employees.

4. Meaningfulness is effective on customer-oriented behavior of employees.

5. Competence is effective on customer-oriented behavior of employees.

6. Choice is effective on customer-oriented behavior of employees.

7. Effectiveness is effective on customer-oriented behavior of employees.

8. Participation with others is effective on customer-oriented behavior of employees.
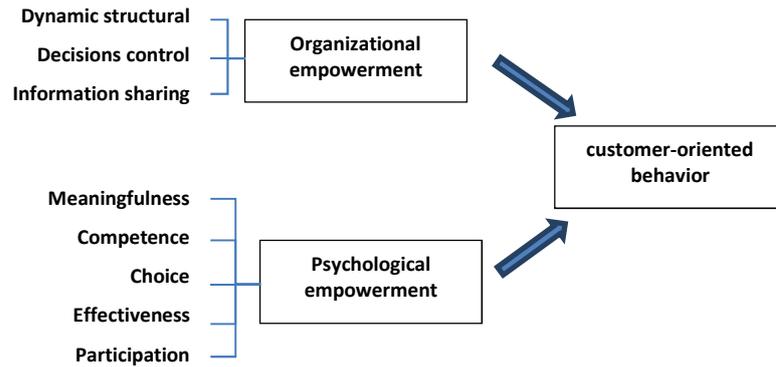
Fig 1. Conceptual model of study, based on RutaKazlauskaite et al., 2012

2 THEORETICAL BASICS

RutaKazlauskaite et al., (2011) in a study "organizational and psychological empowerment regarding human resources management and performance in hotels of Lithuania presented a model by which a positive relation was between organizational empowerment (independent variable) and customer-oriented behavior (dependent variable). Also, there was a positive relation between psychological empowerment and commitment (moderating variable) and customer-oriented behavior. They evaluated the impact of job satisfaction on customer-oriented behavior as little. They found the moderating impact for employee attitudes between organizational empowerment and customer-oriented behavior. Their task is based on two approaches regarding empowerment and its effects:

Mechanical or communication view, the followers consider empowerment equal to decision power to lower ranks of organization.

Organic or cognitive view, its followers consider empowerment a multi-dimensional concept as based on the perceptions and beliefs of employees to their role in job and organization as internal motivation process of employees of the relevant duties.

Two famous models determining the problem better are as follows:

BOWEN &LAWLER MODEL

According to Bowen &Lawler, access to information plays important role in decision making and it leads to empowerment. These theorists consider empowerment factor four organizational components:

1 Information regarding organization performance

2 Reward based on organizational performance

3 Power to take effective decisions on organization direction

4 Power to take effective decisions on organization performance
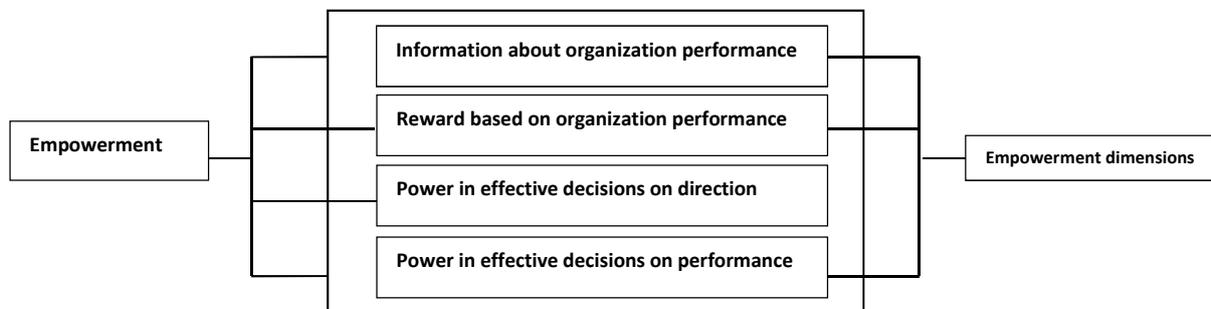

Fig 2. Bowen &Lawler empowerment model (source: Lee and Koh, 2001)

SPREITZER MODEL

Spreitzer (1995-1996) based on Thomas & Velthouse model considered psychological empowerment as a motivational concept based on four dimensions of competence, autonomy (choice), meaning and effectiveness and these dimensions reflect personal direction to the role of work in organization.
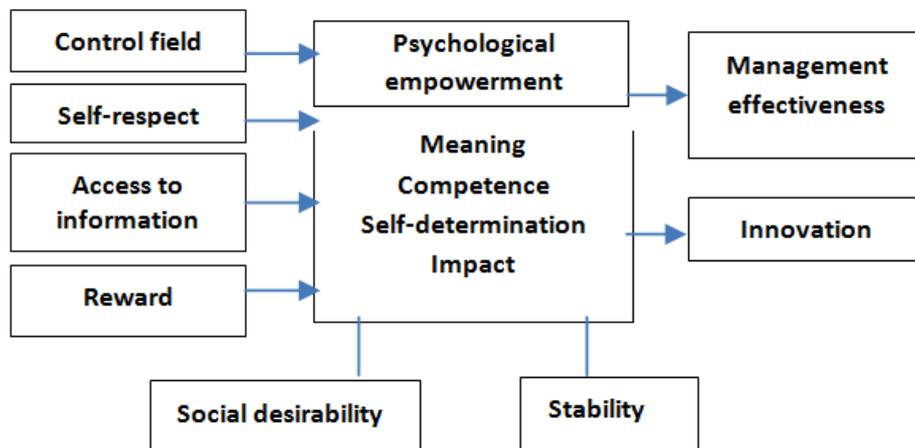
Fig 3. Spreitzer empowerment model 1996

3 STUDY METHODOLOGY

The study population is including all employees working in educational service units of Medical Sciences University of Isfahan including educational deputy, relevant management and educational services, nine colleges of University and 124 people were selected and the sample size is determined by the following formula.

$$n = \frac{N \times z_{\frac{\alpha}{2}}^2 \times s^2}{(N-1) \times d^2 + z_{\frac{\alpha}{2}}^2 \times s^2} \qquad n = \frac{124 * (1.96)^2 * 0.146}{123 * (0.05)^2 + (1.96)^2 * 0.146} = 80$$

Where N is the number of sample size and s^2 is variance of initial sample. In this study, the sample size is 124 and initial sample variance 0.146. Also, Z is normal variable in accordance to confidence interval and this value with confidence interval 0.95 is 1.96. D is allowable mistake in sampling as ranging 0 to 1 and it is 0.05 in this study.

To measure organizational empowerment, questionnaire of Matthews, Diaz & Cole(2003) is used composed of 23 items and 3 components "dynamic structural framework", "organization decisions control" and "Information sharing".

To measure psychological empowerment, Spreitzer (1995) questionnaire is used by adding "participation with others" applied in the study of "Abdullahi, 2005" and Abdullahi and Nave Ebrahim, 2007" including 19 items and five components of meaningfulness in job", " competence in job" and "choice", "effectiveness" and "participation with others".

To measure customer-oriented behavior of employees, "Peccei; Rosenthal (2001) questionnaire is applied composed of 6 items.

Then, by Cronbach's alpha method, the reliability of questionnaires is evaluated:

Table1. The items and Cronbach's alpha of subscales of questionnaire

Factors	Items	Cronbach's alpha
Customer-oriented behavior	1-6	0.730
Dynamic structural framework	1-7	0.856
Control of decisions	8-14	0.773
Information sharing	15-23	0.817
Total organizational empowerment	1-23	0.902
Meaningfulness	1-3	0.730
Competence	4-7	0.753
Choice	8-10	0.903
Effectiveness	11-13	0.786
Participation with others	14-19	0.881
Total psychological empowerment	1-19	0.931

Then, confirmatory factor analysis method is applied and the indicators of customer-oriented behavior with value λ (factor loads) have factor load at least 0.38 to maximum 0.96. All the factor loads had relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of structural behavior with value λ (factor loads) have factor load at least 0.58 to maximum 0.80. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of decisions control with value λ (factor loads) have factor load at least 0.03 to maximum 0.92. All the factor loads have relatively suitable values for estimation and all of them are significant except one (P<0.01).

The indicators of information sharing with value λ (factor loads) have factor load at least 0.36 to maximum 0.72. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of meaningfulness with value λ (factor loads) have factor load at least 0.53 to maximum 0.88. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of competence with value λ (factor loads) have factor load at least 0.49 to maximum 0.94. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of choice with value λ (factor loads) have factor load at least 0.83 to maximum 0.95. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of effectiveness with value λ (factor loads) have factor load at least 0.68 to maximum 0.80. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The indicators of participation with others with value λ (factor loads) have factor load at least 0.59 to maximum 0.84. All the factor loads have relatively suitable values for estimation and all of them are significant (P<0.01).

The questions of all components were suitable as the model fitness indices in confirmatory factor analysis are suitable.

In the next stage, latent variable of organizational empowerment is evaluated by three latent factors of structural framework, decisions control and information sharing. Also, structural framework is measured by seven indicators, control of decisions by seven indicators and information sharing by seven indicators. To define whether implementing organizational empowerment is evaluated accurately by three factors and these factors are evaluated accurately by the indicators of each factor, second order confirmatory factor analysis is used and the results are presented briefly as follows:

Table2. Standard factor loads of confirmatory factor analysis in second stage for organizational empowerment

Factor	
Organizational empowerment	**Factors**
[**]0.70	Structural framework
[**]0.61	Control of decisions
[**]0.86	Information sharing

Table3. Fitness indicators of confirmatory factor analysis of organizational empowerment model

Acceptable range	Achieved value	Index
-	269.94	x^2
-	184	Df
Less than 0.08	0.077	RMSEA
About 1	0.91	NFI
About 1	0.92	CFI
About 1	.90	GFI
About 1	0.85	AGFI

Based on the results of tables, the indicators of organizational empowerment in the designed model are suitable factors and indicators as the model fitness indices in second order confirmatory factor analysis are suitable and the model fitness is shown. RMSEA is equal to 0.077 and it is an acceptable value in model fitness. Other fitness indicators as NFI‹CFI ‹IFI ‹AGFI, GFI with values about 1 are considered as relatively good indices of model fitness.

Table4. Standard factor loads of confirmatory factor analysis in second stage for psychological empowerment

Factor	
Psychological empowerment	**Factors**
[**]0.67	Meaningfulness
[**]0.94	Competence
[**]0.84	Choice
[**]0.97	Effectiveness
[**]0.95	Participationwith others

Table5. Fitness indices of confirmatory factor analysis of psychological empowerment model

Acceptable range	Achieved value	Index
-	196.83	x^2
-	142	Df
Less than 0.08	0.070	RMSEA
About 1	0.90	NFI
About 1	0.92	CFI
About 1	0.89	GFI
About 1	0.82	AGFI

Based on the results of tables, the indicators of psychological empowerment in the designed model are suitable factors and indicators as the model fitness indices in second order confirmatory factor analysis are suitable and the model fitness is shown. RMSEA is equal to 0.070 and it is an acceptable value in model fitness. Other fitness indicators as NFI‹CFI ‹IFI ‹AGFI, GFI with values about 1 are considered as relatively good indices of model fitness.

After taking these stages, 90 questionnaires are distributed as simple random and 80 acceptable questionnaires are collected for data classification. Then, the descriptive statistics of data is presented and by regression analysis, the study hypotheses are investigated and the suitable models are evaluated. Then, by variance analysis test, the impact of demographic variables on study variables is investigated. The analyses are done by SPSS20 Software.

4 FINDINGS

At first, bykolmogorov smirnov test, normality of study data is investigated. As significance level of each variable is bigger than 0.05, the study variables are normal (P>0.05).

Table6.Test of normality condition of data

	Customer-oriented behavior	Dynamic structural framework	Control of decisions	Information sharing	Meaningfulness	Competence	Choice	Effectiveness	Participation with others
Mean	4.2975	2.3732	2.0818	2.2599	3.5958	2.6812	2.5708	2.6542	2.4113
SD	0.4487	0.72904	0.63875	0.62579	0.87583	0.8805	1.03551	0.94048	0.88639
kolmogorov smirnov	1.291	0.765	0.649	0.64	0.63	1.009	0.99	0.954	0.984
Significance level	0.071	0.603	0.73	0.741	0.78	0.26	0.28	0.323	0.287

MAIN HYPOTHESIS TEST

1 Organizational empowerment is effective on customer-oriented behavior of employees.

By regression test, this hypothesis is tested. The results are shown in two tables. Significance level of F statistics test is less than 0.05. Thus, this hypothesis is supported and we can say organizational empowerment is effective on customer-oriented behavior of employees.

Table7.Indices of regression model of customer-oriented behavior based on organizational empowerment

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	StatisticsF	Significance level
.68	. 74	. 62	6.202	.015

Table8.Regression results of customer-oriented behavior based on organizational empowerment

Model	Raw coefficients		Standard coefficients	T	Significance level
	B	Standard error	Beta		
Constant	4.793	.205		23.388	.000
Organizational empowerment	.221	.089	.271	2.490	.015

The adjusted coefficient of determination of the model is 0.62 and 62% of the changes of customer-oriented behavior are determined by organizational empowerment. We can present the following equation to predict customer-oriented behavior based on organizational empowerment:

Customer-oriented behavior   = 4.793 + 0.221   Organizational empowerment

Based on the above equation, for one unit increase in organizational empowerment, 0.221 units are added to customer-oriented behavior.

2 Psychological empowerment is effective on customer-oriented behavior of employees.

This hypothesis is tested by regression test. The results are shown in Table. The significance of F statistics is above 0.05 and this hypothesis is not supported and psychological empowerment is not effective on customer-oriented behavior of employees. Also, the correlation coefficient and coefficient of determination are calculated as little.

Table9. Indices of regression model of customer-oriented behavior based on psychological empowerment

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	F statistics	Significance level
. 1	.01	.13	. 7	.895

Among subhypotheses as significance level of F statistics test is above 0.05, the hypotheses are not supported and only the impact of two components "control of decisions" and "information sharing" is supported:

1. The control of organization decisions on is effective on customer-oriented behavior of employees.

This hypothesis is tested by regression test. The results are shown in two tables. The significance level of F statistics is less than 0.05 and this hypothesis is supported and we can say the control of organization decisions is effective on customer-oriented behavior of employees.

Table10. Indices of customer-oriented behavior regression based on controlling the decisions of organization

Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	F statistics	Significance level
.761	. 58	. 46	4.805	.031

Table11. The regression results of customer-oriented behavior based on controlling the decisions of organization

Model	Raw coefficients		Standard coefficients	T	Significance level
	B	Standard error	Beta		
Constant	4.650	.168		27.676	.000
Control of decisions	.169	.077	.241	2.192	.031

The adjusted coefficient of determination of the model is 0.46 and 46% of the changes of customer-oriented behavior are determined by control of decisions. We can present the following equation to predict customer-oriented behavior based on control of decisions:

Customer-oriented behavior   = 4.650 + 0.169   Control of decisions

Based on the above equation, for one unit increase in control of decisions, 0.169 units are added to customer-oriented behavior.

2. Information sharing is effective on customer-oriented behavior of employees.

This hypothesis is tested by regression test. The results are shown in Table. The significance of F statistics is above 0.05 and this hypothesis is not supported and we can say information sharing is effective on customer-oriented behavior of employees.

Table12. Indices of regression model of customer-oriented behavior based on information sharing

Correlation coefficient	Coefficient of determination	Adjusted coefficientof determination	F statistics	Significance level
.916	. 84	. 73	7.195	.009

Table13. The regression results of customer-oriented behavior based on information sharing

Model	Raw coefficients		Standard coefficients	T	Significance level
	B	Standard error	Beta		
Constant	4.768	.182		26.189	.000
Information sharing	.208	.078	.291	2.682	.009

The adjusted coefficient of determination of the model is 0.73 and 73% of the changes of customer-oriented behavior are determined by information sharing. We can present the following equation to predict customer-oriented behavior based on information sharing:

Customer-oriented behavior   = 4.768 + 0.208   Information sharing

Based on the above equation, for one unit increase in control of decisions, 0.208 units are added to customer-oriented behavior. Later, the mean of the rank of studied variables is compared by Friedman test and it was defined the importance of study factors or variables is not equal from the view of respondents as the significance level is less than 0.05 as the rank of mean of the various dimensions of study is not equal. The mean of rank of customer-oriented behavior of employees and dynamic structural framework among the subscales of organizational empowerment and meaning among the subscales of psychological empowerment are more than other factors.

Table14. The results of Friedman test

Chi-square	294.404
Degree of freedom	8
Significance level	.000

Finally, to investigate the equality or difference of the variables in various dimensions in the studied population and based on the demographic features of respondents, the variance analysis test is used and it is found the demographic factors have not significance impact on the views of respondents as the significance of these factors is above 0.05 and it means that these factors are not different from the view of respondents with "age", "education", "experience" and "gender".

5   DISCUSSION AND CONCLUSION

The result of this study doesn't support the impact of psychological empowerment and its components on customer-oriented behavior of employees and the impact of organizational empowerment on customer-oriented behavior of employees is supported but among three components of organizational empowerment, dynamic structural framework is not effective on customer-oriented behavior of employees. Indeed, the modified model is determined as followings:

Organizational empowerment → *Customer-oriented behavior of employees*

It is better to consider two components of control of decisions and information sharing on customer-oriented behavior of employees. After reviewing the items of two effective components, most of them are based on legal rules and their change is not possible to improve the condition and performance easily. It shows that there are some fundamental problems for managers to improve good behaviors of employees working in service providing system of the country and educational service is one of them. Indeed, its major part effective on customer-oriented behavior of employees is not flexible and it is

not only due to the complexity and inflexibility of rules but also for power and politics in organization. Indeed, a few managers are in our country to present the financial documents to employees. We can have a review of items of two components:

- Employees can give their opinions regarding determining their job responsibilities.
- Employees can give their opinions regarding determining standards of presenting their services.
- Employees can give their opinions to determine their wage.
- Employees can give their opinions in work teams as their members.
- Employees can give their opinions to employ and use new employees.
- Employees can give their opinions to create their pension plans.
- Employees give feedbacks to their manager.
- The financial documents of organization are presented to employees.
- The organization has efficient method to distribute information among the employees in all levels.
- Employees have access to the information of their personal work files.
- The organization publishes the information of reward structure.
- The organization publishes the information of customers' structure and client.
- Employees have technical knowledge regarding professional development plans presented by organization.
- Employees receive feedback regarding their performance in organization.
- Employees perceive the transfer of information in the entire organization.
- Employees can give opinion regarding the work procedures and services.

It is observed that the studied employees in research of the issues much basic than relevant components and items of psychological empowerment are effective on the performance of their behavior.

This study attempted to consider the reliability and validity of study instrument and accuracy in the stages before analysis to provide reliable results but it doesn't mean the results of study can be generalized to other fields and it needs the more investigations namely in organizations of our country as different from other European and American countries in terms of ownership, culture and power distribution. We cannot expect that we have some results close to the predictions as arising from the literature of issue as the review of literature is mostly regarding the communities with advanced academic structure.

REFERENCES

[1] Conger, J.A and Kanungo, R.N (1988), "The empowerment process: integrating theory and practice" .Academy of Management Review, Vol, 13, pp: 471-482.
[2] KazlauskaiteRuta, BuciunieneIlona, TurauskasLinas (2011), "Organizational and psychological empowerment in the HRM-performance linkage" , employee relations, vol.34 Iss: 2pp. 138-158.
[3] Mohammadi, Mohammad. 2002. Empowerment plans of employees. Journal of management studies. NO. 35, 36. p. 1559-185.
[4] Matthews Russell A, Diaz Wendy Michelle, Cole Steven G. "The organizational empowerment scale", (2002) Texas Christian University, Fort Worth. employeerelations,vol. 32 No.3, 2003 pp. 297-318.
[5] Quinn, R. E; & Spreitzer, G. M., (1997). "The road of Empowerment: seven Questions Every Leader Should Consider", Orgonization Dynamic, Vol.26.
[6] Robbins, T.L; Crino, M.D; and Fredendal, L.D (2002) "An intrative model of the empowerment process", Human Resource Management Review, Vol, 12, pp.419-443.
[7] Spreitzer, G.M. (1995), "Psychological empowerment in the workplace: construct definition, measurement and validation", Academy of management Journal, Vol, 38, pp:1442-1465.
[8] Spreitzer, G. M., (1996) , "Social Structural Characteristics of Psychlogical Empowerment", Academy of Manegement Review, Vol.39, No.2, PP.483-507.
[9] Spreitzer, G. M.; De Janesz, S.; and Quinn, R. E., (1999). "Empowered to lead: The role of psychological empowerment in leadership". Journal of Organizational Behavior, No.20, PP: 491-498.
[10] Vedadi A, Mehrara A. Survey of the Relationship between Psychological Empowerment and Organizational Commitment in Tehran City Tax Affairs Offices. 3. 2013; 21 (18) :161-180
[11] Ansari, Manuchehr: RahmaniYushanloyi, Hossein, Oskuyi, Vahid. 2010. Identification of the factors and designing conceptual model of human resources empowerment in communication and information technology ministry (case study), Administrative management. NO. 45.

[12] Peccei Ricardo; Rosenthal Patrice,(2001) . "Delivering custumer-oriented behavior through empowerment: An empirical Test of HRM assumptions" University of London – Research paper 003.

[13] HorabadiFarahani, Majid. 2006. The study of the relationship between organizational structure and empowerment of employees. MA thesis. Tehran University. Management school.

[14] Bandura, A;(1986), "Social foundations of thought and action", Englewood Cliffs, NJ: Prentice-Hall

[15] Bowen, D.E &lawler, E.E.(1995), "Empowerment Sear vice Employees", Solan Management Review. Summer.

[16] Lotans, Fred. Translated: Rezayimanesh, Behrooz, Taghizade, Alireza. Kahe, Maryam. 2012. Psycological capital, Scientific publish. First chapter.

[17] Spreitzer. Gretchen. M &Doneson. David, (2005). "Musings on the past andfuture of employee empowerment", Forthcoming in the handbook oforganizational development.

A Model for Prediction of Bahar Azadi Coin Price via Neural Network

Amir Aliabbaszadehasl, Mohammad Hossein Kiani, and Sepideh Aboutalebi

Faculty of Management, Department of Finance,
Tehran University,
Tehran, Iran

ABSTRACT: Investment in gold is one of the interesting ways of earning money in Iran. Therefore, access to gold price is a main factor for investors. In recent years, easy access to gold price has faced withsome restrictions because of its high volatility. There are numerous means of gold price prediction. Recently, artificial intelligence and Neural Network have attracted much attention among scientific communities due to their high accuracy in price prediction. In this paper, prices of Iranian Bahar-e-Azadi gold coin have been extracted in a period of one year.After identifying the effective factors, influence of each factor has been acquired. Afterwards,theprice of gold coin has been predicted with the Neural Network method and finally, the accuracy of this procedure has been obtained.

KEYWORDS: Investment, High volatility, Gold coin, Neural Network, Price prediction.

1   INTRODUCTION

Bahar Azadi coin is one of the legal gold coinages inthe Islamic Republic of Iran. Bahar Azadi coins are minted in two types and various weights. These coins are stamped in Central Bank mint of Iran and distributed by agent banks or authorized exchanges and sold as retail or wholesale every year.

Gold coins are used as an investment asset to preserve money present value. These coins are an important part of investments and savings amongthe Iranian people. Due to the considerable role of gold coin as investing asset, banks hold a part of their investment and liquidity as coins to obtain bankroll and more secure investments. Investing gold coins are less risky because of their intrinsic value. Comparing to other assets like real estate, gold coin has more liquidity and can be sold in every occasion. There are investors in gold coin bazaars of Iran who trade in large amounts of gold coins considering gold price fluctuations in Iran and abroad. These Investments generally cause return between 30 and 50 percent annually. Gold coins are traded as retail and wholesale. Considering the many applications of gold coin, consumption and trading of it has a high frequency, multiplicity and high reproducibility. Accordingly, gold coin consumption and trading cash volume are more than many main staples even at peak times. Beside traditional ways of trading in bazaar, gold coin futures are traded in the Iran Commodity Exchange.

Due to the importance of gold coin price forecasting gold coin price has a considerable role in an investment. Various methods are presented for the gold coin price prediction. Generally the most used methods are Statistic methods such as regression, time series, autoregressive and moving average smooth development.

In recent decades by developing metaheuristic methods and artificial intelligence methods, Neural Network and fuzzy logic methods have gained more attention.

In this paper a Neural Network method is presented to predict gold coin price. Several factors are effective on gold coin price. Factors with considerable impact over gold coin prices, which have been studied in this paper are prices of gold, world prices of crude oil, exchange rate, dollar rate, Iran gold coin prices and Inflation rate of Iran.

For predicting gold coin price with Neural Network method, alldata related to effective factors are gathered throughout a year. Gold coin price is forecasted by training a Multi-layer Perceptron Neural Network (MLP) with the data. Finally model accuracy has been analyzed.

2   LITERATURE REVIEW

Many researchers have studiedeffective factorson gold price and made models to predict it. Tully and Lucey have studied the effect of macro-economic variables on current price and future price of gold with GARCH models [1]. They forecasted gold price with a GARCH model of future price, cash indexes and a few other factors. Blose had studied the effect of expected inflation rate on gold price volatility [2]. He considered the CPI index as an indicator of inflation variable and demonstrated that the changes in CPI leads the investors to bond exchanges as they can't predict gold price while there is inflation. Ismail et al estimated gold price with multiple regression [3]. Batten et al. studied the effect of important economic factors, economical periods, money environment and financial markets on price of valuable metals like gold, silver, platinum and palladium and indicated they are considerably effective [4]. Shafiee and Topal presented a research on long term trend of gold price and its relation with two major factors: oil price and inflation [5]. Using historical gold price data for 40 years a long term trend reverting jump and dip diffusion model was used to predict gold price for the next 10 years, which indicated that there is a direct relationship between gold price and oil price but there is no noticeable relation between USA inflation and gold price. Zhang and Wei reported that the effect of oil on gold priceis prevailing [6] Ali khan proposed a model for forecasting gold price with Box Jenkins approach [7].

According to developments in artificial intelligence in recent years,many studies have used this method toimprove predictioncapability. Ghezelbash presented a model using gold price and stock index volatility withNeural Network [8]. Yuan predicted gold coin price by combining Neural Network and GA algorithm [9]. Chai et al. utilized Neural Network in stock index prediction [10]. They merged Neural Network and Gari theory to acquire more precise prediction using less input data. They used Gari theory output data as input data for a Neural Networkto increase accuracy. Malliaris et al. introduced a study about comparing time series and Neural Network to prognosticate gold, oil and euro price [11]. Shaikh and Zahid predicted S&P future index with Neural Network method [12]. Changa et al proposed a joint model of Neural Network, fuzzy logic and autoregressiveapproaches to predict TAIEX stock index [13]. Grudnitski forecasted S&P Index and gold future price index utilizing Neural Network [14].

A few papers studied gold coin price forecasting in Iran,but there is not any complete paper on forecasting Bahar Azadi coin price by using Neural Network. The presented paper could contribute to this fact.

3   RESEARCH METHODOLOGY

3.1   NEURAL NETWORK

The Neural Network is an information processing system inspired from human brain. Information is processed with large number of minuscule elements which are interconnected and work parallel to solve a problem. By use of computer programming an information structure is designed which can act like neurons. Connecting the neurons leads to a network that can be taught.

In this Neural Network neurons have two modes: active (on or 1), inactive (off or 2) and every synapse has a weight. Positive weighted synapses excite the next inactive nodes and negative weighted synapses inactive the next connected node (if it was active). A Neural Networkconsists of layer components and weights. TheNetwork behavior depends on the relationship between components. There are three different kinds of layers in a Neural Network:

- input layers: receiving the raw data that is fed into the grid.
- Hidden layers: Function of these layers is defined by the connection weights between them and inputs. A weight between hidden layers and input data determines when a hidden layer must be activated.
- Output layers: Function of these layers is depended onhidden unit activity and connection weights between hidden and output units.

Figure 1 is an example of a Neural Network.
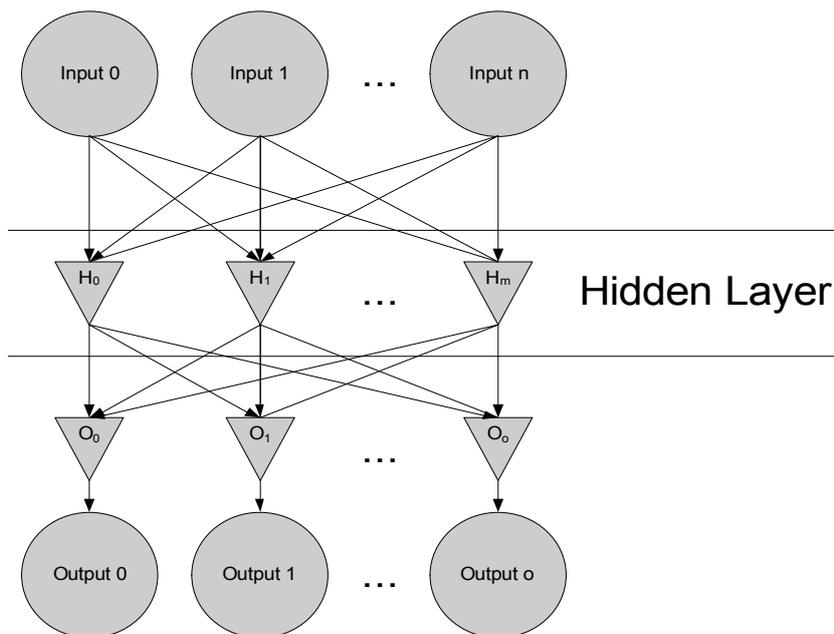
Fig. 1.   An overview of Neural Network

Between multi-layer and single layer networks, single layers in which all layers are connected to one layer are commonly used due to their higher calculating potential than multi-layer networks. In multi-layer networks units are numbered by layers. Each two layers of a network are connected with weights. Feed-forward is one of the different modes of connections in Neural Networks, which is more commonly used. In a feed-forward Neural Network signals move in one direction. There is no feedback from input to output and a layer's output does not influence the layer itself.

3.2   MULTI-LAYER PERCEPTRON NEURAL NETWORK (MLP)

MLP network is a set of neurons located in several layers after each other. After being multiplied into weights, input values reach other neurons and pass through the network function and form outputs. Ultimately outputs are compared to real values and errors are used to modify the model weights. This is called training. Figure.2 shows a simple perceptron network.
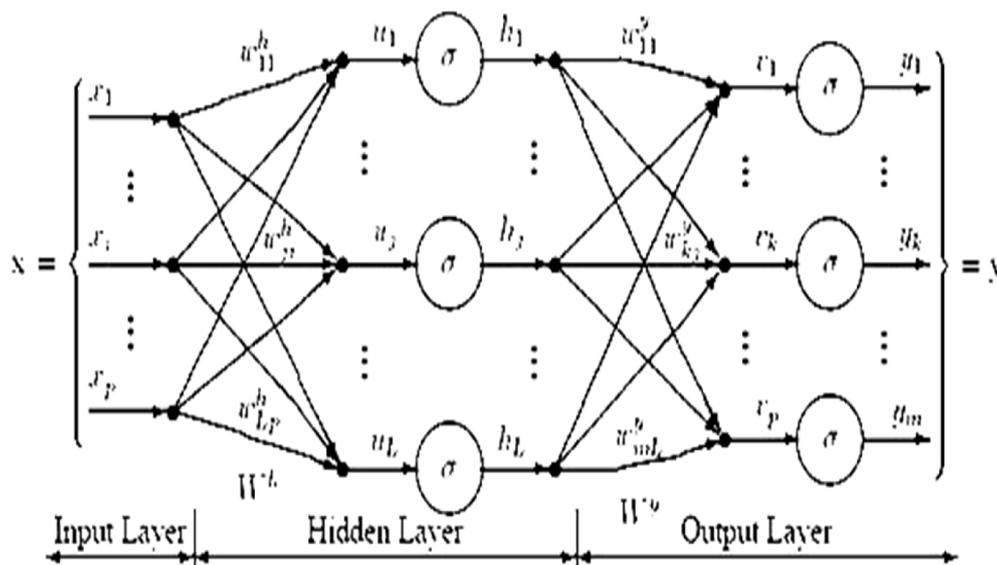
Fig. 2.   An overview of MLP

3.3 TRAINING MULTI-LAYER PERCEPTRON NEURAL NETWORK

Following equation defines perceptron output:

$$O(x_1, x_2, ..., x_n) = \begin{cases} 1 \rightarrow \text{if} \rightarrow w_0 + w_1 x_1 + ... + w_n x_n \succ 0 \\ 0 \rightarrow \text{if} \rightarrow o.w \end{cases} \quad (1)$$

Training perceptron includes finding proper values for W. Thus,in learning perceptron hypothesis space Hconsists of all real possible values for weight vectors.

Stages ofthe perceptron training algorithm are as follows:

1. Random weights are assumed

2. For every sample perceptron is applied and in case of high error rate weights are adjusted.

Are all the samples correctly analyzed?

Yes→ algorithm ends.

No→ go to the second stage

4 NUMERICAL DATA

The corresponding historical data of four effective factors are collected from 22.5.2013 to 22.5.2014 that are world gold price, world oil price, exchange rate, Iran gold coin prices.Statistical features are computed and each historical behavior of each factor is separately shown in the below charts.For further study, regression analysis has been used between each factor and the dependent variable.
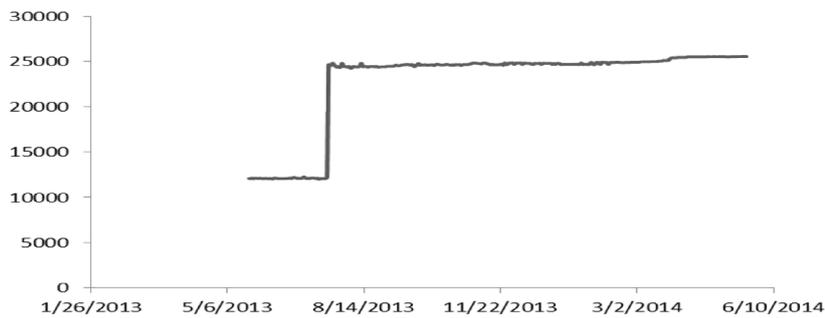
Fig. 3.   Exchange rate

Fig. 4.   Iran gold price

Fig. 5.   World gold price

Fig. 6.   World oil price

4.1   DATA ANALYSIS OF EFFECTIVE FACTORS

In the tablebelow, mean, median, max, min, standard deviation, skewness and kurtosis values are computed for each explanatory variable and descriptive statisticalvalue for each variable is presented.

Table 1.   Data analysis

	Exchange rate	World gold price	Iran gold price	World oil price
Mean	22811.46	1303.36	29704198.19	105.28
Median	24653.00	1302.90	32319925.00	105.27
Max	25541.00	1420.60	34633348.00	112.80
Min	11991.50	1195.00	14576790.00	98.33
Standard Deviation	4675.11	52.52	6053416.12	2.61
Skewness	-1.85	0.13	-1.75	-0.08
Kurtosis	1.48	-0.67	1.32	0.64

5   RESULTS

5.1   EFFECTIVE FACTORS AND GOLD COIN PRICE RELATIONSHIP

To study the effective factors on gold coin price R-squared values are computed and presented in table 2. These factors can affect each otherbut it is not considered in this paper.

Table 2. R squared values for each factor

	Exchange rate	World gold price	Iran gold price	world oil price
R squared	0.912686	0.989325	0.918024	0.982202

5.2   NEURAL NETWORK MODEL AND PREDICTING GOLD COIN PRICE

After defining the parameters, the model was coded in Matlab. Normally, designed networks consist of two or three layers. Increasing number of neurons in each layer or number of thehidden layers leadsto a model with more fitness, but its prediction capability reduces. To find an optimal number of neurons and layers, different networks are designed and ultimately a Neural Networkwas chosenwith the least Mean Square Error (MSE)which had three hidden layers and 5 neurons in each. An overview of theused Neural Network is presented in figure 7.
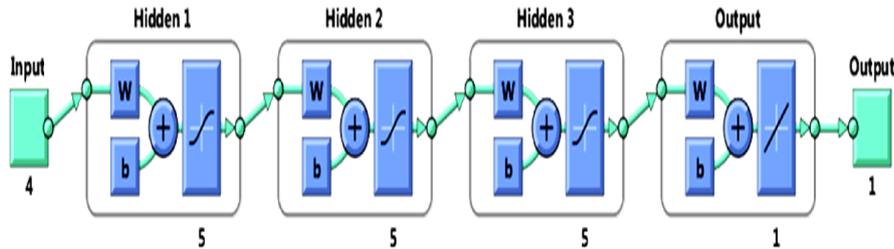
Fig. 7.   Utilized Neural Network with 3 hidden layers

Also Levenberg–Marquardt training algorithm (LMA) withthefollowing parameters in table3 was used in this study.

Table 3.   Utilized training parameters in the Neural Network

Maximum Epochs	epochs: 1000
Maximum Training Time	time: Inf
Performance Goal	goal: 0
Minimum Gradient	min_grad: 1e-07
Maximum Validation Checks	max_fail: 6
Mu	mu: 0.001
Mu Decrease Ratio	mu_dec: 0.1
Mu Increase Ratio	mu_inc: 10
Maximum mu	mu_max: 10000000000

70 percent of the data were used for training the model and 15 percent were used for model validation. Rest of the datawere used for testing the model. After running the model for several times it led to results with high fitness as presented in figure8.

Fig. 8.   Acquired fitness using Neural Network

5.3   ANALYZING THE MODEL WITH REAL VALUES

After designing and executing the model, results are compared with real values. As the illustrated below, using Neural Network proposes a proper estimation model for forecasting Bahar Azadi gold coin price and the model is suitable for gold coin price prediction. Figure.9 shows the real and estimated values for gold coin prices.Obviously Real values and estimation values have no considerable distance in Riyal between 2013/05/22 and 2014/05/22. Thus, with acceptable error value, model is favorable for estimating the gold coin price.

Fig. 9.   Real and estimated values for gold coin prices

6   CONCLUSION

In this paper four effective factors on gold coin price are analyzed: world gold price, world oil price, exchange rate and Iran gold price. Regression analysis confirmed the considerable relationship between the factors and gold coin price. A multilayer perceptron Neural Network with three hidden layers are designed for gold coin price prediction. After performing the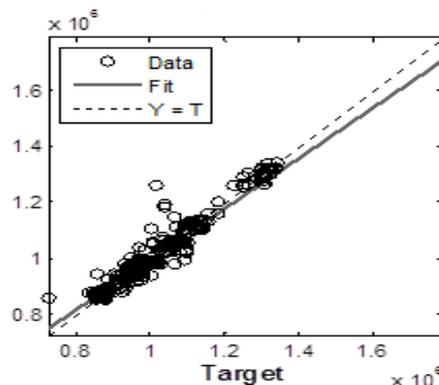 model, estimated values are compared with real values and as the results show the model is properly capable of predicting gold coin price.

REFERENCES

[1]   Tully E, Lucey BM. *A power GARCH examination of the gold market*,Research in International Business and Finance, vol. 21, no. 2, pp. 316-325,2007.
[2]   Blose LE. "Gold prices, cost of carry, and expected inflation,"*Journal of Economics and Business*, vol. 62, no. 1, pp. 35-47,2010.
[3]   Ismail Z, Yahya A and Shabri A. "Forecasting Gold Prices Using Multiple Linear Regression Method,"*American Journal of Applied Sciences*, vol. 6, no. 8, pp. 1509-1514,2009.
[4]   Batten JA, Ciner C and Lucey BM. *The macroeconomic determinants of volatility in precious metals markets*. Resources Policy, vol. 35, no. 2, pp. 65-71, 2010.
[5]   Shafiee S, Topal E. *An overview of global gold market and gold price forecasting*. Resources Policy, 35(3): 178-189, 2010.
[6]   Zhang YJ, Wei YM. *The crude oil market and the gold market: Evidence for cointegration, causality and price discovery*. Resources Policy, vol. 35, no. 3, pp. 168-177,2010.
[7]   Ali Khan MM. "Forecasting of Gold Prices: Box Jenkins Approach,"*International Journal of Emerging Technology and Advanced Engineering*, vol. 3, no. 3, 2013.
[8]   Ghezelbash A. "Predicting Changes in Stock Index and Gold Prices to Neural Network Approach,"*The Journal of Mathematics and Computer Science*, vol. 4, no. 2, pp. 227-236, 2012.
[9]   Yuan G. "Study on Gold Price Forecasting Technique Based on Neural Network Optimized by GA with Projection Pursuit Algorithm,"*Journal of Convergence Information Technology*, vol. 7, no. 18, pp. 558-565, 2012.

[10] Sheng-Chai Chi. "A forecasting approach for stock index future using grey theory and Neural Networks,"*International Joint Conference on Neural Network*, 1999.

[11] Malliaris AG, Malliaris M. "Time Series and Neural Networks Comparison on Gold, Oil and the Euro.PP. 1961-1967,"*Proceedings of International Joint Conference on Neural Networks*, Georgia, USA,14-19 June, 2009.

[12] Shaikh AH, Zahid I. "Using Neural Networks for forecasting volatility of S&P 500 Index futures prices,"*Journal of Business Research*, vol. 57, no. 10, pp. 1116-1125, 2004.

[13] Jing-Rong Changa, Liang-Ying Weib,Ching-Hsue Cheng. "A hybrid ANFIS model based on AR and volatility for TAIEX forecasting,"*Applied SoftComputing*,vol. 11, pp. 1388–1395, 2011.

[14] Grudnitski G, Osburn L. "Forecasting S&P and gold futures prices: An application of Neural Networks," *Journal of Futures Markets*, vol. 13, no. 6, pp. 631-643, 2006.

Tax-Spend, Spend-Tax or Fiscal synchronization hypothesis: Evidence from Iran

Abbas Ali Rezaei

Organization of Economic affairs and Finance In Sistan & Balouchestan,
Foreign Investment Service Center / Zahedan, Iran

ABSTRACT: The relationship between revenue and government expenditure is an important subject in public economics especially for Iran country, which is suffering from persistent budget deficits. From point of view of theoretical studies, there are essentially four schools of thought on the direction of causation between government expenditure and revenue. The main purpose of this study is to investigate the Long and short Run relationship between government revenue and government expenditure in Iran Country covering data 1978- 2012 with using An Auto Regressive Distributive Lag (ARDL) Approach. The Iranian economy has been subject to a multitude of structural changes and regime shifts during the sample period. First, time series properties of the data are first analysed by Augmented Dickey-Fuller (ADF), Zivot-Andrews and Lee – Strazicich (2003, 2004) model. The results of the ADF and Lee – Strazicich models indicate that all series under investigation are non-stationary at level. However, it is evident from the results of Augmented Dickey-Fuller and Lee – Strazicich tests that revenue and government expenditure are stationary at first difference because null hypotheses of unit roots for all the variables are rejected at 1 percent significance level. then,We investigated causality between revenue and government expenditure by using an application of Toda-Yamamoto approach. Their evidence generally found unidirectional causality running from government revenue to government expenditure. So, these results consistent with the revenue-spend hypothesis. In the three stages, Autoregressive Distributeded Lag (ARDL) technique is used to describe both long run relationships and short run dynamic adjustments between government revenue and expenditure variables. The results of this paper support the Freidman (1978) hypothesis that government revenues cause expenditure and revenues have a positive causal impact on government expenditure.

KEYWORDS: structural break, Toda-Yamamoto approach, ARDL technique, and Iranian economy.

1 INTRODUCTION

To take a good decision and to improve their societies, the governments need to design the budget. To do its functions a government uses budget as a planning and financial tool. One of the debates of public finance is to find the relationship between government revenue and expenditure and considerable theoretical and empirical research has been carried out on this issue. If policymakers understand the relationship between government expenditure and government revenue, without a pause government deficits can be prevented. Hence the relationship between government expenditure and government revenue has attracted significant interest. This is due to the fact that the relationship between government revenue and expenditure has an impact on the budget deficit. Over the Past three decades, a large number of studies have investigated the relationship between government revenue and government expenditure. Understanding the relationship between government revenue and government expenditure is important from a policy point of view, especially for Asian countries, which is suffering from persistent budget deficits.

There is a budget deficit while the government revenues are less than the government expenditures. Vice versa, when the government expenditures less than its revenues it is said that the government has budget surplus. There are always the budget deficit for iran during all of years of this study. In other words, the budget deficit is a characteristic of Iran economics .Some time the governments to reduce the unemployment rate at their societies use the budget deficit policy but having the budget deficit in the long period not only is a policy but also is a problem for society that it needs to solve. To solve this

problem the government should reduce its expenditures or it should increase its revenues resources. The budget revenue resources should be stationary and they must have the lowest fluctuations. Strongly dependent budget with the oil revenue shows the government have to change its expenditures or revenues. To achieve these aims the government should know the relationship between government revenues and expenditures. It has been observed that in some cases revenue increase or expenditures reduction effect on its corresponding variable and makes the adopted policy ineffective. So before to make a decision about reducing of the expenditure or increasing revenues it is important to know the amount of dependences of those variables that effect on the government expenditures. To obtain the appropriate financial policy to reduce or remove budget deficit it is necessary to find the relationship between government revenues and expenditures. The main purpose of this paper is to investigate the relationship between government revenue and expenditure in Iran for the period from 1978-2011. The paper is divided into five sections. Following this introduction, literature review of relevant studies will be presented. Section three will discuss data and methodology that is used in this research. Empirical results are reported in section four. Section five will conclude this exercise.

2   THEORETICAL LITERATURE REVIEW

The causal relationship between revenues and government expenditure is a classic problem of Public Economics. There are four propositions that can potentially explain observed spending-revenue behavior. The propositions are briefly discussed as follows: Friedman leads the tax-and-spend school, which contends that raising taxes will simply lead to more spending. Friedman (1982) [cited in Narayan (2005: 1205)] puts his point in the following way: "You cannot reduce the deficit by raising taxes Increasing taxes only results in more spending, leaving the deficit at the highest level conceivably accepted by the public. Political rule number one is government spends what government receives plus as much more as it can get away with". Also Milton Friedman (1982) suggests cutting taxes as a remedy to budget deficits, since taxes have a positive causal impact on government expenditure. According to Friedman, a cut in tax leads to higher deficits, which should influence government to reduce its level of spending, (Moalusi, 2004). Buchanan and Wagner (1977, 1978) put forward an alternative version of the tax-and-spend hypothesis. In contrast to Friedman (1978), they argue that tax increases would lead to spending reductions. The building block of the Buchanan and Wagner (1977, 1978) version of the tax-and-spend hypothesis is that taxpayers suffer from fiscal illusion. According to the authors, tax cuts lower the perceived price of government provided goods and services by the public, which in turn boosts the public demand for these goods and services. However, the public may actually incur even higher costs. One reason for this is the indirect inflation taxation that results if the government resorts to excessive money creation. Another reason is higher interest rates associated with government debt financing may crowd out private investment. To reduce expenditures, Buchanan and Wagner favor limiting the ability of the government to resort to deficit financing. In sum, while tax changes as before drive spending changes, the relationship between the two is a negative one.

The second school known as spend-and-tax school is built on the tenet that expenditure causes revenue proposed by Peacock and Wiseman (1961, 1979). According to the spend-and-tax hypothesis, the level of spending is first determined by the government and then tax policy and revenue are adjusted to accommodate the desired level of spending. A version of this hypothesis is suggested by Roberts (1978), and Peacock and Wiseman (1979) according to whom crisis situations (due to for example wars, natural disasters, or deep recessions) justify temporary increases in expenditures and taxes to pay for them. However, tax increases may become permanent; reflecting an upward adjustment in the level of tax tolerance of the citizens and their attitude towards the proper size of the government after the crisis has passed. This in turn allows for a permanent increase in the level of government expenditures. Another version of this hypothesis is based on the works of Barro (1974, 1979, 1986). In his tax smoothing hypothesis, government spending is considered as an exogenous variable to which taxes adjust. Moreover, the intertemporal budget constraint requires that an increase in current expenditures be matched by higher future taxes. Barro, therefore, rejects the notion that the taxpayers suffer from fiscal illusion. Quite the contrary, within the framework of the Ricardian equivalence theorem, he maintains that taxpayers are sophisticated, or rational, enough to see that an increase in the current debt in nothing but a delayed form of taxation. Taxpayers are, therefore, expected to fully capitalize the future tax liability. As pointed out by von Furstenberg et al. (1992), changes in spending can precede changes in taxes if a political majority raises pre-election expenditures, which are then paid for by subsequent post-election tax increases, or if they cut taxes as a compensation for earlier decisions to restrain expenditures. Since it is changes in expenditures that drive changes in taxes in this scenario, the preferred approach to fiscal deficit reduction relies on cutting expenditures.

Fiscal synchronization hypothesis as the third school of thought argues that governments may change expenditure and taxes concurrently (Meltzer & Richard, 1981; Musgrave, 1966). This implies bidirectional causality between government expenditure and revenue. Under the fiscal synchronization hypothesis, citizens decide on the level of spending and taxes. This is done through comparing the benefits of government to citizen's marginal cost, (Narayan, 2005). Barro's (1979) tax

smoothing model provided further credence to the fiscal synchronization hypothesis. His model was based on the Ricardian equivalence view that deficit financed government expenditure today results in future tax increases, (Narayan, 2005). The implication of this hypothesis is that causal relationship between government revenue and spending is bidirectional.

Finally, fourth school, fiscal neutrality school, proposed by Baghestani and McNown (1994) believe that none of the above hypotheses describes the relationship between government revenues and expenditure. Government expenditure and revenues are each determined by the long run economic growth reflecting the institutional separation between government revenues and expenditure that infers that revenue decisions are made independent are expenditure decisions. A major advocate of this view is Wildavsky (1988) who maintains that separate institutions such as the executive and legislative branches of the US government participate in the budgetary process to determine the level of taxation and spending. Budgeting can be incremental and adjustments can be made on the margin if these separate institutions reach a consensus on the fundamentals. In this case there is no causality between the two variables, and hence they are independent of one another.

3   EMPIRICAL LITERATURE REVIEW

Numerous empirical studies available on revenue and expenditure nexus all over the world but there is no consensus about the linkage between these variables. Though over the last three decades several studies have been carried out in different countries to investigate the issue in the public economics, findings vary from country to country and also within the country. Considerable empirical works have been done with respect to the four above mentioned hypotheses. Using different econometric methods, studies have reached to different results. Different studies have focused on different countries, time periods, and have used different proxy variables for government revenue and expenditure. The empirical outcomes of these studies have been varied and sometimes conflicting. The results differ even on the direction of causality and it is long-term versus short term impact on government policy. We now move on to review some of the empirical studies of the relationship between government revenue and expenditure.

Hasan and Lincoln (1997) carried out a research on this issue for United Kingdom by using cointegration technique and quarterly data from 1961-93 was used for this purpose. This study reveals that government tax revenue Granger causes government expenditures and vice versa. E.g. Shah and Baffes (1994) in their study for Latin American countries concluded bidirectional causality between government revenue and expenditure for Argentina over the 1913-1984 periods and for Mexico over the 1895-1984 periods; while for Brazil they found unidirectional causality running from revenue to expenditure. Owoye (1995) investigated the issue for the G7 countries. He found bidirectional causality for five of the seven countries and for Japan and Italy he found causality running from revenue to expenditure. Abdul Aziz and Shah Habibullah (2000) investigated causality between taxation and government spending by using an application of Toda-Yamamoto approach in Malaysia for the period 1960 to 1997. Their evidence generally supports the existence of bidirectional causality between government spending and tax revenues. Kollias and Makrydakis (2000) examined tax and spending relationship in four countries namely; Greece, Portugal, Spain, Ireland which are comparatively poorer countries in European Union. They found that cointegration prevails in only Greece and Ireland cases and whereas there is no long run relationship in the models for Spain and Portugal. Moreover, bidirectional causality between government spending and revenue exists in Greece and Ireland. As far as Spain and Portugal cases are concerned, in the former country, causality runs from revenue to expenditure and in the later country, there is no causal link between these two important fiscal variables. Chang et al (2002) conducted a study to examine this relationship in ten industrialized countries including three newly industrialized Asian economies namely, Taiwan, South Korea and Thailand. In this study, GDP variable is also included in the model as a control variable along with government expenditures and tax variables and Johansen cointegration technique is exercised for analysis. They claimed that cointegration among the variables prevails for seven countries and found causality from government revenues to government expenditures for UK, USA, South Korea, Japan and Taiwan whereas causality runs from government expenditures to revenues for South Africa and Australia. This study also found independence between revenues and expenditures for New Zealand and Thailand. Maghyereh and Sweidan (2004) examined tax-spend, spend-tax and fiscal synchronization hypothesis for Jordan using annual time series data from 1969 to 2002. The authors used real GDP as control variable along with real government expenditures and real government revenues and Granger causality test based on Multivariate ECM. They conclude evidence in favor of bidirectional causality between revenue and expenditure. The result also suggests that there is long-run interdependence between output and fiscal variables indicating effectiveness of fiscal policy in Jordan. Carneiro et al. (2005) investigated this issue for Guinea-Bissau over the period 1981 to 2002. They found that Guinea-Bissau's experience is consistent with the "spend - tax" hypothesis. Barua (2005) examined revenue and expenditure causality in Bangladesh by using annual data over the period 1974-2004. The results of Johansen test suggest that there is a long-run relationship between government expenditure, revenue and GDP and the Granger Causality test on the corresponding Vector Error Correction (VEC) model suggests that there is no causal relationship between revenue and

expenditure in the short run. It is also observed that the short run relation extends from both the fiscal variables to GDP, and not the other way around. Tsen and Kian-Ping (2005) examined this relationship in Malaysia for the period from 1965 – 2002. Augmented Dickey-Fuller and Phillips-Perron Unit root tests, Johansen cointegration and error correction models were applied to data. The results supported tax-spend hypothesis. Government revenue was found to Granger cause expenditure in Malaysia. In another study, Narayan and Narayan (2006) found tax-and-spend hypothesis for Mauritius, El Salvador, Chile, Paraguay and Venezuela. For Haiti, there is evidence for supporting the fiscal synchronization hypothesis, while for Peru, South Africa, Guatemala, Guyana, Uruguay and Ecuador there is evidence of neutrality by application of the Toda and Yamamoto (1995) test for Granger causality. Nyamongo et al. (2007) in a study of the government revenue and expenditure nexus in South Africa found different results. A monthly data was used, and modified unit root test and Vector Error Correction Model (VECM) were applied on data. It was found that government revenue and expenditure are cointegrated, and a long-run relationship exists between them. Applying Granger causality through VECM model, it was found bidirectional Granger causality which supports fiscal synchronization hypothesis. In the short-run no Granger causality was found between variable, suggesting fiscal neutrality hypothesis in South Africa for the period of study. the study Wolde-Rufael (2008) for 13 African countries by using Toda and Yamamoto causality test show the direction of causation are mixed and his empirical evidence suggests that there was a bidirectional causality running between expenditure and revenue for Mauritius, Swaziland and Zimbabwe; no causality in any direction for Botswana, Burundi and Rwanda; unidirectional causality running from revenue to expenditure for Ethiopia, Ghana, Kenya, Nigeria, Mali and Zambia; and an un-directional causality running from expenditure to revenue for Burkina Faso only. Chaudhuri and Sengupta (2009), by using an error-correction model and Granger causality test for southern states in India reported that the tax-spend hypothesis is supported by the analysis and also the spend-tax hypothesis is valid for some states. Ravin thirakumaran (2011) examined the relationship between government revenue and expenditure in Sri Lanka for the period from 1977-2009. A time series methodology of Engle-Granger's approach of cointegration and error correction model framework is investigated. The study concluded that bidirectional causality exists between government revenue and expenditure and there is long-run equilibrium between the two variables in Sri Lanka economy. Subhani et al. (2012) found the opposite causality direction confirming the tax-spend hypothesis. They studied the causality direction between government expenditure and revenue for Pakistan. Annual data for the period from 1979-2010 were used, and Granger causality was applied to variables in question. The paper found that government revenue Granger cause government expenditure in Pakistan for the period under investigation.

To the best of the author's knowledge ,The evidence on the relationship between government revenue and expenditure for Iran is scarce. Zonnoor, S. H (1995) examined the growth of government expenditures and revenues in Iran over the period of 1970 - 1990 in light of conventional theories as to the nature of public sector economic activity. In his study simple forms of government expenditure and tax functions are estimated. They also examined the speed of the adjustment process by estimating a simple disequilibrium model of government expenditures and receipts. Using a constant shares model as well as a constant marginal shares model, they compared the pattern of expenditures and the revenues structure before and after the Iran's revolution.Elyasi and Rahimi (2012) found bidirectional causality between government revenue and expenditure in Iran. Annual data for the period from 1963-2007 were used, and variables were tested for stationarity. The paper included a comprehensive list of studies on causality between government revenue and expenditure for country specific and for multi-countries studies. The evidence cited on the direction of causality is mixed in those studies. Different data sets, econometric methodologies and different country characteristics are some of reasons cited for the different results on the direction of causality.

4   TODA-YAMAMOTO AUGMENTED GRANGER CAUSALITY APPROACH

Various tests are present to check the causality among variables i.e. Granger (1969), Engle & Granger (1987) and Johansen & Jesulious (1990). These tests are not free from errors like they require stationarity requirements, selection of maximum lag length and they are very sensitive to model specification. It is necessary to pretest the unit root and cointegration while applying these tests. To overcome these problems, the present study applies a more robust causality technique given by Toda Yamamoto (1995) and it is further explained by Rambaldi & Doran (1996) and Zapata & Rambaldi (1997).The Augmented Granger Causality Approach given by Toda Yamamoto (1995) is very simple to apply and it also follows asymptotic Chi-square distribution. The major advantage of above said approach is that, in this technique, it is not necessary to check the pre testing of the order of integration or cointegration properties among variables (Toda Yamamoto, 1995; Dolado & Lütkepohl, 1996; Giles & Mirza, 1999). Rambaldi & Doran (1996) have modified Wald test that is considered more efficient when Seemingly Unrelated Regression (SUR) Model is used in the estimation. One of the attractiveness of using SUR is that it takes care of possible simultaneity bias in the system of equations.

$$Y_t = \alpha_0 + \beta_{1i} \sum_{i=1}^{k} Y_{t-i} + \beta_{2j} \sum_{j=k+1}^{d\,max} Y_{t-j} + \gamma_{1i} \sum_{i=1}^{k} X_{t-i} + \gamma_{2j} \sum_{j=k+1}^{d\,max} X_{t-j} + \varepsilon_{1t} \quad (1)$$

$$X_t = \alpha_1 + \lambda_{1i} \sum_{i=1}^{k} X_{t-i} + \lambda_{2j} \sum_{j=k+1}^{d\,max} X_{t-j} + \delta_{1i} \sum_{i=1}^{k} Y_{t-i} + \delta_{2j} \sum_{j=k+1}^{d\,max} Y_{t-j} + \varepsilon_{2t} \quad (2)$$

This test has an asymptotic chi-squared distribution with k degrees of freedom in the limit when a VAR[k+dmax] is estimated (where dmax is the maximal order of integration for the series in the system). Two steps are involved with implementing the procedure. The first step includes determination of the lag length (k) and the maximum order of integration (dmax) of the variables in the system. Measures such the Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), Final Prediction Error (FPE) and Hannan-Quinn (HQ) Information Criterion can be used to determine the appropriate lag order of the VAR. , we use Akaike Information Criterion (AIC) and Schwarz Information Criterion (SC) to select the optimal lag to include in models. We use the Augmented Dickey-Fuller ,Zivot-Andrews and Lee – Strazicich (2003,2004) tests to determine the maximum order of integration. Given the VAR(k) selected, and the order of integration dmax is determined, a levels VAR can then be estimated with a total of p=[k+ dmax] lags. The second step is to apply standard Wald tests to the first k VAR coefficient matrix (but not all lagged coefficients) to conduct inference on Granger causality. Also ,Toda and Yamamoto cannot be used if the maximum number of unit-roots in the VAR is larger than the optimal lag-length. Thus, in some cases, it might not be possible to conduct causality tests.

5 DATA AND ECONOMETRIC METHODOLOGY

This study aims to provide empirical evidence on the relationship between government revenue and expenditure for Iran and give insights on the causality patterns. Therefore, in this paper the Toda-Yamamoto approach is used to check the causality between two variable. However before going to estimate the data it is necessary to check the unit root presence in the data and for that in this study the ADF and Zivot-Andrews and Lee – Strazicich (2003,2004) unit root test is used in order to know the order of integration of the series. Although, to determine lag length of model , we employee Final prediction error (FPE), Akaike information criterion (AIC) and Schwarz information criterion (SC). Annual time series variables data which utilized in this paper are include the government revenue (TR) and government expenditure (GE) gathered from web site Central Bank of Iran. The logarithm of the government expenditures and government revenues are used in the empirical analysis. The transformation of the series to logarithms is intended to eliminate the problem of heteroskedasticity. Annual data for the period from 1978 – 2012 are used in this study. We select these period because time series data on government revenue and government expenditure are only available for this period.

5.1 FINDINGS AND DISCUSSION

5.1.1 AUGMENTED DICKEY-FULLER UNIT ROOT TESTING FOR ORDER OF INTEGRATION

Most of time series have unit root as many studies indicated including (Nelson and Polsser, 1982), and as proved by (Stock and Watson, 1988) and (Campbell and Perron, 1991) among others that most of the time series are non-stationary. The presence of a unit root in any time series means that the mean and variance are not independent of time. Conventional regression techniques based on non-stationary time series produce spurious regression and statistics may simply indicate only correlated trends rather than a true relationship (Granger and Newbold, 1974). Conventional tests for identifying the existence of unit roots in a data series include that of the Augmented Dickey Fuller (ADF) (1979, 1981). Our main reason for conducting unit root tests is to determine the extra lags to be added to the vector autoregressive (VAR) model for the Toda and Yamamoto test. Prior to testing for a causality relationship between the time series, it is necessary to establish whether they are integrated of the same order. To this end in the first step of the empirical analysis, the Augmented Dickey Fuller (ADF) unit-root tests have been carried out for the both variables: government expenditure and Government Revenue, both in logarithm. The results reported in Table 1, indicate that both of the variables are nonstationary.

Table1. Augmented Dickey-Fuller Unit Root Test

Variable		With constant & trend	Critical value (5%)	With Constant	Critical value (5%)
Government Revenue		-2.22	-3.55	0.616	-2.957
Government Expenditure		-3.185	-3.574	0.44	-2.976
First-Difference Government Revenue		-4.620*	-3.562	-4.581[*]	-2.960
First-Difference Government Expenditure		-3.900*	-3.56	-3.907[*]	-2.960

Note : (*), indicate the rejection of null hypotheses in a level of 5 % respectively.

5.1.2 ZIVOT-ANDREWS UNIT ROOT TEST WITH STRUCTURAL BREAK

Zivot and Andrews (1992) propose a variation of Perron's (1989) original test in which the time of the break is estimated, rather than known as an exogenous phenomenon. The null hypothesis in their method is that the variable under investigation contains a unit-root with a drift that excludes any structural break, while the alternative hypothesis is that the series is a trend stationary process with a one-time break occurring at an unknown point in time. By endogenously determining the time of structural breaks, ZA argue that the results of the unit root hypothesis previously suggested by earlier conventional tests such as the ADF test may change. In this methodology, *TB* (the time of break) is chosen to minimize the one-sided *t*-statistic of *a*=1. In other words, a break point is selected which is the least favorable to the null hypothesis. The ZA model endogenises one structural break in a series (such as *yt*) as follows:

$$H_0 : y_t = \mu + y_{t-1} + e_t \tag{3}$$

H_1:

$$\text{Model (A): } y_t = \hat{\mu}^A + \hat{\theta}^A DU_t(\hat{T}_b) + \hat{\beta}^A t + \hat{\alpha}^A y_{t-1} + \sum_{j=1}^{k} \hat{C}^A_j \Delta y_{t-j} + \hat{e}_t \tag{4}$$

$$\text{Model (B): } y_t = \hat{\mu}^B + \hat{\beta}^B t + \hat{\gamma}^B DT_t(\hat{T}_b) + \hat{\alpha}^B y_{t-1} + \sum_{j=1}^{k} \hat{C}^B_j \Delta y_{t-j} + \hat{e}_t \tag{5}$$

$$\text{Model (C): } y_t = \hat{\mu}^C + \hat{\theta}^C DU_t(\hat{T}_b) + \hat{\beta}^C t + \hat{\gamma}^C DT_t(\hat{T}_b) + \hat{\alpha}^C y_{t-1} + \sum_{j=1}^{k} \hat{C}^C_j \Delta y_{t-j} + \hat{e}_t \tag{6}$$

Equation (4), which is referred to as model C by ZA, accommodates the possibility of a change in the intercept as well as a trend break. ZA also consider two other alternatives where a structural break impacts on the intercept only (model A) or trend only (model B). Model C is the least restrictive compared to the other two models; In above equations *DUt* is a sustained dummy variable capturing a shift in the intercept, and *DTt* is another dummy variable representing a shift in the trend occurring at time *TB*. Zivot and Andrews (ZA) (1992) argue that the results of the conventional unit root tests may be reversed by endogenously determining the time of structural breaks. The null hypothesis in the Zivot and Andrews test is a unit root without any exogenous structural change. The alternative hypothesis is a stationary process that allows for a one-time unknown break in intercept and/or slope. The alternative hypothesis is that the series, yt, is I(0) with one structural break. TB is the break date, and the dummy variables are defined as follows:

$$DU_t = \begin{cases} 1 & if \ t > TB_1 \\ 0 & if \ t \le TB_1 \end{cases} \quad and \quad DT_t = \begin{cases} t - TB_1 & if \ t > TB_1 \\ 0 & if \ t \le TB_1 \end{cases}$$

The null is rejected if the a coefficient is statistically significant. The optimal lag length is determined on the basis of the t-test or SBC. The "trimming region" where we search for the minimum t ratio is assumed to be within 0.05T-0.95T or 0.05T ≤TB1≤0.95T . Based on the results reported in Tables 1, ZA models indicate that all series under investigation are non-

stationary. The same unit root tests have been applied to the first difference of the variables and in most cases we rejected the null hypothesis of unit root. Hence, we maintain the null hypothesis that each variable is integrated of order one or I(1). the reported t statistics in Table 1 for $\hat{\mu}, \hat{\beta}, \hat{\theta}, \hat{\gamma}$ and $\hat{\alpha}$ are significant in the majority of cases. Given the fact that all of the estimated coefficients for the indicator and trend dummy variables are statistically significant, one can argue that the estimated structural break dates are indeed statistically significant.

Table 2. The Zivot-Andrews test results

	Series	T	T_b	Lag	$\hat{\mu}$	$\hat{\beta}$	$\hat{\theta}$	$\hat{\alpha}$	$\hat{\gamma}$	$\hat{c}$
MODEL(A)	LTR	33	1994	1	2.31 (3.92)	0.06 (3.21)	0.46 (3.21)	-0.36 (-3.67)	---	0.09 (0.56)
	LGE	33	1994	1	1.70 (3.85)	0.03 (2.69)	0.37 (3.40)	-0.24 (-3.45)		-0.04 (-0.27)
	ΔLTR	32	1990	1	0.22 (2.63)	-0.01 (-3.2)	0.6 (4.03)	-**-1.42 (-5.7)	---	0.23 (1.39)
	ΔLGE	32	1991	1	0.2 (2.99)	-0.01 (-2.960)	0.41 (3.69)	-1.16 (-4.61)	---	0.05 (0.32)
MODEL(B)	LTR	33	2008	1	1.35 (2.51)	0.05 (2.65)	---	-0.22 (-2.43)	-0.04 (-1.44)	0.14 (0.83)
	LGE	33	1986	1	1.86 (2.07)	-0.003 (-0.08)	---	-0.22 (-2.26)	0.05 (1.15)	0.29 (1.58)
	ΔLTR	32	1995	1	-0.10 (-0.56)	0.02 (1.74)	---	-1.06 (-3.91)	-0.04 (-1.86)	0.03 (0.2)
	ΔLGE	29	1995	4	-0.67 (-4.57)	0.07 (5.54)	---	**-1.65 (-6.12)	-0.08 (-5.52)	0.35 (1.72)
MODEL(C)	LTR	33	1993	1	3.21 (2.65)	0.05 (2.73)	0.59 (2.69)	-0.46 (-2.81)	0.04 (1.15)	0.2 (1.07)
	LGE	33	1985	1	1.81 (2.09)	0.04 (0.65)	-0.18 (-1.10)	-0.25 (-2.38)	0.11 (0.15)	0.28 (1.54)
	ΔLTR	32	1990	1	0.65 (2.51)	-0.06 (-2.34)	0.78 (4.4)	**-1.50 (-6.14)	0.05 (1.74)	0.29 (1.77)
	ΔLGE	29	1994	4	-0.56 (-3.45)	0.06 (4.53)	0.22 (2.05)	**-1.94 (-5.59)	-0.08 (-5.27)	0.58 (2.78)

Notes : For Government Revenue and Government Expenditure we assumed break in both Intercept and trend. The 5% critical value, test is -5.080, For Government Revenue and Government Expenditure.They are obtained using 1-lag for both tests. Zivot-Andrews test the null hypothesis of unit-root.

5.1.3 MINIMUM LAGRANGE MULTIPLIER (LM) UNIT ROOT TEST WITH TWO ENDOGENOUS STRUCTURAL BREAKS FOR ORDER OF INTEGRATION

However, recent contributions to the literature suggest that such tests may incorrectly indicate the existence of a unit root, when in actual fact the series is stationary around a one-time structural break (Zivot and Andrews, 1992; Pahlavani, et al, 2006).Therefore I this section we applied Lee and Strazicich with Two Endogenous Structural Breaks for determine the order of integration. Lee and Strazicich (2003) consider the data-generating process (DGP) as follows:

$$y = \delta Z_t + e_t \ , e_t = \beta e_{t-1} + \varepsilon_t \qquad (7)$$

where Zt is a vector of exogenous variables and ε_t is an iid Gaussian error term. In the following, we will consider a model allowing for two changes in level and trend, i.e. Model A allows for two shifts in level and is given by $Z_t = [1, t, D_{1t}, D_{2t},]$ and Model C allows for two changes in the level and trend and is described $Z_t = [1, t, D_{1t}, DT_{1t}, D_{2t}, DT_{2t}]'$ where Djt and DTjt for j = 1, 2 are dummies with Djt = 1 for t ≥TBj + 1 and 0 otherwise and DT$_{jt}$ = t - T$_{Bj}$ for t ≥ T$_{Bj}$ + 1 and 0 otherwise. T$_{Bj}$ denotes the jth break date. The DGP given in equation (3) allows for breaks under the null (β = 1) and the alternative (β < 1). Lee and Strazicich (2003) use the following regression to obtain the LM unit root test statistic:

$$\Delta y_t = \delta' \Delta Z_t + \emptyset \tilde{S}_{t-1} + \sum_{i=1}^{k} \gamma_i \Delta \tilde{S}_{t-j} + u_t \qquad (8)$$

With $\tilde{S}_t = y_t - \tilde{\psi}_t - Z_t \tilde{\delta}$, $t = 2, \ldots \ldots, T$ the detrended series. $\tilde{\delta}$ Are the coefficients from the regression of Δy_t on ΔZ_t, $\tilde{\psi}_t = y_t - Z_1 \tilde{\delta}$ where y$_1$ and Z$_1$ correspond to the first observations. The lagged terms $\Delta \tilde{S}_{t-j}$ are included to correct for serial correlation. From equation (4), the LM test statistics are given by the t-statistics testing the null hypothesis

$\emptyset = 0$. The break dates are determined endogenously by a grid search over all possible dates, i.e. once 10% of the endpoints are eliminated, such that they minimize the test statistic. The critical values are tabulated in Lee and Strazicich (2003, 2004) for the single-break and two-break cases respectively.

Following Lee and Strazicich, the two-break minimum LM unit root test are applied to determine the order of integration both Model A and B for the major macroeconomic variables of the IRAN economy. Table 2 provides the results. The estimation results fail to reject the null hypothesis of a unit root for both variables. The same unit root tests have been applied to the first difference of the variables and in all cases we rejected the null hypothesis of unit root. Hence, we maintain the null hypothesis that each variable is integrated of order one or I(1).

Table 3. Lee-Strazicich Minimum LM Two-Break Unit-Root Test

	Series	TB_1	TB_2	S_{t-1}	DT_{1t}	B_{1t}	B_{2t}	DT_{2t}	k
MODEL(A)	LGE	1991	2008	-0.09 (-1.54)	----	-0.03 (-0.17)	0.3 (1.75)	---	1
	LTR	1988	1999	-0.15 (-1.95)	----	-0.42 (-1.78)	0.54 (2.32)	---	1
	ΔLGE	1990	2001	*-1.22 (-4.50)	----	0.3 (2.14)	-0.02 (-0.15)	---	1
	ΔLTR	1989	2002	*-1.44 (-5.51)	----	0.48 (2.48)	-0.10 (-0.54)	---	1

Note: * indicates the rejection of the null hypothesis at the 1% level ofsignificance, ** at 5%. See
Lee and Strazicich (2003) for the critical values.

After the ADF , Zivot-Andrews test and Lee and Strazicich Unit Root tests and having determined that d_{max} = 1, we Following the modeling approach described earlier ,In the two step to determine lag length of VAR(k) , we employee Final prediction error (FPE), Akaike information criterion (AIC) and Schwarz information criterion (SC), lag selection criteria are used. The result of selecting optimal lag length of VAR is reported in Table 3. FPE, AIC and SC information criterion indicate that lag order of VAR (k) is one. According to lag length of VAR process, we employee modified Wald test for VAR(2) to get results of causality test between entrepreneurship and unemployment.

Table4. Lags under different criteria for VAR model

Lag	FPE	AIC	SC
0	*0.1281*	3.621321	3.715617
1	0.000658*	-1.651708*	-1.368819*
2	0.000816	-1.441754	-0.970273
3	0.000784	-1.491999	-0.834925
4	0.000919	-1.358647	-0.509981

Notes:* indicates lag order selected by the criterion; FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion,

5.2 RESULTS OF TODA YAMAMOTO AUGMENTED GRANGER CAUSALITY TECHNIQUE

The present study applies Toda Yamamoto Augmented Granger Causality approach to examine the causal nexus among Entrepreneurship to unemployment rate.

Table 5. Todo- Yamamoto Causality (modified Wald) test results

Null hypothesis	Lag(k)	k+dmax	MWald statistics	p-values	Decision
H_0: GE does not Granger cause TR	1	2	1.427	0.232	Do not reject H_0
H_0: TR does not Granger cause GE	1	2	2.736	0.09*	reject H_0

*indicate rejection of the null at the 10% level

The empirical results of Granger Causality test based on Toda and Yamamoto (1995) methodology is estimated through MWALD test and reported in Table: 4. The estimates of MWALD test show that , there is strong evidence of causality running from Government Revenue (TR) to Government Expenditure (GE) at the 10% level of significance. The results do not reveal causality from Government Expenditure to Government Revenue. Therefore, we can conclude that there is a uni-directional of causality that runs from Government Revenue (TR) to Government Revenue for IRAN.

5.3 COINTEGRATION ANALYSIS WITH STRUCTURAL BREAKS

As had been noted as far back as 1989 by Perron, ignoring the issue of potential structural breaks can render invalid the statistical results not only of unit root tests but of cointegration tests as well. Kunitomo (1996) explains that in the presence of a structural change, traditional cointegration tests, which do not allow for this, may produce "spurious cointegration". In the present research, therefore, considering the effects of potential structural breaks is very important, especially because the Iranian economy has been faced with structural breaks like revolution and war in addition to some policy changes. Saikkonen and Lütkepohl (2000a, b, c) have proposed a test for cointegration analysis that allows for possible shifts in the mean of the data-generating process. Because many standard types of data generating processes exhibit breaks caused by exogenous events that have occurred during the observation period, they suggest that it is necessary to take into account the level shift in the series for proper inference regarding the cointegrating rank of the system. They argued that "structural breaks can distort standard inference procedures substantially and, hence, it is necessary to make appropriate adjustment if structural shifts are known to have occurred or are suspected" (2000b: 451). The Saikkonen and Lütkepohl (SL) test investigates the consequences of structural breaks in a system context based on the multiple equation frameworks of Johansen-Jeslius, while earlier approaches like Gregory-Hansen (1996) considered structural break in a single equation framework and others did not consider the potential for structural breaks at all. According to Saikkonen and Lütkepohl (2000b) and Lütkepohl and Wolters (2003), an observed n-dimensional time series yt = (y1t,…., ynt), yt is the vector of observed variables (t=1,…, T) which are generated by the following process:

$$y_t = \mu_0 + \mu_1 t + \gamma_1 d_{1t} + \gamma_2 d_{2t} + \gamma_3 d_{3t} + \delta Dt_{ot} + \delta_2 Du_{1t} + x_t \qquad (9)$$

Where *DT0t* and *DU1t* are impulse and shift dummies, respectively, and account for the existence of structural breaks.and account for the existence of structural breaks. *DT0t* is equal to one, when t=T0, and equal to zero otherwise. Step (shift) dummy (Du_{1t}) is equal to one when (t>T1), and is equal to zero otherwise. The parameters γ_i (I=1,2,3), μ_0, μ_1, and δ are associated with the deterministic terms. The seasonal dummy variables *d1t, d2t,* and *d3t,* are not relevant to this research since our data are yearly. According to SL (2000b), the term *xt* is an unobservable error process that is assumed to have a VAR (p) representation as follows:

$$x_t = A_1 x_{t-1} + \cdots + A_p x_{t-p} + \varepsilon_t \quad , \quad t = 1,2$$

By subtracting xt-1 from both sides of the above equation and rearranging the terms, the usual error correction form of the above equation is given by:

$$\Delta x_t = \prod x_{t-1} + \sum_{j=1}^{p-1} \Gamma_j \Delta x_{t-j} + u_t$$

This equation specifies the cointegration properties of the system. In this equation, *ut* is a vector white noise process; *xt= yt -Dt* and*Dt* are the estimated deterministic trends. The rank of Π is the cointegrating rank of xt and hence of yt (SL, 2000b).

The possible options in the SL procedure, as in Johansen, are three: a constant, a linear trend term, or a linear trend orthogonal to the cointegration relations. In this methodology, **t**he critical values depend on the kind of the above-mentioned deterministic trend that included in the model. More interestingly, in SL, the critical values remain valid even if dummy variables are included in the model, while in the Johansen test; the critical values are available only if there is no shift dummy variable in the model. The SL approach can be adopted with any number of (linearly independent) dummies in the model. It is also possible to exclude the trend term from the model; that is, $\mu=0$ maybe assumed a priori. In this methodology, as in Johansen's, the model selection criteria (SBC, AIC, and HQ) are available for making the decision on the VAR order. In the following section, we have applied SL tests for the cointegration rank of a system in the presence of structural breaks.

5.3.1 EMPIRICAL RESULTS BASED ON THE SL PROCEDURES

As explained above Saikkonen and Lütkepohl (2000b) derived the likelihood ratio (LR) test in order to determine the number of cointegrating relations in a system of variables, by considering for the presence of the potential structural breaks. We now apply a maximum likelihood approach; based on SL; for testing and determining the long-run relationship in the model under investigation. As mentioned earlier, in this procedure SL assumed that the break point is known a priori. In the last section, we determined the time of the break endogenously by Zivot-Andrews

(1992) procedure. Following the SL procedure we consider three cases: impulse dummy and shift with intercept included; impulse dummy and shift with trend and intercept included; and finally, impulse dummy and shift with a trend statistically independent (orthogonal) to cointegration relation included. The cointegration results in these three cases are presented in tables (2) The optimal number of lags is determined by SBC, which is more appropriate for the short span of the data. The hypothesis of the long-run relationship among non-stationary variables is tested and the result is reported in table (2). These tables indicates that the hypothesis of no cointegration (r=0) is rejected at the 10% significance level at C (Intercept included) and CO (Trend orthogonal tocointegration relation) Models . therefore the existence of one cointegration vector is not rejected in any of the three cases mentioned above.

Table 6. Saikkonen and Lutkephol cointegration test results

null hypothesis		LR	Critical values		
			10%	5%	1%
Intercept included (C)	r=0	12.07	[*]10.47	12.26	16.10
	r=1	1.36	2.98	4.13	6.93
Intercept and trend included (C/T)	r=0	11.58	13.88	15.76	19.17
	r=1	1.44	5.47	6.79	9.73
Trend orthogonal to cointegration relation (C/O)	r=0	10.86	[*]8.18	[**]9.84	13.48
	r=1	----	----	----	----

Note: *, ** Indicates that the corresponding null hypothesis is rejected at10% and 5% level. Critical values are tabulated by SL (2000b). The optimal number of lags (searched up to 1 lags) is determined by the SBC.

5.4 ESTIMATED LONG AND SHORT RUN COEFFICIENTS USING THE ARDL APPROACH

There are several methods available to test for the existence of long-run equilibrium relationship among time series variables. The most widely used methods include Engle and Granger (1987) test, fully modified OLS procedure of Phillips and Hansen's (1990), maximum likelihood based Johansen (1988, 1991) and Johansen- Juselius (1990) tests. These methods require that the variables in the system are integrated of order one i.e. I(1). In addition, these methods suffer from low power and do not have good small sample properties. Due to these problems, a newly developed autoregressive distributed lag (ARDL) approach to cointegration has become popular in recent years. An ARDL model is a general dynamic specification, which uses the lags of the dependent variable and the lagged and contemporaneous values of the independent variables, through which the short-run effects can be directly estimated, and the long-run equilibrium relationship can be indirectly estimated.

This study employs ARDL approach to co-integration following the methodology proposed by Pesaran and Shin (1999). This methodology is chosen as it has certain advantages on other co-integration procedures. For example, it can be applied regardless of the stationary properties of the variables in the sample. Secondly, it allows for inferences on long-run estimates which are not possible under alternative co-integration procedures. Finally, ARDL Model can accommodate greater number of variables in comparison to other Vector Autoregressive (VAR) models.

ARDL analysis is based on the interpretation of three equations: Dynamic equation, Long-run equation and Error-correction equation. The first step is to examine the existence of a long-run relationship among all variables in the equation under examination. Conditional upon cointegration is confirmed, in the second stage, the long-run coefficients and the short-run coefficients are estimated using the associated ARDL and in the three stage An error correction model (ECM), are estimated to explain the short-run Relationship between variable .

Table (7) shows the results from Dynamic equation. Having estimated the dynamic equation, to ensure the presence of long-run relation Benerji- Dolado and Master test has been used. The calculated t is

$$t = \frac{\sum \hat{a}_i - 1}{\sum S\hat{a}_i} = \frac{0/48099 \quad -1}{0/063971} = -8/11$$

which is greater than the critical absolute value of Benerji- Dolado and Master (-3.28). So, the null hypothesis is rejected and the existence of long-run relation among the variables is realized.

Table7. Results from estimating dynamic model of ARDL

Dependent Variable: Log(Government Expenditure)			
Regressors	Coefficient	t	p-value
LGE(-1)	0.48	7.51	0.00
LTR	0.50	8.29	0.00
C	0.349	3.99	0.00
R^2=0.99 Serial Correlation = **0.22 (0.63)** Functional Form = **0.04 (0.824)** Heteroscedasticity **= 1.03 (0.596)**			

The results summarized in table (8) indicate that the revenue government Has Positive and significant effect on the government expenditure in Iran. The estimated coefficient provides the income elasticity which shows the expected signs. i.e. 1% increase in revenue government would lead to increase the government expenditure to Iran by 0.97 percent.

Table 8. Result from estimating the long-run relation

Dependent Variable: Log(Government Expenditure)			
Regressors	Coefficient	t	(p-value)
C	0.67	4.47	0.00
LTR	0.97	6.63	0.00

An error correction model (ECM), are estimated to explain the short-run Relationship between revenue and government expenditure in Iran. The findings, which are summarized in table (9), show that the estimated coefficients of model in short run are less than the estimated coefficients in long run. The results illustrate that the short-run changes in explanatory variable is significant. It can be seen that the revenue government has the short-and –long run effects on the government expenditure in standard level of significance. Moreover, the revenue governments show positive and significant impacts on government expenditure. The results also show that the error correction coefficient denotes the appropriate sign and is

statistically significant. It indicates that 0.51 of deviation of the government expenditure from its long-run equilibrium level is corrected each year, which is a relatively slow adjustment rate.

Table 9. Result from estimating ECM

Regressors	Coefficient	t	p-value
dLTR	0.503	8.92	0.00
dC	0.34	3.99	0.00
Ecm $_{-1}$	-0.51	-8.11	0.00
$\overline{R}^2$=0.67		=R^2=0.69	

Finally, we have examined the stability of the long-run parameters together with the short-run movements for the equations. For test, we relied on cumulative sum of recursive residuals (CUSUM) and cumulative sum squares (CUSUMSQ) tests proposed by Borensztein, et al. (1998). The same procedure has been utilized by Pesaran and Pesaran (1997), Suleiman (2005) and Mohsen et al. (2002) to test the stability of the long-run coefficients. The tests applied to the residuals of the ECM model. Graphical representations of CUSUM and CUSUM square are shown in figure1 and 2. According to Bahmani and Oskooee, (2004) the null hypothesis (i.e. that the regression equation is correctly specified) cannot be rejected if the plot of these statistics remains within the critical bounds of the 5% significance level. It can be seen from the figure that the plot of CUSUM stay within the critical 5% bound for all equations and CUSUMSQ statistics does not exceed the critical boundaries that confirms the long-run relationships between financial variables and also shows the stability of co-efficient.
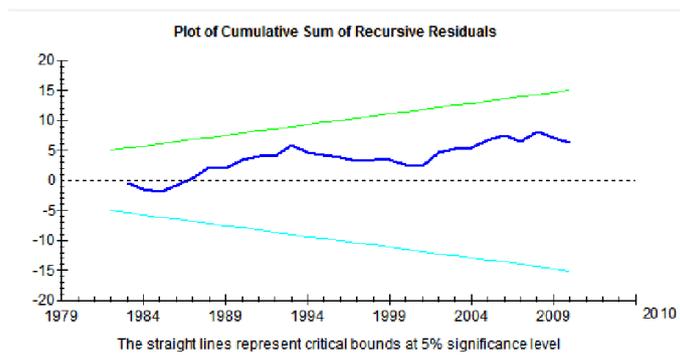
Figure 1. CUSUM Plots for test of stability
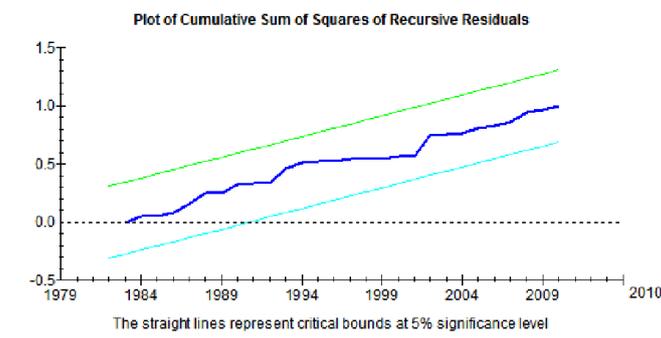
Figure 2. CUSUMSQ Plots for test of stability

6 SUMMARY AND CONCLUSIONS

This study is an attempt to Analysis of Long and Short Run Relationship among revenue and government expenditure in Iran: An Auto Regressive Distributive Lag (ARDL) Approach for Iran. To analysis this issue, annual data are exploited for the period 1978-2011. Iran has long history of fiscal imbalance and failed to meet the expenditure with the total collected revenues. There are different theoretical viewpoints on the linkage between government spending and revenue. For example, Freidman (1978) argues that revenue causes expenditure and Barro (1979) as well as Peacock and Wiseman (1979) are of the views that government spending enhances government revenue. The determination of the causal ordering between these two macroeconomic aggregates is vital to ensure enactment of appropriate tax policies and the effectiveness of fund management. We have applied time series econometric techniques such as; unit root analysis with and without structural break , Final prediction error (FPE), Akaike information criterion (AIC) and Schwarz information criterion (SC) for determine lag length of model and Toda - Yamamoto Granger causality test and ARDL technique for Analysis of Long and Short Run Relationship among revenue and government expenditure. Both unit root tests ADF , Zivot-Andrews and Lee and Strazicich unit root test found the variables to be integrated of order one. Toda - Yamamoto Granger causality test found unidirectional causality running from government revenue to government expenditure and ARDL technique showed existed positive Relationship among revenue and government expenditure in Long and Short Run. So, these results consistent with the revenue-spend hypothesis.the results of this paper support the Freidman (1978) hypothesis that government revenues cause expenditure and revenues have a positive causal impact on government expenditure.

REFERENCES

[1] Al-Yousif Y., Does Government Expenditure Inhibit or Promote Economic Growth: Some Empirical Evidence from Saudi Arabia. Indian Economic Journal 48(2) (2000)

[2] Anderson, W., M.S. Wallace, and J.T. Warner. 1986 "Government Spending and Taxation: What Causes What?", Southern Economic Journal, Vol. 52, pp. 630-639.

[3] Baghestani,, H., and R. McNown. 1994 "Do Revenue or Expenditures Respond to Budgetary Disequilibria?" Southern Economic Journal 60, pp. 311-322.

[4] Cheng, Benjamin S. 1999 "Causality between Taxes and Expenditures: Evidence from Latic American Countries", Vol. 23, No. 2, pp. 184-192.

[5] Furstenberg George M, von, R. Jaffery Green and Jin Ho Jeong 1986 "Tax and Spend, or Spend and Tax" The Review of Economics and Statistics, May, No. 2, pp. 179-188.

[6] Johansen, S. 1988. Statistical Analysis of Cointegration Vectors. Journal of Economic Dynamics and Control, 12(1), 231-54.

[7] Johansen, S., Juselius, K. 1990. Maximum Likelihood Estimation and Inference on Cointegration-with Application to the Demand for Money. Oxford Bulletin of Economics and Statistics, 52(2), 169-210.

[8] Joulfaian, D., and R. Mookerjee 1990 "The Intertemporal Relationship Between State and Local Government Revenues and Expenditures: Evidence from OECD Countries." Public Finance, Vol. 45, pp. 109-117.

[9] Kunitomo, N. (1996) Tests of unit roots and cointegration hypotheses in econometric models, Japanese Economic Review, 47(1): 79-109.

[10] Lee, J., Strazicich, M. C. 2004. Minimum LM Unit Root Test with One Structural Break, Appalachian State University Working Papers, No.04-17. Retrieved from: http://econ.appstate.edu/RePEc/pdf/wp0417.pdf (Accessed 13.09.2009)

[11] Leybourne, S.J and Newbold, P. (2003) Spurious rejections by cointegration tests induced by structural breaks, Applied Economics, 35(9): 1117-1121.

[12] Lütkepohl, H., and Wolters, J. (2003) Transmission of German monetary policy in the pre-Euro period, Macroeconomic Dynamics, 7: 711-733

[13] Lutkepohl H. (2004). Vector Autoregressive and Vector Error Correction Model, in Lutkepohl, H. and M. Kratzig (ed.), Applied Time Series econometrics, Cambridge University Press.

[14] Owoye, O. 1995 "The Causal Relationship between Taxes and Expenditures in the G7 Countries: Co-integration and Error Correction Models", Applied Economic Letters, 2, pp. 19-22.

[15] Pahlavani, M (2005) Cointegration and Structural Change in the Exports-GDP Nexus: The Case of Iran. International Journal of Applied Econometrics and Quantitative Studies, 2-3, forthcoming.

[16] Pahlavani M., Wilson E. J., A. Valadkhani, International Journal of applied Business and Economic Research 4(1) (2006) 23-44.

[17] Peacock, S.M., and J. Wiseman. 1979 "Approaches to the Analysis of Government Expenditures Growth.", Public Finance Quarterly, Vol. 7, pp. 3-23.

[18] Perron, P. (1997) Further evidence on breaking trend functions in macroeconomic variables. Journal of Econometrics 80(2): 355-385.

[19] Ram. R. 1988 "Additional Evidence on Causality between Government Revenue and Government Expenditure", Southern Economic Journal, 54(3), pp. 763-69.

[20] Saikkonen, P. and Lütkepohl, H. (2000a) Testing for the cointegrating rank of a VAR process with an intercept, Econometric Theory 16(3): 373-406.

[21] Saikkonen, P. and Lütkepohl, H. (2000b) Testing for the cointegrating rank of a VAR process with structural shifts, Journal of Business and Economic Statistics 18(4): 451-464.

[22] Saikkonen, P. and Lütkepohl, H. (2000c) Trend adjustment prior to testing for the cointegrating rank of a vector autoregressive process, Journal of Time Series Analysis 21: 435-456.Zivot, E., Andrews, D., Journal of Business and Economic Statistics 10 (1992) 251-70.

[23] Schwarz, G. 1978 "Estimating the Dimensions of a Model" Annals of Statistics, 6, pp. 461-64.

[24] Zivot, E., Andrews, D. W. K. 1992. Further Evidence on the Great Crash, the Oil-Price Shock, and the Unit-Root Hypothesis. Journal of Business and Economic Statistics, 10(3), 251-70.

Studying the impact of career orientation on employees' self-efficacy at Qom Governor-General Office

Maryam Ahmadi Zahrani[1], Faezeh Heidari[2], and Sahar Nikmaram[3]

[1]Graduate (Ph. D Student), Human resource Management, Economics and administrative sciences faculty,
Ferdowsi University of Mashhad,
Mashhad, Iran

[2]Master of Science student, faculty of management, Qom College,
University of Tehran,
Qom, Iran

[3]Graduate (Ph. D Student), Media Management,
University International Imam Raza, Mashhad, Iran

ABSTRACT: Today, career orientation is an important factor in employees' career development. Identifying career orientation and individuals' propensity to select their careers are considered as necessary initiatives in planning job career. As a cognitive factor, self-efficacy can help employees and pave the ground for their success. Present research studies the impact of career orientation on employees' self-efficacy at Qom Governor-General Office. Research method is a survey-descriptive one. Factor analysis test and LISREL software are used to test research hypotheses. Statistical population consists of all 279 managers and staff of Qom Governor – General Office. Research findings show that all hypotheses are supported and employees 'career orientation impacts on their self-efficacy directly. Freedman's test is used to rank career orientation constituents which show that there is a significant difference among career orientation constituents in Qom Governor – General Office. Functional and technical competency and managerial general competencies have the highest priority.

KEYWORDS: career orientation, self-efficacy, employees of Qom Governor General Office.

1 INTRODUCTION

Career is not a recent term used in HR development field. Rather, in a traditional insight, it refers to a path for continuous successes which involves individuals' job life. Emsi Legan (1989) conceptualizes career development as one of the three specialized fields in HR development. Employees' career development is too vital so that it can determine staff job expectations, career priorities and job orientation. One of the concepts of job development is job orientation. Parsons and Shawn (2002) clarified that career orientation highly impacts on career development and increases employees' motivation and propensity to perform their tasks in the best manner. Powel and Butterfield (2002) define career orientation as people's tendency to future jobs. Career orientation is an internal aspect of career which determines job success [1].

1.1 THE CONCEPT OF CAREER ORIENTATION

Career determines the nature of learning cycle which people experience in their career life. People choose careers that are compatible to their beliefs and insights on types of careers. Schein (1996) says that most people shape a strong self-imagine of their job identity which orient their whishes toward their job and assignments. Schein (1996) has named such self-imagine as career pillar and, according to his researches; he says that it shapes professional life of job choices. He explains

---

that the concepts of career pillar have three dimensions: conceived capabilities and talents based on real successes in job positions, conceived values and attitudes based on real interaction between self and used norms and values in organization and, more importantly, motivations and needs met by people in their career [2]. The concept of career pillar is an important issue that encourages different researchers to broad studies in this field. In his studies, Schein (1987) divided career orientation to eight career pillars including technical/functional competence, general managerial competence, autonomy/independence, security/stability, entrepreneurial creativity, service/dedication to a cause, lifestyle, pure challenge[3], [4], [5]. That these are expounded below:

1. **Technical /functional competence:** Schein (1990) states that, an individual holding technical orientation is primarily excited by the content of the work itself; prefers advancement only in his/her technical or functional area of competence; generally disdains and fears general management as too political. Schein (1887) further states that, this group wants work to be challenging and that if the work doesn't test the individual's ability; it quickly becomes boring and demeaning and regarding pays and benefits, technical and functional people want to be paid to their skill level, often defined by education and work experience[6].

2. **General managerial competence:** Schein (1990) states that an individual who belongs in this group is primarily excited by the opportunity to analyze and solve problems under conditions of incomplete information and uncertainty; likes harnessing people together to achieve common goals; and is stimulated (rather than exhausted) by crisis situation [7]. To this end, Field (2003) states that, due to their finely tuned interpersonal skills, the people in this group may be the easiest to talk to. They know how to lobby, they're good at politics, and they can read verbal and nonverbal cues [8].

3. **Autonomy/independence:** Schein (1990) states that, an individual who belongs in this group is primarily motivated to seek work situations which are maximally free to organizational constraints; wants to set own schedule and own pace of work; is willing to trade-off opportunities for promotion to have more freedom[9](Schein, 1996). The autonomy anchored person prefers clearly delineated, time bounded kind of work within his /her area of expertise. Individuals with this career anchor just want to be alone [10].

4. **Security/stability:** This anchor applies to an individual who is primarily motivated by job security and long- term attachment to one organization; willing to conform and to be fully socialized into an organization's values and norms; tends to dislike travel and relocation [11]. Security anchored persons prefer stable, predictable work and are more concerned about the context of the work than the nature of the work itself. To this end Schein (1887), states that an individual in this group prefers to be paid in steady predictable increment based on length of service [12].

5. **Entrepreneurial creativity:** Refers to an individual primarily motivated by the need to build or create something that is entirely their own project; easily bored and likes to move from project to project; more interested in initiating new enterprises than in managing established ones; require encouragements to keep coming up with new ideas. Further, individuals in this group tend to be fairly self-centered and they want money. He or she would want power and the freedom to move in to whatever roles would meet personal needs [13].

6. **Service/dedication to a cause:** Refers to an individual primarily motivated to improve the world in some fashion; wants to align work activities with personal values about helping society; more concerned with finding jobs which meet their values than their skills. Individuals in this group focus on the aspect of the job that they most value; and look for projects that match their area of concern [14]. The need to focus work around a specific set of values is the major issue for employees with this career anchor [13].

7. **Lifestyle:** This anchor applies to an individual who primarily motivated to balance career with lifestyle; highly concerned with such issues as paternity/maternity leaves, day-care options, etc.; looks for organizations that have strong pro-family values and programs [15]. Individuals who are oriented to lifestyle integration desire to develop a lifestyle that integrates family concerns, career concerns, and concerns for self-development. These people work to live; they don't live to work, so they don't go beyond the basic requirements or job description. Working out a flexible schedule is the most effective reward for them [16].

8. **Pure challenge:** This anchor applies to an individual who is primarily motivated to overcome major obstacles, solve almost unsolvable problems. They want to work on a particularly challenging assignment in addition to their regular duties. For these people, the challenge is the reward, not words of praise [17], [18].

1.2 SELF-EFFICACY

During past two decades, self-efficacy is emerged as an important motivational construct in human behavior study especially at workplace [19]. Self-efficacy is the central construct of social cognitive theory by Bandura and points to conceived capability of a person to perform a given action [20]. Shawer et al (2005) defined self-efficacy as one's believes in successful performing of activities that are necessary to achieve personal aims [21]. Bandura (1997) says that self-efficacy impacts on people's choices, their methods, their efforts and their perseverance and flexibility. It helps people to decide on

the amount of their efforts on doing their affairs; on how long they continue their efforts when they face with problems and on how to be resilience in hurting situations [22]. As a personality variable, self-efficacy plays a vital role in facing with life problems [23]. In fact, one can say that more self-belief, more possibility of involving and sustainability in one's task – related behavior [24]. Some authors distinguish between general and self – belief. General self-efficacy points out one's believe on doing the affairs successfully in different situations. Special self-efficacy refers to Bandura's conception on believing in performing specialized tasks successfully [25], [26]. Bandura (1997) clarifies that one can develop self –efficacy through four routes: functional domination, verbal encouragement, successive modeling and physiological stimulation [27]. Self – efficacy theory has been progressed to expound people's differences in achieving their goals [28]. Self – efficacy is introduced to improve and influence over individuals' working motivation and performance. The lack of self – efficacy and motivation to perform job-related tasks successfully and pursuing job-related opportunities may cause problems for people to achieve their expected results and actions [29]. Overall, in contrary to personality traits that are highly positive, self – efficacy is dynamic. It can be changed overtime through new information, experiences and learning [30].

2 RESEARCH CONCEPTUAL FRAMEWORK

Considering research title, following conceptual model is provided.
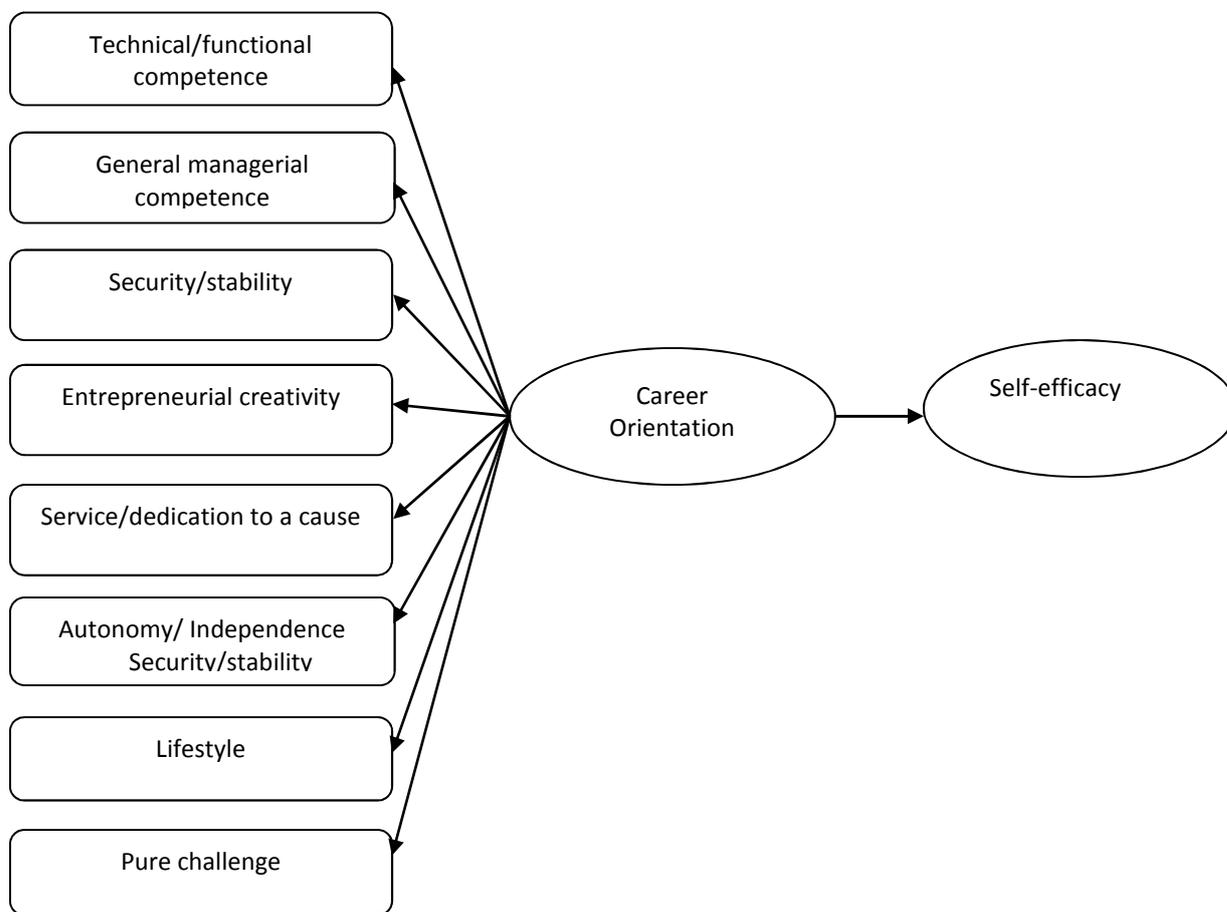
Fig 1: Research hypotheses based on conceptual model

Following hypotheses are provided by considering provided model.

Major hypothesis: Staff career orientation impacts on their self – efficacy directly;

Minor hypotheses:

1. Functional and technical competency impacts on staff self – efficacy directly.
2. General managerial competence impacts on staff self – efficacy directly.
3. Security/stability impacts on staff self – efficacy directly.

4. Entrepreneurial creativity impacts on staff self – efficacy directly.
5. Service/dedication to a cause impacts on staff self – efficacy directly.
6. Autonomy/independence impacts on staff self – efficacy directly.
7. Lifestyle impacts on staff self – efficacy directly.
8. Pure challenge impacts on staff self – efficacy directly.

3   METHODOLOGY

In terms of purpose, this is an applied research and in terms of data collection, it is a descriptive survey type (non-pilot) one. Research statistical population consists of all managers and staff (400) at Qom Governor General Office. By using Kokaran formula, statistical sample volume is 279 and after disseminating 300 questionnaires among managers and staff, 280 questionnaires were finally gathered and analyzed.

$$n = \frac{NZ^2_{(\frac{\alpha}{2})}\delta^2}{(N-1)\varepsilon^2 + Z^2_{(\frac{\alpha}{2})}\delta^2} \quad n = \frac{(400)(1/96)^2(0/601)}{(399)(0/05)^2 + (1/96)^2(0/601)} \approx 279$$

Used tool in present study is questionnaire. To measure job orientation, 40-item questionnaire developed by Bigliardi et al (2005) as well as Likert-scale were used which included 9 subscales: technical/functional competency; managerial general competency; job security; entrepreneurial creativity; service or effect; self-authorization and independence; stability; and integrity challenge. Each constituent has five questions. A 17-item questionnaire developed by Sheerer et al (1982) is used to measure self-belief [31]. Since used standards are standard, their validity and reliability are confirmed. For more confidence on reliability, however, Chronbach's alpha is used. Its figure is 0.978 for career orientation questionnaire and 0.958 for self-efficacy questionnaire. Since these figure are greater than 0.70, one can say that research tool reliability is confirmed.

4   DATA ANALYSIS

Factor analysis test and LISREL software are used to test research hypotheses. Below, research conceptual model is discussed in two states: numerical significance and standard estimation.
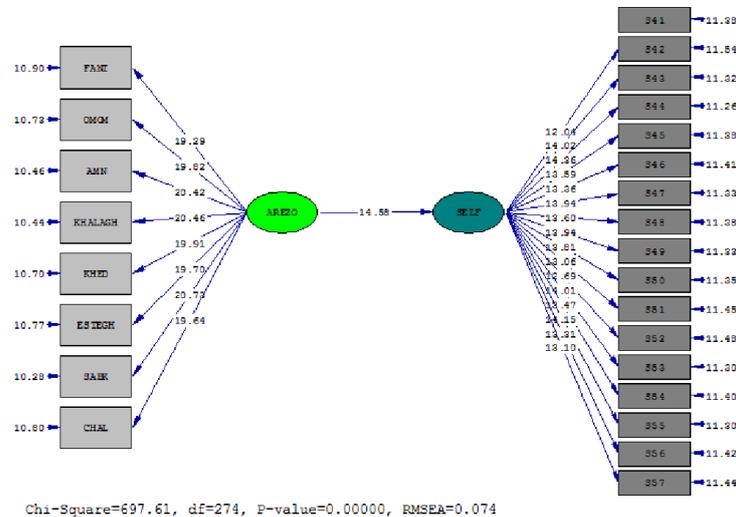
Fig 2: research conceptual model in numerical significance

Chi-Square=697.61, df=274, P-value=0.00000, RMSEA=0.074
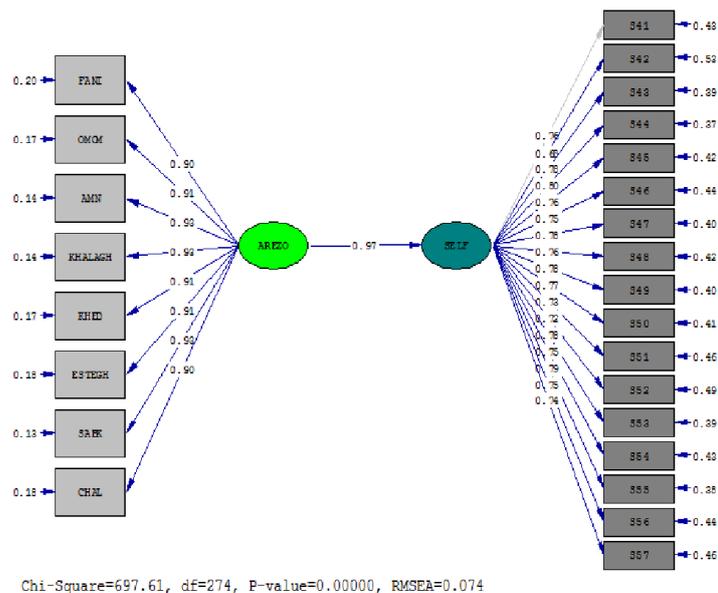
Fig 3: research conceptual model in standard estimation

Tab1: research conceptual model fitness indicators

Indicators	RMSEA	P-Value	Df	Chi-Square
Rates	0.074	0.00000	274	697/61

Before testing research hypotheses, one should initially study the overall fitness of research conceptual model. The best indicator in LISREL is $\dfrac{X^2}{df}$ and when it is less than 3, the fitness of the model is better. This rate is 2.54 in present study conceptual model which shows a good fitness. Another indicator is RMSEA. It is built based on model errors. When its rate is less than 0.05, it shows that the model has a good fitness. If the rate is between 0.05 and 0.08, the fitness is plausible, if it is between 0.08 and 0.1, the fitness is medium and if it is greater than 0.1, the fitness is weak. In the conceptual model of present study, obtained RMSEA indicates its fitness is plausible. Regarding P-Value, some believe that it should be greater than 0.5 and others accept a figure less than 0.5. Overall, there is no global concurrence on this indicator. Standard ratios and significant numbers are used to confirm or reject the hypotheses. Significant number in LISREL is the same Sig in SPSS software. The difference is that a number should be greater than 1.96 or less than -1.96 in order to be significant and this figure is used to confirm or reject research hypotheses. When this figure is greater than 1.96, it shows that dependent variable has a strong impact on independent variable. Standard ratio means binary correlation rates (between two variables). It is used to compare the impact of model elements. When its rate increases, it means that dependent variable has a strong impact on independent variable. If it is greater than 0.3, this ratio is medium, if it is between 0.3 and 0.6 it is good and if it is greater than 0.6, this ratio is excellent. The results of research model concept in both significant numbers and standard estimation are outlined in table 2. According to findings, one can say that research hypotheses are supported in 95% confidence level.

Tab 2: the results of structural equations model (path analysis)

Hypothesis	Path		Standard ratio	T - Value
Major	Career orientation	Self-efficacy	0/97	14/58
Minor 1	Functional and technical competency	Self-efficacy	0/90	19/29
Minor 2	General managerial competence	Self-efficacy	0/91	19/82
Minor 3	Autonomy/independ ence	Self-efficacy	0/93	20/42
Minor 4	Entrepreneurial creativity	Self-efficacy	0/93	20/46
Minor 5	Service/dedication to a cause	Self-efficacy	0/91	19/91
Minor 6	Security/stability	Self-efficacy	0/91	19/70
Minor 7	Lifestyle	Self-efficacy	0/93	20/73
Minor 8	Pure challenge	Self-efficacy	0/90	19/64

Freedman test is used to rank career orientation constituents. The findings are outlined in tables 3 and 4.

H_0: there is no significant difference on the status quo of career orientation constituents.

H_1: there is a significant difference on the status quo of career orientation constituents.

Table 3 shows that the significance level of the test is 0.05 less than determined significance level. Therefore, H_0 is refused and H_1 is supported. By 95% confidence level, one can say that there is a significant difference on the status quo of career orientation constituents in Qom Governor General Office. In terms of priority, the constituents are outlined in table 4.

Tab 3: Freedman test on the significance of career orientation constituents

Computed rates	Statistical indicators
280	**Quantity**
64.99	**Chi^2**
7	**Freedom degree**
0.0000	**Sig**

Tab 4: ranking career orientation constituents

Priority	Career orientation constituents	Rank average
1	Functional and technical competency	5/45
2	General managerial competence	4/69
3	Security/stability	4/44
4	Entrepreneurial creativity	4/39
5	Service/dedication to a cause	4/36
6	Autonomy/independence	4/34
7	Lifestyle	4/31
8	Pure challenge	4/03

5 CONCLUSION AND DISCUSSION

The results of structural equations show that career orientation impacts on employees' self-efficacy directly. Functional/technical competency impacts on employees' self-efficacy directly. It means than functional/technical workers demand progress in technical and functional areas and honor what they know. General management competency impacts on

employees' self-efficacy directly. It means that managerial-oriented employees lead and supervise other people and look for promotion. They develop their general management traits and impact on other employees' capabilities to perform their jobs successfully. Propensity to self-authority impacts on employees' self-efficacy directly. It means that employees demand the maximum freedom and independence and arrange their schedules in a manner by which sharing opportunities are increased and more freedom is achievable. Job security/stability impacts on employees' self-efficacy directly. It means that employees look for stable and predictable jobs and they prefer seniority-based promotion system so that people can use their capabilities to perform their jobs. Entrepreneurial creativity impacts on employees' self-efficacy directly. It means that employees look for new ideas and new businesses. They try to meet their personal needs by their skills and capabilities and to perform their jobs successfully. Tendency to serve or being influential impacts on employees' self-efficacy directly. It means that employees like to help others and try to contribute in philanthropic affairs. Lifestyle impacts on employees' self-efficacy directly. It means that employees try to make equilibrium between their job and life. They should be flexible to overcome the conflicts between job and life, to merge their job and familial interests and to show that they can enhance their own abilities. Integrity challenge impacts on employees' self-efficacy directly. It means that employees look for overcoming important problems, resolving unsolved barriers and increasing their abilities to perform their tasks.

REFERENCES

[1] Ismail, M & Ramly, E. S & Rasdi, R. M. "Career Aspirations of R&D Professionals in Malaysian Organizations" .*The Journal of Human Resource and Adult Learning,* Vol. 4, No. 1, pp: 210-217, 2008.

[2] Nadi, M.A & Golparvar, M& Siyadat, S. A. "Organizational social integration and employees' job dreams in workplaces", *Applied Sociology*, Vol. 37. Pp.159-176, 2002.

[3] Peterson, J & Roger, A. "Career anchor profiles: an exploratory study of business school in participants in France". *Colloque international sur les indicateurs d'évaluation de la responsabilité sociale etenvironnementale des enterprises,* pp.1-13, 2009.

[4] Wu. Sh-H. Study of the relationship between the perception of career anchor and core competence – a case of technical university in Taiwan" .www.cetl.hku/conference, 2010.

[5] Coetzee, M & Villiers, M. "Sources of job stress, work engagement and career orientations of employees in a South African financial institution". *Southern African Business Review*. Vol. 14 No. 1. pp: 27-57, 2010.

[6] Schein, E.H. "Individuals and careers", in Lorsch, J. (Ed.), Handbook of Organizational Behavior, Prentice-Hall, Englewood Cliffs, NJ, pp. 155-171, 1987.

[7] Schein, E.H. Career Anchors: Discovering Your Real Values, Pfeiffer, San Diego, CA, 1990.

[8] Field, A. "Getting a Handle on Employee Motivation", Harvard Management Communication Letter, 2003.

[9] Schein, E. H. *Career Anchors* (Rev. Ed.) San Diego: Pfeiffer, Inc, 1996.

[10] Custodio, L.P. Career Anchors of Filipino Academic Executives, School of Commerce Research Paper Series, College of Business and Accountancy, Virac, 2000.

[11] Orayzi Samani, H&Zaker fard, M&Noori, A. "The relationship between job strategy, job domination and organizational commitment: a study case on male and female employees at R & D units of industrial firms", *Females Psychological Social Studies*, Vol. 1.pp. 69-93, 2009.

[12] Schein, E.H. Career Anchors and Career paths: A Panel Study of Management School Graduates, Sloan School of Management, *M.I.T. Report,* 1974*.*

[13] Corrie, S& Hurton, N & Lane, D. A. "How to develop your career and organize your continuing professional development". *The Practitioner's Handbook*. pp: 5-20, 2007.

[14] Getachew, A.Career Orientation of Accounting Professionals in Ethiopia. pp: 1-80.www.etd.aau.edu, 2010.

[15] Steele, C. A. Measuring Career Anchors and Investigating the Role of Career Anchor Congruence.www.eprints.worc.ac.uk.pp:1-294, 2009.

[16] Chetty, T. "An analysis of the career of a top female chief executive: the implications for female leadership", *Cordon institute of business science*. pp: 1-97, 2010.

[17] Villers, M.D. The relationship between employee wellness and career anchors. www.uir.unisa.ac.za. pp: 1-239, 2009.

[18] Gerhardt, M. W. & Brown, K.G. "Individual differences in self-efficacy development: the effects of goal orientation and affectivity", *Learning and individual differences*, Vol.16, pp.43-59, 2006.

[19] Shahrzad, S.Z& Alavi,S.A. "Career orientation and internal authorities for software producers", *Iran Management Sciences Quarterly*, Vol. 16.pp.55-84, 2009.

[20] Muris, P. "Relationships between self-efficacy and symptoms of anxiety disorders and depression in a normal adolescent sample", *Personality and individual differences*, Vol.32, pp.337-348, 2003.

[21] Al-Eisa, A. S. & Furayyan, M. A. & Alhemoud, A. "An empirical examination of the effects of self-efficacy, supervisor support and motivation to learn on transfer intention", *Management Decision*, Vol.47, No.8, pp.1221-1244, 2009.

[22] Esmaeili far, N& Shafia abadi, A& Ahghar, GH. "The share of self-efficacy in predicting happiness", *Thinking and Behaving Journal*, Vol. 19.pp.27-34, 2011.

[23] Dinther, M.V & Dochy, F& Segers, M. "Factors affecting students self-efficacy in higher education", *Educational research review*, Vol.6, pp.95-108, 2011.

[24] Khastar, H. "A multilevel approach on managerial and organizational studies", *Management Culture*, Vol. 19.pp. 163-187, 2009.

[25] Gholipour, A. "Organizational behavior management (personal behavior), SAMT, 2007.

[26] Tai, W-T. "Effects of training framing, general self-efficacy and training motivation on trainees, training effectiveness", *Personnel Review*, Vol.35, No.1, pp.51-65, 2006.

[27] Drnovsek, M & Joakim, W & Cardon, M.S. "Entrepreneurial self-efficacy and business start-up: developing a multi-dimensional definition ", *International journal of entrepreneurial behavior & research*, Vol.16, No.4, pp.329-348.

[28] Cunnien, K.A & Rogers, N. M & Mortimer J. T. "Adolescent work experience and self-efficacy", *International Journal of sociology and social policy*, Vol.29, No.3/4, pp.164-175, 2009.

[29] Ballout, H. I. "Career commitment and career success: moderating role of self-efficacy", Vol.14, No.7, pp.655-670, 2009.

[30] Luthans, F & Peterson, S.J. "Employee engagement and manager self-efficacy", *Journal of management development*, Vol.21, No.5, pp.376-387, 2002.

[31] Sherer, M& Maddux, J.E., & Mercandante, B., & Prentice-Dunn, S., Jacobs, B. and Rogers, R. "The self-efficacy scale: construction and validation", *Psychological Reports*, Vol. 51, pp. 663-71, 1982.

Political connection Role on Relationship between board composition and Companies' Financial leverage

Farzin Rezaei[1] and Mohsen Rafieinia[2]

[1]Assistant professor of Accounting Group in Qazvin Azad Islamic University, Qazvin, Iran

[2]MA student of Kar Institute of Qazvin unit, Qazvin, Iran

ABSTRACT: The purpose of this paper is to investigate the relationship between Board composition and financial leverage of a company in which there is political connection. In this way, multilateral model of Topsis method and weighted multi-criteria model entropy index method is used to measure their political connection. In order to examine the research hypotheses, Regressions model and to estimate the models, Eviews software is applied. In this research, generally 109 companies are considered as samples about which all information is gained through analysis of stock data of Tehran's negotiable instruments organization during an eleven-year period (2001-2012). Findings of this research reveal there is no relationship between Board composition and financial leverage in companies with a great deal of political connection. In addition, there is no relationship between Board composition and financial leverage about companies in which there is little political connection. In fact, the results display that being political does not influence on the relationship between Board composition and financial leverage.

KEYWORDS: financial leverage, board composition, political connection.

1   INTRODUCTION

A country in which there is no suitable technique to protect minor investors and also the rate of corruption is high, political connection of the companies helps them to overcome market shortcomings. This research is going to study the interaction (political connection) of companies which are accepted into Tehran's negotiable instrument stock organization and government as well as its effects on financial leverage considering Board composition. Actually, it should be mentioned that there is some kind of interaction and mutual relations between government and some big companies in such a way that these companies are the government's political performers and reciprocally government supports these companies in various ways such as drawing up profitable contracts, giving governmental foreign currency, reducing customs tariff and so on. On one hand, these companies which are looking for more development opportunities and current position promotion welcome this kind of mutual interaction and relations. Having political relation may lead to many advantages for them for instance, companies which have got political connection might simply get access to financial resource and so, they can own a high financial leverage. Moreover, these companies can borrow loans from governmental banks under more suitable conditions. The previous studies in Thailand (Charumilind et al, 2006), India (Cole, 2004), and in some other new countries (Dinc , 2005) display that governmental banks are often affected by politicians. Hence, the managers of this kind of companies may misuse these circumstances for their own personal gains and borrow much more loans. On the other hand, according to representative's hypothesis, presence of non- charged managers, who do not own any performance duty in the company, and their observing function as independent individuals cause to decrease the difference between stakeholders' interests and managers'. Presence of non-charged members in Board composition due to control existence and more observation on managers' activities performance can cause that managers apply less liability tools for their own personal interests (Wen et al, 2002). In addition, Hassan and Butt in their survey demonstrated that by increasing the percentage of non-charged members in The Board of Directors, company's leverage in its investment structure will be increased to use long

term liabilities. Considering what is mentioned in the present research, we are going to know whether to be political can affect on the relationship between financial leverage and Board composition of a company or not.

2   RESEARCH BASIC THEORY

One of the theories which are stated about political relation is The Interest Group Theory. This theory follows a view in which an industry is survived due to attendance of a group of interested parties; these various groups discuss government about limits and kind of law. For instance, industry may ask for passing a law in order to support themselves before foreign rival prices or before companies' function and their internally disobediences; on the other hand customers and consumers also form some groups to increase production quality and standard although nature and limit of the requested laws would be different. In fact, interest group theory supposes legislation as a product for which there is demand and supply. This product belongs to interested parties who are politically able to persuade government to fulfill their requests in a more effectual way. The other view that is stated about this field is related to political process in economics which based on in a political process individuals act as in market: looking for their own interest. According to this theory, political process is considered as a competition among individuals to transfer the riches. Actually, economic theories always pay attention to individuals' motivation of political process in order to discuss to transfer the riches. In accordance with economic theories, existed laws and regularities set are the results of balance of two groups owning opposite interests: the first groups are who gain interest and the second groups are who provide it. In a balanced position, interest gainers should afford some expenses which the final expenses are exactly equal to their expected final interest and the parties who do this riches transferring should afford some expense which are exactly equal to their expected final decreasing of it(Khostinat and Noruzbagi, 2007). Moreover, accounting theorists have proved that the more a manager's reward is dependent on accounting results, and also the more company's liability contracts and the more the company is known in political views, the more government interferes with its affairs and the more it is likely to discuss. Generally, it can be mentioned that existence of political connection can help governments to perform some of their policies by companies and these companies also use the political connection in different ways; for example companies which have got more political connection they are in a better situation to borrow loan from governmental banks and so, they own a more powerful financial leverage (Mark,A. Bliss and Ferdinand, 2012).

According to Adverse Selection hypotheses, the manager, company's owner, is among few people who know the real value of assets and growth opportunities while outside investors under the best circumstance are just able to guess some items of them. Based on the mentioned model, using inside financial security is always effectual. On the other words, it causes to solve all related problems to information asymmetry (Khaleghi Moghadam and Baghumiyam, 2006). However, according to representative theory literature, in investment structure of company, using more and more liabilies is considered as a solution to reduce representative expenses; because doing this through decreasing need of financial security by investors' equity leads to reduce existed differences between interests of owners and investors(Jinson and Mcling,1976).on the other hand, Wen et al 's (2002) survey shows that through increasing continuous observations by The Board of Directors members, managers looking for their own personal interest use liability tool less. Therefore, it is expected that by increasing the percentage of non-charged members of The Board of Directors, the rate of using liability in company's investment structure begins to decrease.

Mark and Ferdniand (2012) have studied political connection and financial leverage. Findings display that companies having political connection are in a high level of financial leverage and a low level of assets efficient as well meaningfully most of them have negative owners' equity and they would rather report lose. Caprio et al (2008) in a survey called Asset Protecting before Political Exploiting have provided some empirical experiences which show companies especially countries in which the risk of political exploiting is high, maintain their assets in a way that protect them before politicians and bureaucrats. Faccio et al (2006) studied the companies having political connection and presented more evidences about soft budgets of these companies which show possibly governments would save these companies when there is an economic standstill or financial turbulence. Fraser et al (2006) in a research called Investment Structure and Political Support which was done on some Malaysian companies during a ten year period reveal there is a meaningful and positive relationship between financial leverage proportion and political support. Johnson and Mitton (2003) in a research called Relations and Investment Control shows that those Malaysian companies which have political connection owe a large amount of liabilities, too. Hassan and Butt (2009) analyzing ownership structure influence and governing through companies on accepted companies' investment structure in Pakistan stock exchange concluded that generally opportunist managers maintaining organizational position and trying to reduce creditors observations cause that through increasing of managers' power and control , the rate of using liabilities in investment structure begins to decrease. As well their findings show that trough increasing the percentage of non charged members in The Board of Directors, company more and more would be able to use long term liabilities in its investment structure.

Fassberg (2004) analyzing the relation between representative problems and financial security through liabilities concludes that there is a positive relationship between The Board of Directors independence and investment structure; However, this relationship is statically poor. Wen et al (2002) analyzing governing through companies and investment structure decision conclude that presence of non charged members in Board composition would causes that managers gaining their own personal interest apply liability tools less and less.

Afruzi (2014) in a research has studied the relationship between liability expenses and companies which have got political connection; findings reveal there is a meaningful negative relationship between liability expenses and these kinds of companies while there is not any meaningful relationship between liability expenses and bilateral role of managers of these companies. Moreover findings show that there is a negative meaningful relationship between liability expenses and The Board of Directors's member independence. Khajavi and Hosseyni (2010) have analyzed the relationship between government's political support and investment structure of accepted companies in Tehran's negotiable instrument of stock exchange. Findings show that there is a meaningful relationship between two variables: investment structure and government's political support. That is, investment structure would be affected by government's political support in Iran's work atmosphere. Maharluyi,S and Ebrahimi (2011) studying effective factors on investment structure through representative theory view show that companies' technical leadership, ownership focus, percentage of non-charged members of The Board of Directors and independence of the head of The Board of Directors from deputy general manager do not cause to any meaningful influence on studied companies' investment structure. Resayian (2010) has studied the relationship between The Board of Directors properties as one of the technical system of company leadership and its investment structure and he has concluded that there is a meaningful and negative relationship between liability proportion and the number of The board of directors's member while there is no relationship between percentage of non-charged members and investment structure.

3 RESEARCH METHODOLOGY

Basing on goal this research is practical and its data is extracted from previous information. Data collecting of this research is descriptive- co relational as well it is done according to archive method. That is, in the first section studied researches on this topic which are done in books, valid articles, scientific-research magazines, students' thesis and The Internet valid sites have been gathered and analyzed. In the second section also in order to collect required data and information valid sites of Tehran's negotiable instrument stock organization, data bases such as Rah Avard Novin software, some sitese like Rdis,Codal and Irbourse and other valid sites have been used in an archive way, too. Eviews software is used to process information. Studied research population includes all accepted companies into Tehran's negotiable instrument stock organization from 2002 to 2011. Selecting research sample, following conditions have been regarded:

1. Complete data of studied companies in this research should be available in the mentioned date.
2. Companies should not have changed the fiscal year during the research period.
3. These companies are producing ones and they should not be some kind of banks, financial, insurance, investment and intermediate institutes.
4. The end of fiscal year of studied companies should be in end of year: December 30.
5. These companies should not stop transaction.

Considering these conditions generally 120 companies have been selected as research samples.

Due to data nature in this research Panel Analysis is used to analyze and estimate the general model, because in Panel analysis data are collected in accordance with cross section time series method. Compound data includes mix data, board data with stable effects and board data with accidental effects that F-limer and Hasmen tests are applied to choose the best method. In this research because of estimating the general model, Panel analysis has been used and to prevent from any unreal model and to be able to estimate the model during a long term period Manayy tests are used before any test performance.

4 RESEARCH HYPOTHESIS

First hypothesis: there is relationship between Board composition of companies with high political connection and financial leverage.

Second hypothesis: there is relationship between Board composition of companies with little political connection and financial leverage.

Third hypothesis: relationship between Board composition and financial leverage would be influenced by political connection.

5   RESEARCH VARIABLES AND THEIR MEASUREMENT METHOD

In order to test the research hypothesis a multilateral Garrison model is designed whose variable measurement and computation methods are shown in Table 1.

In this research political companies are measured based on multilateral Topsis method and weighting is based on entropy index method. To separate political and non- political companies, political expenses measures are used: number of employees, company size, and sum total of export sale, sum total of market value of stock owners' equity, tax income, employer and joblessness insurance. Having been arranged the companies in order from high political connection to little political connection, they are categorized into three groups so that 40% of companies with high political connection are named high political relation companies and 40% of companies with little political connection are named little political relation companies.

Table 1: Measurement Methods of Research Variables

Variable kind	Variable name	Variable symbol	Measurement method
Intervening variable	High political connection	HPol	Variable is unreal, if the company has lots of political connection it is symbolized 1 otherwise it is 0
	Little political connection	LPol	Variable is unreal, , if the company has little political connection it is symbolized 1 otherwise it is 0
Independent variable	Board composition	Ind	Number of non-charged The Board of Directors members is divided by whole members
Control variables	Return on assets	ROA	Net profit is divided by whole assets
	Stock market value rate to its official value	MTB	Stock market value is divided by its official value
	Company size	Size	Common logarithm of whole assets
	Tangible	Tan	Obvious Stable assets is divided by whole assets
Dependent variable	Financial leverage	Lev	Sum total of liabilities is divided by whole assets

6   RESEARCH MODELS AND HYPOTHESES TEST

6.1   DESCRIPTIVE STATISTICS OF RESEARCH DATA

Related data of this research is collected from 109 sample companies from 2000 to 2010. Table 2 is showing a summary of descriptive statistics of analyzed variables which contain two separated sections: central parameters (max and min average), derivation parameters (normal distribution).

Table 2: Descriptive Statistics of Research Variables

Symbol	Number of observations	Average	Normal derivation	Min	Max
Lev	1199	0.64	0.16	0.06	0.95
Ind	1199	0.74	0.14	0.20	0.85
Tan	1199	0.26	0.64	0.00	21.43
ROA	1199	0.14	0.21	-0.25	5.93
Size	1199	26.79	1.54	19.44	32.40
MTB	1199	3.16	4.02	0.60	50

Generally, derivation parameters are considered as criteria to determine derivation rate for each item or derivation rate for average. In fact, normal distribution is one of the most important derivation parameters. Rate of this parameter for Board composition variable equals 0.14 and for stock market value rate to its official value equals 4.02 that mean between variables of acceptable companies Board composition and market value of stock owners' equity are minimum and maximum normal distribution respectively. Average rate of financial leverage is 0.69 and Board composition is 0.74.

6.2 TEST RESULTS OF RESEARCH HYPOTHESES

Having been separated the companies which have a lot of political connection from ones which have little political connection by Topsis method, hypotheses are tested as below:

First hypothesis: to test the first hypothesis: "there is relationship between Board composition of companies with high political connection and financial leverage" the following model is designed:

$$Lev = \alpha_0 + \alpha_1 HPol + \alpha_2 Ind + \alpha_3 Size + \alpha_4 ROA + \alpha_5 Tan + \alpha_6 MTB + \alpha_7 Ind * HPol + \alpha_8 ROA * HPol + \alpha_9 MTB * HPol + \varepsilon_i$$

For Manayy test, model's variables are extracted from Dicky Fuller test whose results show that all model's variables have 5% error possibility. Moreover, to analyze multicolinearity variables , variance inflation factor is used whose results show Stock market value rate to its official value and high political connection variables, HPol*Ind &HPol*MTB lead to multicolinearity in the model. Multicolinearity effects should be eliminated since the main aim of study is symmetry ratio with HPol*Ind and variables which have caused to multicolinearity may influence on HPol*Ind ratio. Hence, having been eliminated high political connection and Stock market value rate to its official value variables in multicolinearity model, the model can be seen in table 3:

Table 3: Regression analysis of financial leverage based on predicting variables

$Lev = \alpha_0 + \alpha_1 Ind + \alpha_2 Size + \alpha_3 ROA + \alpha_4 Tan + \alpha_5 Ind * HPol + \alpha_6 ROA * HPol + \alpha_7 MTB * HPol + \varepsilon_i$				
Symbol	Ratios	Sample No T student	Meaningfulness level	VIF
Stable	1.25	5.81	0.0001	–
Ind	-0.04	-1.13	0.2582	1.06
Size	-0.02	-2.66	0.0078	1.04
ROA	-0.22	-5.61	0.0001	3.74
Tan	0.006	1.37	0.1701	1.78
Ind*HPol	0.004	0.20	0.9411	2.37
ROA*HPol	0.06	1.28	0.2000	4.35
MTB*HPol	1.85	2.45	0.0142	1.08
Ar(1)	0.44	15.63	0.0001	-
Helimer statistics (meaningfulness)	(0.000) 2.70	Hosmen Statistics (meaningfulness)		(0.000) 9.81
Durbin-watson	0.08	Hafisher Statistics (meaningfulness)		(0.000) 18.2
Determination ratio	0.712	Balanced determination ratio		0.673

Considering that data research is Pannel kind, firstly Limer and Husmen tests are chosen suitably to analyze this hypothesis. Regarding table 3, since meaningfulness level of Limer test is less that 0.05, so zero hypotheses is refused and in conclusion between stable effects and combining data the first should be selected. Now, between Stable effect model and accidental effect using Husmen test one of them should be selected for data analysis. In accordance with table, meaningfulness level of Husmen is less than 0.05 so the suitable method to analyze the first hypothesis is stable effect one. To eliminate the self correlation of errors, first Autoreggresion model is used since in these tests, errors have got self correlation. Data analysis is done by Eview software which is summarized in table 3. According to table 3 this model is meaningful (meaningfulness level= 0.001 & Hafshir statistics= 18.2). On the other words the simultaneous zero hypotheses of all ratios on level0.05 is refused. According to table the statistic sample size of Durbin-watson equals 2.08 and because it is between 1.5 1 and 2.5 range , errors independence hypothesis is not refused. R2 rate equals 0.712 that shows 71.2% of dependent variable changes are stated through independent variable. Meaningfulness level of symmetry ratio with Hpol*Ind variable is more than 0.05 (0.841) and in conclusion the hypothesis of being zero of this ratio on meaningfulness level is refused. Therefore, it can be mentioned that there is no meaningful relationship between Board composition of companies with high political connection and financial leverage. Moreover, meaningfulness level of symmetry ratio with company size and return on assets variables is less than 0.05 so they are meaningful on level 0.05.

Second Hypothesis: there is relationship between Board composition of companies which have little political connection and financial leverage.

Using model for the second hypothesis is:

$$Lev = \beta_0 + \beta_1 LPol + \beta_2 Ind + \beta_3 Size + \beta_4 ROA + \beta_5 Tan + \beta_6 MTB + \beta_7 Ind * LPol + \beta_8 ROA * LPol + \beta_9 MTB * LPol + \varepsilon_i$$

For this hypothesis also all variables are on level 0.06 Manayy. In this model also little political connection and Lpol* Ind variables are multicolinearity that through eliminating little political relation according to table 4 it is removed. In addition, calculated meaningfulness of both tests Limber and Huston is less than 0.05 so, the suitable model for this hypothesis is stable effects method. In this test errors have got self-correlation and to remove it, first Autoregression model is used. Data analysis is done by Eview software which is displayed in table 4.

According to table 4, this model is meaningful (meaningfulness level=0.001 & Hafisher statistics = 18.03). On the other word the simultaneous zero hypotheses of all variables on level 0.05 is refused. Table shows that statistic rate of Durbin-watson equals 2.08 and since it is between 1.5 and 2.5 range so, error independence hypothesis is not refused.

R2 rate equals 0.712 that means 71.2% of dependent variable changes are stated through independent variable. Meaningfulness level for symmetry ratios with Lpol* Ind is more than 0.05 (0.8841) so, the hypothesis of being zero of this ratio on level 0.05 is refused. Therefore, it can be mentioned that on level 0.05 there is no meaningful relationship between Board composition of companies with little political connection and financial leverage variables. In addition, symmetry meaningfulness level with return on assets, company size and Stock market value rate to its official value variables is less than 0.05 so, there is a meaningful relationship between mentioned variables and financial leverage.

Table 4: Regression analysis of financial leverage based on predicting variables

$Lev = \beta_0 + \beta_1 Ind + \beta_2 Size + \beta_3 ROA + \beta_4 Tan + \beta_5 MTB + \beta_6 Ind * LPol + \beta_7 ROA * LPol + \beta_8 MTB * LPol + \varepsilon_i$				
Symbol	Ratios	Sample No T student	Meaningfulness level	VIF
stable	1.26	5.63	0.0001	–
Ind	-0.03	-1.04	0.2981	1.07
$Size$	-0.02	-2.61	0.0091	1.04
ROA	-0.16	-5.18	0.0001	1.33
Tan	0.006	1.42	0.1532	1.83
MTB	2.00	2.24	0.0253	1.14
Ind*LPol	-0.003	-0.14	0.8841	2.39
ROA*LPol	-0.06	-1.24	0.2130	1.78
MTB*LPol	-8.82	-0.28	0.7794	1.05
Ar(1)	0.44	15.78	0.0001	–
Helimer statistics (meaningfulness)	(0.001) 10.29	Hosmen Statistics (meaningfulness)		(0.001) 2.02
Durbin-watson	2.08	Hafisher Statistics (meaningfulness)		(0.001) 18.03
Determination ratio	0.712	Balanced determination ratio		0.672

Third Hypothesis: Relationship between Board composition and financial leverage would be influences by political connection.

Statistics rate for this hypothesis is:

$$\frac{(0.0043 - (-0.0032))}{\sqrt{0.0215^2 + 0.0218^2}} = -0.245$$

Since $|0.245| = 0.245$ is less than $Z_{0/025} = 1.96$ so, zero hypothesis is not refused. Therefore, there is no meaningfulness difference between X7 and Y7 that means Board composition and financial leverage relationship is not affected by political connection.

7 CONCLUSION

The main aim of this research is analyzing the influence of political connection on the relationship between financial leverage and Board composition. Findings of the present research show that political connection cannot affects on relationship between Board composition and financial leverage.

The first hypothesis says relationship between financial leverage and Board composition of companies with high political connection. Having tested this hypothesis, it has not been verified. The results of this hypothesis test display that there is no relationship between financial leverage and this kind of companies' Board composition. not existence of any relationship between financial leverage and Board composition in the hypothesis test is similar to the result of the Hassan and Butt's (2009) research which says although company size and return on assets influence on the investment structure (the rate of liabilities to stock owners' equity), The Board of Directors independence and percentage of non-charged members of The Board of Directors do not affect on security financial decisions of the company. On the other hand, it was expected that companies which are dependent politically, they might have had a high level of financial leverage (Mark & Fredinand 2012) and also because of observation of managers' activities, presence of non-charged members in Board composition may have influenced on financial leverage, but the results of the hypothesis test display that there is no relationship between Board composition and financial leverage of companies with high political connection.

The second hypothesis says there is relationship between Board composition and financial leverage of companies with little political connection; having tested this hypothesis it has been refused. The result of the hypothesis test show that there is no relationship between Board composition and financial leverage in companies with little political connection. Not existence of relationship between Board composition and financial leverage in the results of this hypothesis test is similar to Garlu research results (2000). He had concluded that there is no meaningful relationship between percentage of non-charged members of the Board of Directors and official financial leverage while there is meaningful positive relationship between return on assets and negative meaningful to financial leverage. On the other hand, it was expected that companies with little

political connection before companies with high political connection are not in an acceptable position to receive loan from governmental banks. In this way, existence of non-charged members in Board composition can cause to reliance for party who is going to be asked for loan (Hassan & Butt2009) but the hypothesis test show that efficiency non-charged members of companies is not such that lead to reliance in investment and money market; on the other word non-charge members of The Board of Directors does not influence on the rate of using of financial leverage in companies with little political connection.

The third hypothesis says that relationship between Board composition and financial leverage is affected by political connection. Having tested this hypothesis, it has not been verified. This hypothesis considering the first and second hypothesis results through ratio comparison of Hpol* Ind in the first model and Ind*Lpol in the second model and using Peter Noster et al's test is refused. Results of the test show that relationship between Board composition and financial leverage is not affected by being political. Therefore, in companies with whether high or little political connection, Board composition does not influence on the rate of using financial leverage. In fact, it can be concluded that in accepted companies into negotiable instrument stock market charged and non-charged members' policies of The Board of Directors is abreast to the rate of using financial leverage as well existence of non-charged members in Board composition does not mean powerful observational techniques on managers' activities.

8   COMMENTS

1. Investors are suggested that as they are investing in companies which have high political connection or those which have no political connection, they should not consider existence of non-charged members as the basis of stock purchasing as well creditors are suggested not considering the existence of non-charged members as the basis of reliance.

2. In the present research in order to identify companies which have high political connection, Topsis model is used. It is suggested using other models and variables in the future research to identify companies with political connection.

3. It is suggested doing analysis the relationship between Board composition and financial leverage based on various industries especially those ones which have got high political connection.

4. This research has focused on the relationship between financial leverage and Board composition in companies with political connection while being political variable influence on accounting variables are not studies separately; hence in the future research being political influence on each variable should be analyzed separately.

9   RESEARCH LIMITS

In this research two criteria out of six are tax and foreign sale to identify whether companies are political and these two items for most of the inacceptable companies is zero and that is why ranking of these companies basing being political is not done as accurate as acceptable companies.

REFERENCES

[1]   Afruzi, L. 2014." Study the Relation between cost of debt and political connected firm". Unpublished working paper. Azad University of Qazvin.
[2]   Bliss, M.A. Gul, F.A., 2012. ''Political connection and cost of debt: some Malaysian evidence''. Journal of Banking and Finance vol 35, pp 1520-1527.
[3]   Boubakri, N. Guedhami,O. Mishra, O and Saffar,W, 2012. " Political connections and the cost of equity capital". Journal of Corporate Finance, vol 18, pp 541-559.
[4]   Caprio, L., Faccio, M., McConnell, J.J., 2008. Sheltering corporate assets from political extraction. Unpublished working paper. Purdue University
[5]   Chen, L. Zhao, X. 2006. ''On the relation between the market-to-book ratio, growth opportunity, and leverage ratio''. Finance Research Letters, vol 3, pp 253-256.
[6]   Faccio, M. 2006.'' Politically connected firms''. American Economic Review, vol 96, pp 386-369.
[7]   Faccio, M. Lang, L.H.P. Young, L. 2001.'' Dividend and expropriation''. American Economic Review, vol 91, pp 54-78
[8]   Fraser, D.R., Zhang, H., Derashid, C.2006.'' Capital structure and political patronage the case of Malaysia''. Journal of Banking and Finance, vol 30, pp 1291-1308.
[9]   Gul, F.A. 2006.'' Auditor's response to political connections and cronyism in Malaysia''. Journal of Accounting Research, vol 44, pp 931–963.

[10] Hatami, A. 2011." Political Business Cycle: Political Arguments for Economic Instabilities". Research in Theoretical Politics, Vol new, NO 7, pp 143-174.

[11] Hajiha,z. h, akhlaghi. 2013." The Investigation of Affecting Factors on Debt Maturity Structure: An Empirical Examination of Agency Costs and Leverage Theories". Experimental studies on financial accounting, Vol 10, NO 33, pp 147-167.

[12] Hasan, A., & Butt, S. A. (2009). Impact of ownership structure and corporate governance on capital structure of pakistani listed companies. International Journal of Business and Management, 4 (2): 50-57.

[13] Johnson, S., Mitton, T.2003. ''Cronyism and capital controls: evidence from Malaysia''. Journal of Financial Economics, vol 67, pp 351–382.

[14] Kaleqi moqqadam,H. R, baqumian. 2008." A review of capital structure theories". peyke noor, Vol 5, NO 4, pp 58-82.

[15] Khajavi, sh. H, Hosseini. 2010." Capital Structure and Political Patronage in Tehran Stock Exchange". Journal of Accounting Advances, Vol 2, NO 1, pp 67-84.

[16] Khosh tinat, m. E noruz bagi. 2007." Political Process Accounting". Accountant Magazine, Vol 22, NO 3, pp 45-48 and 53-58.

[17] Mark A. Bliss and Ferdinand A. Gul, 2012. " Political connection and leverage: Some Malaysian evidence". Journal of Banking & Finance, vol 36, PP 2344-2350.

[18] Polsiri, p and Jiraporn, p, 2012. " Political connections, ownership structure, and financial institution failure". Journal of Multinational Financial Managemen, vol 22, 39-53.

[19] Rasaiian, A. 2011."Analyzing the Impact of Board Characteristics on the Capital Structure of the Corporations Accepted in Tehran Stock Exchange". Journal of programming and budget, Vol 15, NO 110, pp 191-204.

[20] Yeh, Y.H. Shu, P.G. Chiu, S.B.2013. "Political connections, corporate governance and preferential bank loans". Pacific-Basin Finance Journal, vol 21, pp 1079-1101.

[21] Wen, Y., Rwegasira, K., & Bilderbeek, J. (2002). Corporate governance and capital structure decisions of chinese listed firms. Corporate Governance: An International Review,10 (2): 75-83.

[22] White, H.1980. ''A heteroskedasticity-consistent covariance matrix estimator and adirect test for heteroskedasticity''. Econometrica, vol 48, pp 818–838.

Investigation on monetary policies effect in view of efficiency of private banks stock admitted in stock market

Kazem Aminzadeh and Rasoul Irani

Department of Economic Sciences,
Shiraz University,
Fars, Shiraz, Iran

ABSTRACT: This research work targets to scrutinize the effect of using monetary policy related tools on the return of private banks stocks admitted in stock exchange with stress on the volume of liquidity, the rate of interest, and the amount of partnership bonds. The objective is to investigate the simultaneous effects of independent and control variables on dependent variables. Using panel data, testing the research hypotheses has been carried out through an analysis of multiple-regression. Generally, the results shown that there was a weak significant correlation between volume of liquidity and the amount of published partnership bonds and the return of the stocks of private banks admitted in stock market; meanwhile, the interest rate at an assurance level of 95% had a negative and significant correlation with the return of the stocks of private banks admitted in stock exchange.

KEYWORDS: Efficiency of stocks, liquidity scale, multivariable regression, monetary policy interest rate.

1 INTRODUCTION

An effective transfer mechanism is achieved when the investment efficiency increases. One of the major goals of enacting monetary policies in all economies is to guarantee price stability and sufficient job opportunities capable of providing a stable economic environment for the sake of economic prosperity of the country. Among main concerns of monetary policy makers, one can mention expanding the monetary policies into real sections of economy in order to develop the economy and this goal can be achieved when the monetary policies are specifically transferred to macro economy through different channels including the interest rate, the credit channels, and the price levels [1]. An effective transfer mechanism is achieved when the investment efficiency increases. If the interest of each stock increases, the investors can gain profits from the efficiency of their investment. Therefore, comprehending how these policies affect the variables of macro economy indeed demands a deep knowledge of how the policies affect the main financial markets and how the changes in prices and the efficiency of assets of such markets affect the behavior of families and companies and other stake holders in particular and the economy in general [2].

The present research intends to scrutinize the effect of monetary policies of Iranian Central Bank on the efficiency of the stocks of private banks registered into stock market. Variables relating to the monetary policy included the amount of published partnership bonds, the liquidity scale, and the interest rate, which are, by themselves, reasonable variables for explaining the performance of monetary policy in Iran, with regards to the results of previous researches carried out on economy in Iran and different Countries.

2 THEORETICAL BACKGROUND

In stock market is clearly dependent on the overall performance of economy. In other words, stock exchange is a representative of the whole economy of a country.

A wise investor decides in different situations where to invest his money in such different areas as stock exchange or other rival markets such as gold, housing, and savings bond. In the meantime, different factors affecting the stock exchange should be recognized in order that one invests in the appropriate time. Numerous Investment companies, venture investors, and analysts certainly investigate the factors that affect bonds on a daily basis, but there are still investors who are not that much familiar with such factors.

One of the factors that can tremendously change the efficiency of stock and thus affect the policies of interest distribution in companies is the monetary and financial policy utilized by governments for controlling the liquidity [3]. Monetary policy is a measure designed to affect the scale of money, money route, and credits with the aim to achieve desirable economic ends [4]. Central bank of each country, as the representative of their government, regulates and administers one tarry policy so as to achieve several objectives. This is expressed as the access of required evils in main activities, the exchange rate, the level of prices or inflation, the balance of payments, the real production, and employment [5]. Stock market has, moreover, a considerable sensitivity to changes of monetary policies but this sort of sensitivity can be different in various economies [6]. Comprehending how monetary policies affect the economies in developing countries is very vital if we want to decide on investing in such markets. Since the nature of financial markets and the economic structure of developing countries is very different from those of the developed countries, our knowledge of how monetary policies affect the economy of developed countries is not applicable to developing countries [7]. On the one hand, it is believed that monetary policy can affect financial markets, especially the stock market. It seems that monetary policy has a key role in identifying the efficiency of stockholders' rights by changing the rate of re-interest or affecting the participants' expectations of future economic activities in markets.

On the other hand, some narrative evidences make the policy makers' decisions affect the behavior of stock markets [8]. Enforcing such monetary policies as changing the interest rate of Central Bank has an indirect effect on major variables of economy, thus imposing considerable auses to the mechanism of policy transfer. Larger financial markets like stock markets, the market of savings bonds of governments and major corporations, the market of housing loans, or the markets of foreign exchanges will quickly react to new information and, therefore, a direct and instant effect of changes in devices of financial policy can be discernible by using financial data. Since changes in the price of assets has a key role in different channels, one can claim that identifying the relationship between the monetary policies and the price of financial assets is very necessary in order to gain a better insight into the mechanism of monetary policy transfer [9]. Since changes in the price of assets has a key role in several channels, it can be an important factor for identifying how expansive or contraction-form monetary policies affect the performance of stock market in various countries. The relationship between monetary policy and the performance of stock market is also significant due to various reasons.

There is a consensus among investors and researchers stating that having a precise evaluation of the reaction of price of assets to monetary policies is very significant since it causes economists and the Central Bank authorities comprehend the results of their measures in a better way and identify the effectiveness of the channels of stock market against transfers of monetary policy. Central Bank authorities and the participants in stock market should be completely aware of the relationship between monetary policy and the performance of stock market if they want to fully comprehend the effects of monetary changes. The relationship between monetary policy and stock market can be observed in two perspectives including the effect of monetary policy on stock market and the effect of stock market on monetary policy. Economists have different opinions over this issue; the reaction of the price of assets to monetary policies is a key component for analysis of the effect of monetary policy on economy, regarding the effect of stock markets on monetary policies and, due to its potential effect on stock market trends, is probably a determinant factor for decision makings related to monetary policies. Central bank can improve the performance of economy through controlling and adjusting the price of assets. Stock market is one of the most important financial institutions of economy and therefore is a necessary factor for the stability of development in the long term and thorough the regulation of financial institutions. Monetary policy-makers of different countries should identify the operation mechanism appropriate to their country and thus comprehend the channel through which financial motivators affect the performance of stock market [5]. It is claimed that economic variables like inflation, liquidity, exchange rate, etc. can affect the changes of stock prices and this claim has theoretically been confirmed, too.

However, in the previous decades several attempts have been made with the aim to theoretically investigate the effect of economy forces and to empirically measure its effects. The dynamic relationship between the variables of macro economy and the efficiency of stocks has been widely investigated. Such investigations were heavily based on the theories confirming that stock prices reflect current value of future cash trends of that stock (the current value model). Therefore, future cash trends as well as the expected efficiency rate (the interest rate) are also necessary and the economic variables affect both future cash trends and the expected efficiency rates, being consequently able to exert an effect on stock prices [10].

3   LITERATURE REVIEW

In more recent literature, various studies have been carried out focusing on the relationship between monetary policies and capital market, especially stock market, the results of which generally indicating that the capital market is sensitive to sudden changes in monetary policy and the scale of this sensitivity depends on the specific situation of economy. Vithssonthi and Techarongrojwong have investigated the effects of decisions related to monetary policy on the efficiency in Thailand [7]. Their results of regression show that the expected changes in repurchase rate has a negative effect on stock market in contrary to the results obtained from various other studies carried out in the same subject.

Surprisingly, sudden changes in repurchase rate do not have any effect on the efficiency of stocks. Aleemran et al., have investigated the effect of monetary policies on stock market in Iran [11]. The method used in their study is automatic-distributed regression model; the results show that monetary policy has a negative effect on stock market while monetary policies have a positive effect on stock market. Furthermore, their results show that the effect of monetary policy on the efficiency of stock is more than that of financial policy; hence, the monetary policy increases the efficiency of stock in the long term but leaves a negative impact on it in the short term.

Qayyum and Anwar have investigated the effect of monetary policy on fluctuations of stock market in Pakistan [12]. They have used interest rate as a monetary policy tool and have utilized EGARCH method for investigating the relationship between their two variables. The results show that each change in monetary policy leads to meaningful changes in stock market of Pakistan.

Albaity has analyzed the effect of monetary policy tools on the efficiency of the index of Islamic stock market [13]. He has investigated the effect of monetary policy, the interest rate, and the inflation rate on indices of Islamic stock market in Malaysia as well as on the indices of the US stock market as a non-Islamic one. The results show that the indices of Islamic stock market in Malaysia has a positive relationship with M3 and with the inflation rate but a negative relationship with the interest rate, while the index of Islamic stock market in the USA has no single relationship with such variables.

Okpaapra has studied the effect of monetary policy on the efficiency of stock market in Nigeria [2]. He has used the minimum two-stage squares method on a collection of equations. His results show   that the monetary policy determines the long-term efficiency of stocks in Nigeria. Aziza has investigated the effect of monetary policy on the performance of stock market His identified model has been calculated in three seasons using vector error correction model (VECM) in order to determine the effects of monetary policy on the performance of stock market [5]. The results show that monetary policy tools are effective through various methods in different places and at different periods of time. This research also indicates that there is no visible difference between developed and developing countries in terms of the effects of monetary policy on stock markets. Kurov has investigated the investor's behavior in stock market and the reaction of stock market to monetary policy [14]. The results show that the shocks produced by monetary policy have a strong effect on the investors' behavior at times of recession. In addition, the stock market has a severe sensitivity to monetary policies, showing a considerable reaction to them.

Ionnidis and Kontonikas have studied the effect of monetary policies on the price stocks in 13 member countries of Economic Union [10]. Self-regression method with distributed pauses has been applied for calculation of the econometrics of equations. The results show that changes of monetary policy have meaningful effects on the efficiency of stocks. Rigobon and Sack have examined the effect of monetary policies on the prices of assets [15].

Results of regression indicate that the increase in short-term interest rate has a negative effect on stock price and an even bigger effect on NASDAQ index.

The increase in interest rate within three months decreased the S&P 500 index by 1.7% and the NASDAQ index by 2.4%. Their results also show that the short-term rates have positive meaningful effects on interest rates of the market.

4   THEORETICAL FRAMEWORK

The present research investigated the effect of monetary policies on the efficiency of the stocks of private banks admitted in Iranian stock market in a time periods 2005 to 2010 on a seasonal basis. Three variables of liquidity scale, interest rate, and the amount of published partnership bonds were considered as independent variables while the efficiency of stocks of private banks admitted in stock market was selected as our dependent variable. Moreover, the three variables of exchange rate, company size, and oil revenues were put into the model as control variables as well as dependent and independent variables.

5 RESEARCH HYPOTHESES

Our research hypotheses include the following:

1. There is a meaningful relationship between the liquidity scale and the efficiency of the stock of private banks admitted in stock market.

2. There is a meaningful relationship between the interest rate and the efficiency of the stocks of private banks admitted in stock market.

3. There is a meaningful relationship between the scale of published partnership bonds and the efficiency of the stocks of private banks admitted in stock market.

4. There is a meaningful relationship between the liquidity scale, the interest rate, and the scale of published partnership bonds, and the efficiency of the stocks of private banks admitted in stock market.

6 METHODOLOGY

The research method was based on correlation, investigating the relationships and correlations between the variables through regression; the research methodology was based on post-events (using previous data). The data relating to the efficiency of the stocks of the banks in stock market were inquired from Tehran Stock Exchange using Reheard-e-Novin software and the data related to monetary policies (our independent variable) were collected through economic indices published by Iranian Central Bank before getting analyzed through the required finalizations and calculations in Excel software. Final analyses were co-administered using Eviews 7 software. Other data required for the research were gathered through investigating and studying web and library sources available in this area. In our research, RET is the symbol of dependent variable (the rate of efficiency of the stocks of private banks admitted in stock market) and the independent variables of VL, IR and PB respectively represent the volume of liquidity, the interest rate, and the amount of published partnership bonds; the control variables of FER, CS, and IO respectively stand for foreign exchange rate, company size, and the income of oil.

To test the permanency of the variables, the unit root test was utilized (a test previously conducted by Levin, Leen and Chu); the results of Levin, Leen and Chu tests show that the rate of the return is at a permanent level. Other variables except for the volume of liquidity became permanent at difference level of the first time while the volume of liquidity became permanent at difference level of the second time. Multi-variable regression equation was applied in order to investigate the relationship between these two variables in the next section. Firstly, the normality of regression was examined using the statistics of Jarque-Berae. Our model was then normalized by inserting the dummy variable. To investigate the existence of self-correlation, the Durbin-Watson statistics was utilized and to inquire about the dissimilarity of variance, the likelihood ratio was used. In case the regression has a dissimilarity of variance, the GLS method should be used as a method obtained through giving weights to levels with the aim to remove the dissimilarity. Chow Test was used for applying the model of fixed effect versus compilation of all data and finally the Hausman Test was administered for identifying the method of fixed or random effect (in case we admit the panel data method). After administering all the above-mentioned tests, the estimation and solving of the model based on previous tests was carried out.

7 RESULT AND DISCUSSION

TEST OF RESEARCH HYPOTHESES

Regarding the probability of t statistics and the meaningful level (sig), the interest rate at a confidence level of 95% had a negative meaningful effect on the efficiency of the stocks so that with 1 unit increase of the interest rate, the efficiency of the stocks of private banks admitted in stock market decreased by 10.83 units. Also the width from basis variable at a confidence level of 95% and dummy variable at a confidence level of 99% had positive effects on this relation. Only the interest rate had a negative effect on the under-studied dependent variable. As a result, those hypotheses which stated that the volume of liquidity, the interest rate, and the amount of published partnership bonds had meaningful effects on the efficiency of the stocks of private banks admitted in stock exchange are all to be rejected. The coefficient of the adjusted determinant showed that almost 0.60% of the changes of our dependent variable were explained by meaningful variables. Durbin-Watson statistic was also an indicative of a lack of successive self-correlation in the

model. Regarding the amount of the probability of F statistics and the amount of its probability (which was smaller than a=0/01), one can deduce that this model had the credibility and was meaningful at a confidence level of 99%.

8   CONCLUSION AND SUGGESTION

The effect of monetary policies on the return of the stocks of private banks admitted in stock exchange were tested in this study through estimating a multiple-regression model with panel data method regarding the hypotheses of the study. This investigation was conducted by using variables of monetary policies (volume of liquidity, interest rate, and the amount of published partnership bonds) and the return of the stocks of private banks admitted in stock market. The results obtained from testing the first hypothesis showed that the volume of liquidity at a confidence level of 95% had a minor effect on the return of the stocks of private banks admitted in stock market. Also, of control variables, the variables of foreign exchange rate and company size had a minor effect on this relation. It can be therefore concluded that there was a weak positive meaningful relationship between the volume of liquidity and the return of the stocks of private banks admitted in stock market. The effect of the interest rate on the dependent variable was tested in our second hypothesis. The results indicated that the interest rate with the return of the stocks of private banks admitted in stock market at a confidence level of 95% had negative meaningful effects so that with a 1% change in the interest rate, the efficiency of the stocks of private banks admitted in stock market decreased by 45.12%. Among the control variables, the foreign exchange rate had a negative effect on this relation although this effect was relatively minor so that 1 unit increase of the interest rate caused the efficiency of the stocks of private banks admitted in stock market a decrease of 0.0002 unit. The results of testing the third hypothesis showed that the amount of published partnership bonds at a confidence level of 95% had minor negative meaningful effects on the efficiency of the stocks of private banks admitted in stock market. Also, from control variables, the variable of company size had a small effect on this relation. The results obtained from our fourth hypothesis showed that among the three variables of monetary policy, the interest rate had a negative meaningful relationship with the efficiency of the stocks of private banks in stock market so that with 1 unit increase of the interest rate, the efficiency of the stocks of private banks admitted in stock market decreased by 10.83 units, while the volume of liquidity and the amount of partnership bonds had no meaningful effect on regression equation of the fourth hypothesis. Dummy variety had a positive effect on the relationship in all our research hypotheses. Moreover, the regression equation was generally meaningful considering the probability of F statistics for all four equations.

In general, one of the most important factors that caused the rejection of our fourth hypothesis was the relatively short period of time spent for the research and the comparatively small number of private banks admitting the stock market at the time this research was being carried out.

Furthermore, Iran s economy is governmental and lots of the variables applicable to most other countries do not generate an effect on it.

Since the interest rate has a negative relationship with the efficiency of the stocks of banks admitted in stock market, the managers of these banks should take precautionary measures in case monetary policymakers utilize such devices for fulfilling their economic goals in order to neutralize such negative effects. Such measures may include: reducing the risk of stocks through management of expenses and debts, diversifying the granted facilities and increasing the interest rate of bank deposits (increasing the interest rate of banks will have a positive effect on capital market and will cause an increase in the price of bank stocks) and publishing bonus stocks. In addition, the increase in capital can prevent irregular decrease of prices as well as the efficiency of stocks. The best way for increasing the capital and the efficiency of stocks is the partnership method in which one side of the partnership is the assets and cash and this causes the increase of liquidity volume and there are savings or accumulated profits on the other side which prevents the withdrawal of capital from the company.

REFERENCES

[1] Bernanke, B.S and Gertler, M. (1995). Inside the Black Box: The Credit Channel of Monetary Policy Transmission. Journal of Economic Perspectives, 9 (4); 22-48.

[2] Osuagwu, E.S., (2009). The Effect of Monetary Policy on Stock Market Performance in Nigeria. http://www.unilag.edu.ng/publication/opendoc.php?sno=15495&doctype=doc&docname=$.

[3] Bernanke, B. S., & Kuttner, K. N. (2005). What explains the stock market's reaction to federal reserve policy? Journal of Finance, 60, 1221 1257.

[4] Okpara, G.C., (2010). Monetary Policy and Stock Market Returns: Evidence From Nigeria. Journal of Economics, 1(1), pp. 13-21.

[5] Aziza,F. O.F.,(2010). The Effects of Monetary Policy on Stock Market Performance: A Cross-Country Analysis. Available at SSRN: http://ssrn.com/abstract=1743834 or http://dx.doi.org/10.2139/ssrn.1743834.

[6] Li, Y.D., Iscan, T.B., Xu, K., (2010). The impact of monetary policy shocks on stock prices: evidence from Canada and the United States. Journal of International Money and Finance 29, pp.876 896.

[7] Vithessonthi,C., Techarongrojwong, Y., (2012), The impact of monetary policy decisions on stock returns: Evidence from Thailand. Journal of International Financial Markets, Institutions & Money 22, PP.487-507.

[8] Aleemran,R. Kazemizadehfarnood, G.R ,Babapour, E and Khalilinaghadeh, M., (2012). The Study of the Effects of Monetary and Financial Policies on Iran Stock Market. Journal of Basic and Applied Scientific Research 2(1), PP.192-202.

[9] Crowder,W.J., (2006). The Interaction of Monetary Policy and Stock Returns. Journal of Financial Research 29, pp.523-535.

[10] Ioannidis,K. & Kontonikas,A.,(2008). The Impact of Monetary Policy on Stock Prices. Journal Of Empirical Finance 17, pp.154-179.

[11] Elton, E,J.and Gruber, M (1991). Modern portfolio Theory and Investment Analysis. Fourth Edition, John wiley & Sons.

[12] Qayyum, A and Anwar, S., (2011). Impact of Monetary Policy on the Volatility of Stock Market in Pakistan. Munich Personal RePEc Archive (MPRA).

[13] Albaity, M.S., (2011). Impact of the Monetary Policy Instruments on Islamic Stock Market Index Return. Economics Discussion Papers, No 2011-26, Kiel Institute for the World Economy. http://www.economicsejournal.org/economics/ discussion papers/201126.

[14] Kurov,A., (2010) .Investor sentiment and the Stock Markets reaction to Monetary policy. Journal of Banking &Finance, vol.34.

[15] Rigobon,R & Sack, B., (2004). The impact of monetary policy on asset prices. Journal of Monetary Economics 51, PP.1553 1575.

Economic evaluation of mining projects under conditions of uncertainty for prices and operating costs

Moslem Amini[1], Fatemeh Alijani[2], and Zana Mozaffari[3]

[1]Islamic Azad University of Qazvin,
Qazvin, Qazvin, Iran

[2]Department of Agricultural Economics, Payame Noor University,
Tehran, Tehran, Iran

[3]University of Tabriz,
Tabriz, Tabriz, Iran

ABSTRACT: Evidence suggests that mining projects include risk and this kind of business is complex and includes unpredictable costs and also in many cases, such as exploration evaluation, uncertainty of the mining engineering and economic uncertainty are affective. In this paper we use two scenarios for economic evaluation of project. First scenario investigates certainty of prices and operating costs and second scenario uncertainty of prices and costs. It is concluded that the mine evaluation suggests greater net present value when uncertainty is considered for both price and operating costs. The purpose of this study is investigated decision making in certain and uncertain situations. For investigate this subject binominal tree by DiverGen software and for calculating of present value of the project Excel software were used .results show that binominal tree is better device for decision making in uncertain situations.

KEYWORDS: Economic uncertainty, Metal price, Operating costs, Net present value, Binomial tree technique, Sensitivity analysis

1   INTRODUCTION

Economic evaluation is a way of systematically analyzing all the costs and benefits associated with a proposal and assessing its overall benefits. The analysis can incorporate monetary, quantitative and qualitative factors. Economic evaluation can assist in better quantification of the benefits and a more balanced assessment of the relative merit of options. Evaluation provides vital information to decision makers at various levels within government. The use of economic evaluation is encouraged in all relevant areas of public sector activity including policy proposals, program evaluation and regulatory review. an economic evaluation of a proposal should always explain who will be affected and to what degree, whether it is an agency, sections of the community, industry or individuals.(Marilyn chilvers, 2009). One of the most important assumptions to be made in any economic evaluation is that of prices. commodity prices can be found in special publications or websites. For example in Iran the "umetal website and" reports daily, monthly and yearly price surveys for metallic and non-metallic commodities.

Mining projects are complex businesses that demand a constant assessment of risk. This is because the value of a mine project is influenced by many underlying economic and physical uncertainties, such as metal prices, ore grades, costs, schedules and environmental issues. Therefore, evaluating and estimating a mine project without mentioning the risk for future losses (or opportunities) will lead to invalid results. consequently, man- agers and stockholders of a mine company make an indiscreet decision based on invalid information(dehghani & ataee-pour, 2012) the main sources of uncertainty

arising at the beginning of a mine project can be categorized into three groups: exploration uncertainties, engineering uncertainties and economic uncertain ties. Exploration uncertainties will occur in the duration of resource evaluation stages such as geologic uncertainty, data collection, interpretation, modeling, deposit classification, reporting and so forth. engineering uncertainties include bench heights determination, planned grade control, minimum stopping widths, choice of stopping method, dilution factors, geotechnical and hydrological parameters, mining recovery factors and metallurgical recovery. This type of uncertainty will affect the ultimate pit (stope) limit and scheduling period. economic uncertainty: economic if outcomes will occur with a probability that cannot even be estimated, the decision maker faces uncertainty. this meaning to uncertainty is attributed to frankknight, and is sometimes referred to as knighting uncertainty. the decision maker can apply game theory even in such a circumstance, e.g. the choice of a dominant strategy(economics.about.com)

In the mining industry, metal prices are normally modeled as the average price for the last three years, especially for those commodities whose price is listed on open markets, such as precious and base metals. even though the use of a single commodity price makes the comparison between companies easy, it prevents the use of excessively optimistic prices. it may be misleading when evaluating mining projects. For example, an overestimated metal price may result in a favorable rate of return for a project, which is otherwise doubtful. Conversely, an underestimated metal price may result in an unfavorable return for the project, which is otherwise profitable. Cost is another source of uncertainty when evaluating a mine project. The economic evaluation component of the feasibility study is based on the information that provides an answer to the question, 'what is it going to cost?'. Since the estimation of capital and operating costs is an important requirement for open pit mine evaluation, uncertainty in costs arises due to the lack of engineering or economic information at the beginning of the mine project. simply put, current mining companies do not know with absolute certainty how much they will be able to spend tomorrow, let alone next month or next year .numerous research works have been carried out for price uncertainty (Brenan and Schwartz (1985); trigeorgis (1993); Moyne et al. (1996); Kelly (1998); moel and tufano (2002); monkhouse and Yeats (2005); abdel sabour and poulin (2006); samis et al. (2006); shafiee et al. (2009)). but there is no notice- able research on operating cost uncertainty. Indeed, the operating costs are determined as a certain parameter in the previous research works, mostly. While, some parameters such as market variations, government policy changes, novel technology, management adjustments and so forth may change the operating cost, unpredictably. Thereupon, for determining the real and correct project value, it is necessary to consider the operating costs uncertainty. The purpose of this study is investigated decision making in certain and uncertain situations.

2 METHODOLOGY

We start methodology by introducing techniques in economic evaluation and also elements of cash flow for calculating. Finally we focus on binominal tree, one the most applied prediction method which can predicts price easier and closer to the exact price. Economic evaluation model are different but choosing an applied model help us to deduct or recognize other effects like inflation and unpredictable matters. According to these reasons binominal tree is a good choice for pricing. At the onset we have to realize that a relationship exists between operating costs and grades.

A mine exploiting a very rich deposit can afford higher operating costs. The mine can afford to use more expensive methods to extract rich parts of the deposit. So, if we look in our economic evaluation for analogous data from operating mines we should be careful to select not only similar deposit types but also deposits with similar grades. Perhaps it's a good idea to use cutoff calculations like marginal stripping ratio and so on. but these kinds of calculation are temporarily and their results are not so reliable(wellmer, dalheimer, & Wagner, 2008)

2.1 ECONOMIC EVALUATION TECHNIQUES

Economic evaluation is a systematic means of analyzing all the costs and benefits of options for meeting an objective(s), then selecting the best option. in essence, economic evaluation shows: whether the benefits of a proposal or change exceed its costs. Which option has the highest net benefit or which option is the most cost effective if benefits are equivalent the distribution of costs and benefits across stakeholders. Clearly, the results of an economic evaluation will not be the only factor taken into account when making a decision, but they provide important information on the effects of each possible decision. Different types of evaluation can be applied to proposals. These range from financial evaluations to those that include broader impacts on the community, such as economic and social evaluations.

Mine projects are different from exploration projects which usually have the definition of mineralization or mineral deposits as their objective .the evaluations should:

a) Provide a base on which economic decisions are made,

b) Identify and quantify risk, and

c) Establish project priority.

At least four aspects of the environment in which the project is evaluated may be identified — technical, financial, social and political. a number of values and indices that can be used in financial evaluation:

b) Payback period,

c) Net present value (NPV) at a predetermined discount rate and,

d) Internal rate of return (irr).

Another value measurement that could be used is the present value ratio (pvr).
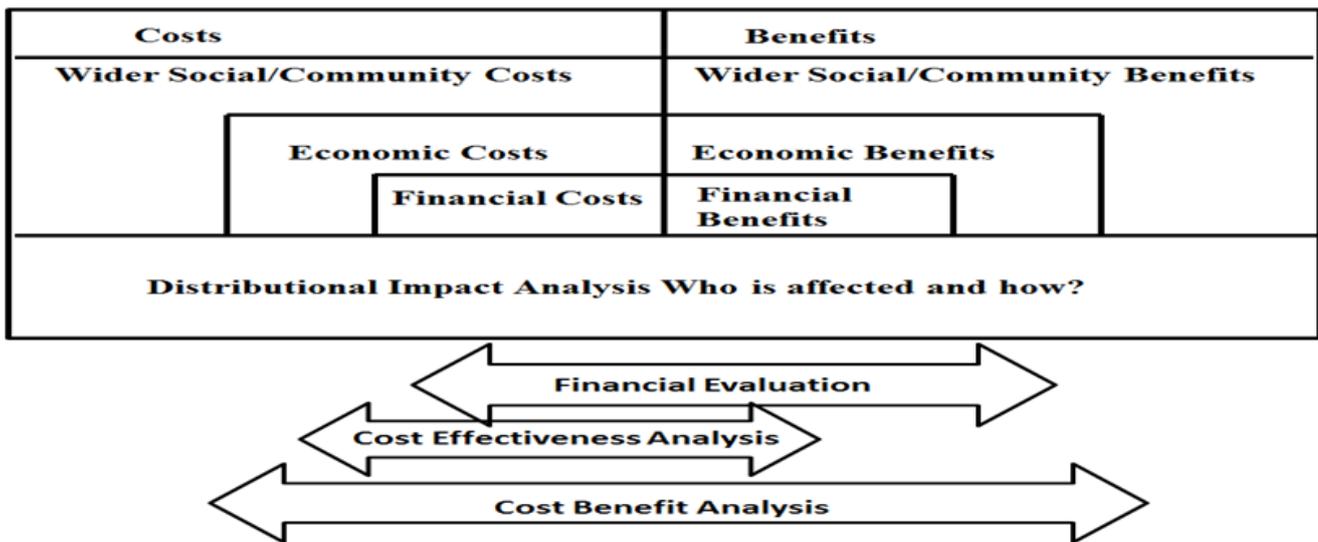
Fig. 1.Economic evaluation techniques

2.2   ELEMENTS OF CASH FLOW CALCULATIONS

In cash flow calculations only true flows of money (of cash) of a project are considered. to better imagine what cash flow is, we imagine the mine as a "box" (fig. 2) and ask ourselves, what money flows in and what money flows out of this "box". The money that flows in are the revenues which we calculated it. The money that flows out are first the operating costs (wages that have to be paid to the employees of the mine, money for energy, explosives etc.) further money that flows out are interest for loans and taxes and royalties t. the difference between money inflows and outflows is the cash flow. one distinguishes between gross cash flow, i.e. the difference between revenues and operating costs before interest, taxes and royalties (cf) and the net cash flow (nc) the same difference after interest, taxes and royalties.(wellmer, dalheimer, & wagner, 1989) operating cost: operating costs are calculated directly from material consumption, salaries and wages, services, availability of machinery etc.(wellmer et al., 2008) operating costs: identified by function — mining, treatment, engineering, administration, etc.; or by resource — labour, supplies, equipment, services, overheads etc.(Allen, 2012)

Hence depreciations and periods of depreciation are of no direct importance. Depreciation is an accounting measure to calculate tax deductions. Periods of depreciation only have an indirect influence via tax charges; the latter are genuine annual payments and therefore are included in cash flows (see fig.2). However, if no taxes are paid as used to be the case in the Australian gold mining industry or if tax holidays are granted for the first years of operation of a project to encourage mining investments as is the custom in some developing countries, then depreciation for the purpose of cash flow calculations is altogether irrelevant.

annual cash flow = capital expenditure + revenue — operating costs — taxes — increases in working capital + loans — loan repayment — interest.
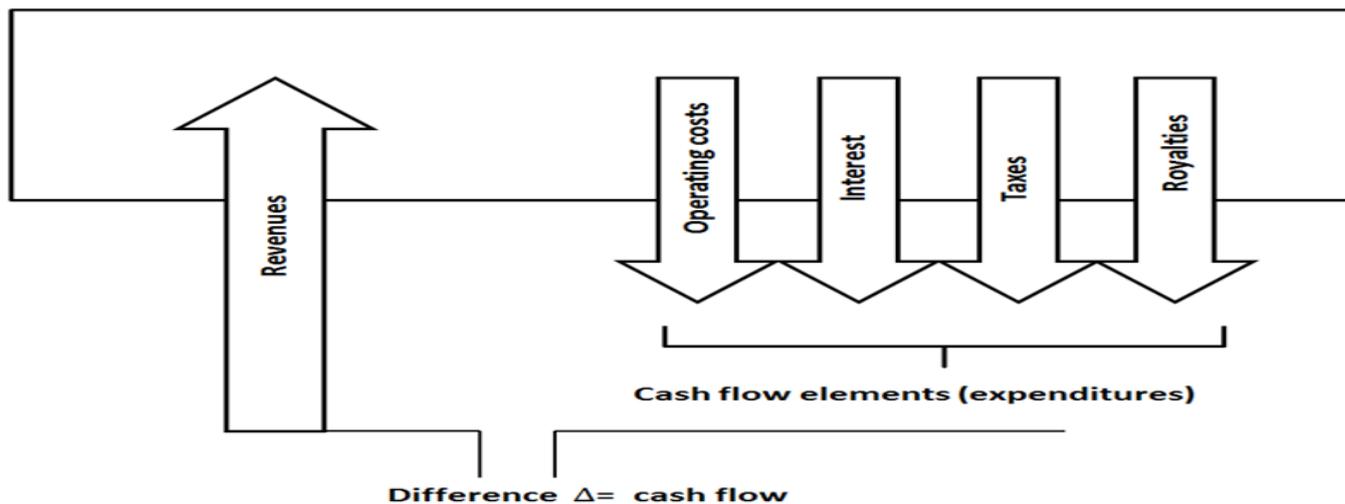
Fig. 2mine in operation

2.3 BINOMINAL TREE

Binominal tree is a flexible and vigorous method which use specified structure to show all aspect of price by model (Chashemi& Ghasemi, 1391).

A graphical representation of possible intrinsic values that an option may take at different nodes or time periods. The value of the option depends on the underlying stock or bond, and the value of the option at any node depends on the probability that the price of the underlying asset will either decrease or increase at any given node. Binomial trees are useful tools when pricing options and embedded options, but there is a fundamental flaw with the model. The problem lies in the possible values the underlying asset can take in one period time. In this model, the underlying asset can only be worth exactly one of two possible values, which is not realistic, as assets can be worth any number of values within any given range (www.investopedia.com).
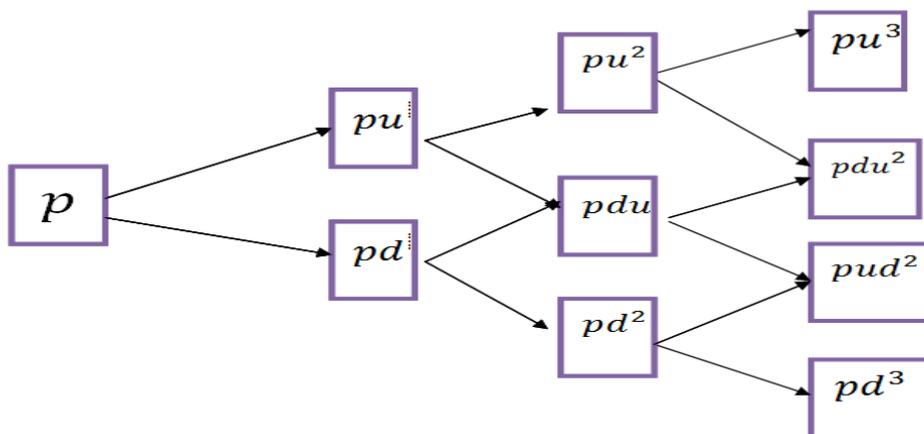
Fig. 3 Binomial tree

Each of these branches and ways in binominal tree may transfer from one group to another group which binominal tree shows the direction of and probability of the relationship. Higher branches express PR probability and multiplier of U, while lower branches show probability of (1-PR) and multiplier of D. By these factors probability shows with the following formula:

$$u = \mathrm{e}^{\sigma\sqrt{\delta t}} \qquad \text{eq. 1}$$

$$d = \frac{1}{u} = \mathrm{e}^{-\sigma\sqrt{\delta t}} \qquad \text{eq. 2}$$

$$p_r = \frac{(1+r_f)-d}{u-d} \qquad \text{eq.3}$$

The basic inputs are the volatility of the metal price or operating cost(s), the risk-free rate (rf) and stepping time (dt). In this paper, two different scenarios were studied.

Scenario 1: NPV computation under certain metal price and operating cost situation

Scenario 2: NPV computation under uncertain metal price and certain operating cost situation

In this scenario the project NPV was calculated using the traditional DCF technique. For this purpose, at the first step, the free cash flow (FCF) was determined using the following formula:

$$\mathrm{fcf}_{n,k} = \{([(p_n - c_n)Q_n] - FC_n - D_n)(1 - \mathrm{tax}) +\}D_n \quad \text{eq. 4}$$

where FCFn is the free cash flow to the firm at time n, Pn is the mineral commodity price at time n, Cn is the variable cost at time n, Qn is the production rate at time n, FCn is the fixed cost at time n, Dn is the deprecation at time n, Tax is the corporative tax and n is the time period. There are many methods for estimating the future metal price and operating cost such as using the average of the previous metal price and operating cost data and regression analysis. After calculating FCF we can estimate NPV by the following formula:

$$\mathrm{NPV} = -P_0 + \sum_{n=1}^{N} \frac{\mathrm{FCF}_n}{(1+i)^n} \qquad \text{eq. 5}$$

Where i is the discount rate for the mining project.

In the second Scenario

Both of sale price and operating costs are in the uncertainty situation so we use binominal tree for commodity and operating costs. Then free cash flow will be calculated and finally we achieve project value.

3   NUMERICAL EXAMPLE

Chadormaloo is a company which established in 27 KHordad (June) of 1371 and registered in Registry of Companies of Yazd. And then according to Resolution of the extraordinary general meeting in 16 aban of 1377 the company moved to Tehran and registered in Registry of Companies and non-business institutes of Tehran. Company legal personality in August in 76 of the state was changed to private and accepted as corporate company in Tehran stock exchange in 1382.(www.chadermaloo.com).

Briefly the basic activity of the company is exploration and exploitation of mines and iron ore and product concentrate and Production of pellets, seed production of iron ore and steel production. 50 percent of Iranian concentrate of iron ore is allocated to Chadermaloo. And also 56 percent of pellets market is allocated by the same company notice that ChaderMaloo's tax breaks extended because the company located in deprived area.

Although Chadermaloo's mine produce several products like pellets, iron ore and etc.but here we investigate iron ore.

Scenario 1: NPV computation under certain metal price and operating cost situation

Table 1 shows calculated factors like iron ore price and operating cost and other basic factors in 1392.

In this scenario we assume that basic factors only under the effect of interest rate of return will modify. In the paper the amount of interest rate of return is 23 percent and also because of tax break of the company the tax is zero. And also estimated depreciation is 1075200 million Rials.

Table 1.   Input data parameters

Input data	Amount	Unit
Metal price	1680000	RLS/T
Primary cost	12000000	MRLS
Operating cost	740000	RLS/T
Iron production	16	MT
Fix cost	1684946	MRLS
Deprecation	1075200	MRLS
tax	0	0
Discount rate	25	%

Now according to these data present value of the project by calculated amount is 356844220 million rials.

Scenario 2: NPV computation under uncertain metal price and certain operating cost situation

In this scenario both of price and cost are determine in uncertain situation so we should calculate a single tree for each of them. And by DerivaGem Software and also according to information below, binominal tree will be calculated.

Table 2.   Binomial tree

In put	Volatility (σ)	Up (u)	Down (d)	Risk free rate	probability
price	%40	1/4918	0/6703	%25	0/7471
cost	%37	1/4477	0/6907	%25	0/7837

Discount factor per step = 0.7788
Time step, dt = 1.0000 years, 365.00 days
Growth factor per step, a = 1.2840
Probability of up move, p = 0.7471
Up step size, u = 1.4918
Down step size, d = 0.6703

Node Time:

| 0.0000 | 1.0000 | 2.0000 | 3.0000 | 4.0000 | 5.0000 | 6.0000 | 7.0000 | 8.0000 | 9.0000 | 10.0000 |
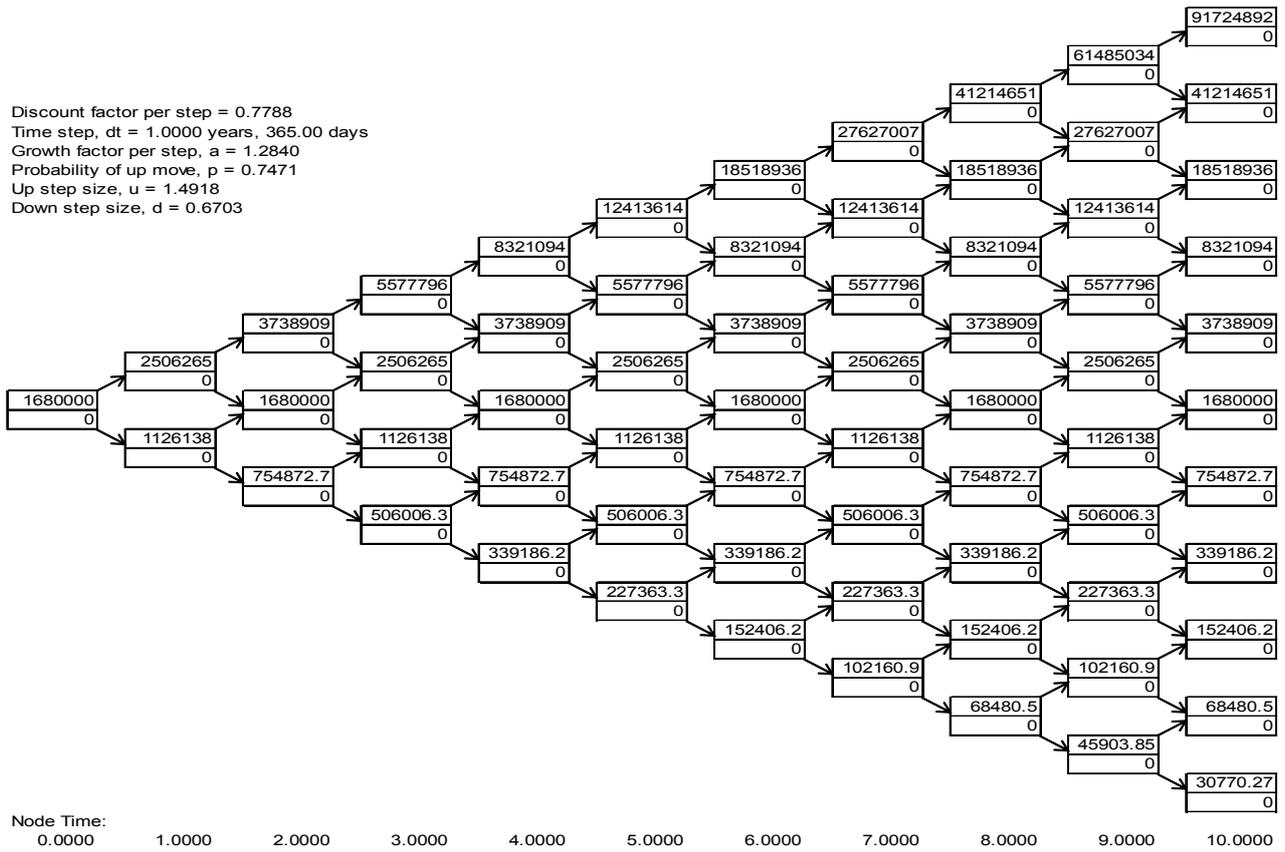
Fig. 4 Binomial tree for price metal

Discount factor per step = 0.7788
Time step, dt = 1.0000 years, 365.00 days
Growth factor per step, a = 1.2840
Probability of up move, p = 0.7837
Up step size, u = 1.4477
Down step size, d = 0.6907

Node Time:
0.0000   1.0000   2.0000   3.0000   4.0000   5.0000   6.0000   7.0000   8.0000   9.0000   10.0000
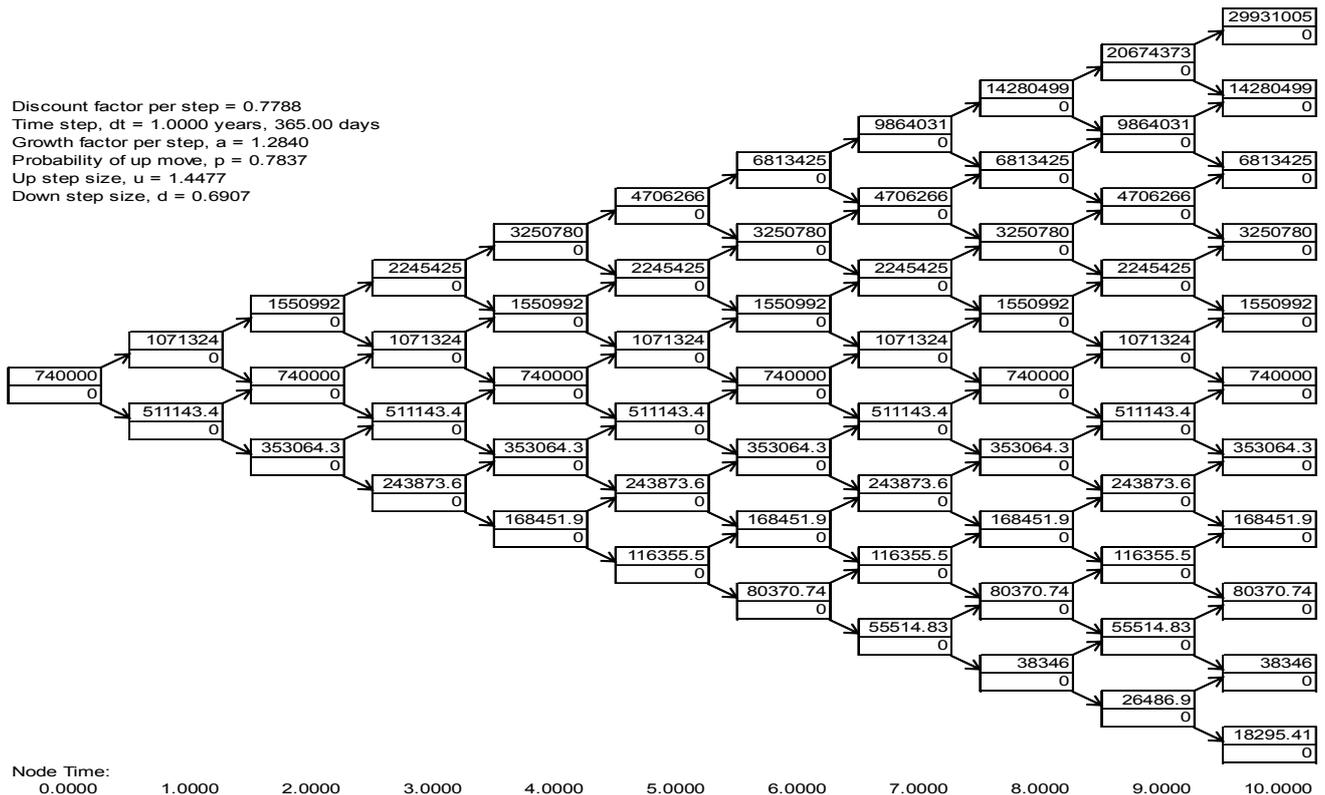
Fig. 5 Binomial tree for cost

Now according to above figures (4&3) fundamental parameter is calculated. by formula (4&5) present value of the project is 42882716. So present value of the project in uncertainty situation is more than prices and costs.

Table 3.   The project cash flow

	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402
Iron ore price (RLS/T)	1860000	1872430	1925400	2102320	2287750	2314689	2435870	2542334	2746012	2833451	2937226
Operating cost (RLS/T)	740000	839596	967361	1032520	1125497	1254937	1378772	1453927	1593442	1700873	1875481
Fixed cost (MRLS)	1684946	1859349	1974636	2135726	2287450	2376280	2593672	2781425	2853436	2956746	3129746
Deprecation (MRLS)	1075200	1075200	1075200	1075200	1075200	1075200	1075200	1075200	1075200	1075200	1075200
Iron ore production (MRLS)	16	16	16	16	16	16	16	16	16	16	16

4   SENSITIVITY ANALYSIS

In this section a sensitivity analysis was carried out using the input data. For this purpose, the NPV of each scenario was computed by changing the input data. Each kind of input data was changed while other kinds of input data were constant. The NPV, obtained previously, was assumed as the base NPV for comparison. Now are results same? Sensitivity analysis which calculated by Excel Software shows in the table4.

Table 4. Sensitivity analysis

Input data	Scenario	Change (%)	Calculated NPV (MRLS)
Iron ore price	1	+%10	46659823
	2	+%10	55286215
	1	-%10	27003016
	2	-%10	30479218
Operating cost	1	+%10	32502242
	2	+%10	36745101
	1	-%10	41160597
	2	-%10	49020332
Risk free rate (rf)	1	%20 -- %25	50911941
	2	%20--%25	60341269

5   CONCLUSION

Present value of Chadermaloo was investigated in 2 different scenarios. First scenario in the certain situation for price and operating costs and second scenario in uncertain situation for price and operating costs, the results explained below: The present value of the project in uncertain situation is more than present value of the project in certain situation. In sensitivity analysis present value of the project in uncertain situation is more than the present value of the project in certain situation even the basic factors of the model changed. So binomial tree is an appropriate approach for uncertainty situations. Thus when we want to make a decision in uncertain situation binominal tree give us reliable approach of the future.

REFERENCES

[1] Dehghani, H.,& Ataee-pour, M. "Determination of the effect of operating cost uncertainty on mining project evaluation. Resources Policy",2012, 37(1), 109-117.

[2] Abdel Sabour , S.A., & Poulin , R." Valuing real capital investments using the least-squares Monte Carlo method". The Engineering Economist ,2006,No 51,PP 141–160.

[3] Samis,M,Davis,GA,.,Laughton,D.,Poulin,R.."Valuing uncertain asset cash Flows when there are no options—A real options approach". Resources Policy,2006,No30, PP285–298.

[4] Marilyn Chilvers, B. S. ECONOMIC EVALUATION GUIDELINES, Oxford University Press,2009,

[5] Wellmer, F.-W., Dalheimer, M., & Wagner, M., Economic evaluations in exploration, Springer,1989,

[6] Fanning, S.,& Parekh, J., Stochastic processes and their applications to mathematical finance. The Maryland Mathematics Department (working), 31,2004,

[7] Kelly, S.,. A binomial lattice approach for valuing a mining property IPO. Quarterly Review of Economic Finance,1998,NO 38, PP693–709.

[8] ALLEN,H.,. ASPECTS OF EVALUATING MINING PROJECTS,2012,

[9] Goodacre S,&, McCabe C. An introduction to economic evaluation. Emerge Med J 2002,19,198–201.

[10] Evers SM.,&, Van Wijk AS.,&, Ament AJ., "Economic evaluation of mental health care interventions". A review. Health Econ 1997;6:161–77.

[11] Rudenno V.,"The mining valuation handbook". Wrightbooks Elsternvick, Victoria, 247 pp

[12] Sillitoe RH., "Exploration and discovery of base- and precious-metal deposits in the circum-Pacific region during the last 25 years". Resou Geol Spec Issue Tokyo,1995, vol. 19, pp 1–119

[13] Sandrea I.,&, Sandrea H., "Exploration trends show continued promise in world's offshore basins." Oil Gas J, 2007, pp 34–40

[14] O'Leary J.,&, Butler RB., Metal price forecasting – a mathematical approach. Min Mag, 1978, pp 469–473

[15] https://www.economics.about.com August 30, 2014

[16] https://www.chadermaloo.com August 20, 2014

[17] https://www.invewtopedia.com September 1, 2014

[18] https://www.rdis.ir August 25, 2014

[19] https://www.codal.irAugust 22, 2014

[20] https://www.fipiran.com August 27, 2014

[21] https://www.tse.irAugust 22, 2014

Structural Failure, Modelling and Forecasting of Stock Return Volatility by GARCH Models (Case Study: Tehran Stock Exchange)

Dr. Reza Tehrani[1], Azar Hamidi[1], Amir Khanali Pour[2], and Samaneh Nikookar[2]

[1]Department of Management,
University Of Tehran,
Tehran, Tehran, Iran

[2]Department Of Ecomonics,
University of Mazandaran,
Tehran, Tehran, Iran

ABSTRACT: considering the importance of financial markets and especially the stock market in financing support of companies, and the role and importance of volatility in the stock market, also the occurrence of numerous financial crises in the world economic environment and the probable impact of crises in the stock market, this research take the volatility modeling and its prediction, also the impact of financial crisis as the main issue on the stock market. So the research seeks to answer these questions to either return volatility Tehran Stock Exchange price index structure has been broken? And whether the prediction power of the GARCH models increase with regard to the structural?

Therefore, using daily data of 05.01.2008 to 31.03.2014 and the ICSS algorithm First the days that the volatility pattern of structural failure have been round were identified. Then, to estimate the amount of the likely impact of the identified failure of the volatility pattern, on the number of virtual variable failure D_{10} ....D_1 were defined where the virtual variable on the break day and the days after it choose number 1 and the days before a failure have choose the zero. Then variables were put in the variance equation model ARFIMA-FIGARCH and the ARMA-FIGARCH that the results show that it is used in both models ARMA-GARCH And the ARFIMA-FIGARCH variables are only allowed for variables D2 and the D3 Which indicates the presence of structural breaks in the pattern of oscillations that are up in the days of 03/20/2008 and 02/05/2008.

The difference was not statistically significant, and other purposing variables permitted by the terms of statistical have a high significant level. So, the null hypothesis of a base model of the return volatility though the price index of Tehran Stock Exchange has a structural failure, cannot be rejected. Also, the results of the research on the assumption that the second direction of the research and the efficiency between the results of the research show that it is taking the failure in the pattern of volatility lead to improve performance criteria. So the assessment criteria for the forecasting performance in models ARMA-GARCH and the ARFIMA-FIGARCH Given the failure take less amount than time that the point is not considered as a failure.

KEYWORDS: Structural failure, modeling and forecasting, returns and volatility, ICSS, AFRIMA-FIGARCH.

1 INTRODUCTION

This fact that volatility is an inseparable component of stock market especially in developing countries, have been demonstrated in numerous empirical studies. There are several reasons for the necessity of the volatility modeling in the stock market. Increased volatility may be considered as a risk investment and therefore lead to investment maintenance increase and reduce the cost of it. In order to maintain risk management of different assets, there should be proper information about the portfolio value increasing or decreasing [2]. Also, investors in order to prevent losses due to volatility in the future, are interested to be aware of the current period volatility impact on the volatility of future periods. Asset

management is also possible to model the volatility to sell all or part of the asset before having more volatility. In addition, agents may increase your commission rate volatility increase. On the other hand, the volatility of stock returns may damage the financial system movement and negatively affect the economy performance. An effective volatility channel on the economy performance, is its effect on spending cost. Volatility may also have a major impact on the business investment and, therefore, directly impair economic growth. Also, Economic history of the Nations has experienced several financial crisis itself. Change in the structure of the European monetary system in the years 1993-1992, the crisis of the collapse of Mexico psoi in 1995-1994, the financial crisis in South-East Asia in 1997-98 and.... Terrorist attacks on September 11, 2001, the recent West financial crisis in 2008, that its effects are remained in the industrial countries so far. Although our country due to the poor economic relationship apparently has with world, has been less affected by the crisis economically compared to industrial countries and emerging economies such as the East Asia countries. However, the precise outcomes study about the global financial crisis, and identification of opportunities resulting from the aforementioned crisis for the economy of Iran are very important and it is necessary that economic scholars and experts with a comprehensive evaluation of factors in this crisis, identify and offer the fundamental solutions to deal with them, Therefore, with regard to the importance of financial markets and especially the stock market, in the provision of corporate financial management, the role and importance of the volatility in the stock market , the numerous outbreak of the financial crisis in the history of the world economy, and the possible effects of crisis on the stock market .This study consider the prediction and volatility modeling, as well as effect of the financial crisis on the stock market as the main issue. Accordingly, the present study tested the following hypotheses: the first hypothesis: Tehran Stock Exchange volatility output price index structure has been failed. The second hypothesis: the power between the GARCH models considering the structural failure points will be increased.

2   THEORETICAL PRINCIPLES OF RESEARCH

Economic history of the Nations has experienced numerous financial crisis. Some of the crisis in the stock market, the crisis on years (2013), some of the crisis on credit market (2008),some in the foreign exchange market and the market of goods has been occurred. These crises, sometimes influence a country, group of countries, and the whole world. When two entire world crisis of 1929 and 2008 occurred, influence the whole of world, that the first one with a stock market crash were started and the second with credit markets drop. The similarities of the recent crisis and the crisis of the 1930's root, is a partly double standard. Both the crisis, has been caused by the formation of a bubble so that was observed in the 1930's crisis bubble in the stock market and in the recent crisis and in the real estate market crisis. Economic crisis due to the adoption of any improper policies monetary and financial affairs of managers and operators of economy, impose fear among the shareholders, investors and the general public. According to the world's financial markets with the profound link rely upon liberalist, any shock or drop in a market also quickly effect on other world markets. The economic crisis in America was started after the attack on the towers of the World Trade Organization in September 2001 and suddenly made a great shock to the financial markets that was mainly mental and due to a lack of confidence in the future. [5]

2.1   THE ECONOMIC CRISIS AND THE PROFITABILITY OF LISTED COMPANIES

Listed companies on the stock exchange as well as other economic actors in the country have been damaged by the lack of liquidity problem. The reasons for the lack of liquidity are mainly due to contractile policy adopted by the Central Bank, although these policies to curb inflation is inevitable.

On the one hand the world's financial crisis, make the Iranian banks accessory to foreign sources harder .the Banks in order to be away of possible risks are less interested to provide financial facilities. On the Inflationary recession many productive units has encountered with selling problem that On the one hand is leading to reduce the price of their products, and on the other hand, the volume of customers' orders of the productive have decreased. And companies have attempted to purchase more based on their daily needs. As a result, the sellers company will be forced to keep lots of their product volume on the warehouses so their warehouse cost and their demands will be increased.

Foreign trade is a double-sided equation. If the value of exports of goods and services will be decreased, then the price of imported goods would be encountered. The imported goods can be divided into two categories to this comment: The first batch consists of raw materials, capital and intermediate and consumer goods is the second batch. From the perspective of the opportunities on the premises, it can be used to reduce the price of raw materials, energy and technology needed for Iranian companies that make possible with lower price.

As well as reducing the rate of international interest, in the absence of international sanctions, would have positive effect on the company external financing Iran. In addition, the drop in oil prices could lead to lower prices, of the carrier of energy and therefore reduce the cost of shipping.

The effect of the financial crisis on the company's total profit in the 4 following industrial group is visible:

- The Raw Materials exporter Company: this company include petroleum, petrochemical and mineral companies that export major part of their products.
- Company which determined their products based on world prices. Such as copper and steel producing companies, petrochemical companies and which that supply their product inside the country.
- Participation that are approved but with reduced pressure price reduction on behalf of the buyers and the imported price. Like iron ore producing companies
- Investment and holding companies, which is a part of the above groups' assets.

Reduction of liquidity is one of the factors that have effect on Tehran's stock exchange. Because the volume of money entered the market due to the reduction of the capital investment company and on the country's popularity is decreased, and in addition to the reduction in price of shares of the existing company, the accepted (listing) and new companies supply is also faced with the problem.

2.2 LITERATURE REVIEW

Fernandez (2007) examined the impact of the events in the Middle East on the global stock exchange. He used ICSS algorithm and wavelet analysis to determine the structural break in the volatility of returns, on some countries in the Middle East, Africa, Asia and developed countries for the period April 2000 to March 2005 monthly. The results show that the structure of return volatility in the Middle East and other Asian developing countries, has been occurred. Gregory James and Michail Karoglou, (2009) examined the effect of financial liberalization on the volatility of stock market returns of Indonesia. Authors conclude that structural changes in output volatility has coincided with major political events. The main results of this paper show that: (a) after the entry of foreign investors, the volatility has been significantly reduced. (B) Changes in the East Asian financial crisis has been significantly increased. A: In the year before the stock market liberalization and freedom of foreigners, there has been a significant increase in the volatility of returns. Hun Kang et al., (2010) in an article evaluated sudden changes in variance and volatility in the foreign exchange market continued Asian countries for the period 1990 to 2008. They showed with the help of ICSS algorithm that sudden changes in the volatility of returns generally is associated with international factors, especially the East Asian crisis of 1997 and the 2008 financial crisis. They also showed that by taking the change, the continuing volatility efficiency is reduced. Therefore, estimation and prediction of variance with regard to the failure is treated more carefully. Alfreedi et al (2012) analyzed in a study of the efficiency of Persian Gulf countries, including Bahrain, Qatar, UAE, Kuwait and Oman by ICSS algorithm and asymmetric GARCH models include GJR, EGARCH for the period 2003 to 2010 .The results indicate that there are failure in these countries is stock return volatility. Kumar and Mahsewaran (2012), began the paper that the sudden changes in volatility in Indian stock markets. They used the technique introduced by Enclin Tiao (1994) and Sen Argo and Karyun (2004) and concluded that structural changes to the ICSS algorithm oscillation pattern are strongly affected by changes in the domestic and global economy. They also concluded that the stability and asymmetric of volatility will be decreased for considering the effect of volatility pattern changing.

3 THE RESEARCH METHODS

In this paper for modeling return volatility the short-term and long-term generalized conditional dissimilar variance models were used. One of the characteristics of financial markets is long memory. FIGARCH models logic is based on this concept that is not necessarily an integer difference parameter but can be non-integer numbers. According to the efficient market hypothesis proposed by Fama (1970), in a productive financial market, the efficiency has random walk behavior and the future returns by the past returns are not predictable. However, if the return is a financial asset that has a long memory. The future returns on financial assets by its past returns can be predicted. This is also true for the return volatility, so in this case the efficient market hypothesis, will lose its effectiveness. As a result, according to the characteristics of long memory in volatility modeling and performance forecasting, the deficit accumulated conditional variance models to simulate and predict of the return volatility will be used.

3.1 UNIVARIATE DEFICIT ACCUMULATED CONDITIONAL VARIANCE MODELS

Long memory is defined through characteristics of the autocorrelation function. Autocorrelation function has been defined as $\rho_k = \text{cov}(x_t, x_{t-1})/\text{var}(x_t)$ for k integer. For the time series covariance reliability $\lim_{k \to \infty} \rho_k = 0$ is expected . Many time series autocorrelation function decreases very rapidly and exponentially .i.e $\rho_k \approx |m|^k$ where $|m| < 1$. This feature is true for reliable processes such as $ARMA(p,q)$. However, for processes with long memory, the autocorrelation function is not as rapid and exponential but with a very low rate and the rate of hyperbolic will be decreased. This process is compatible with $\rho_k \approx c_1 k^{2d-1}$ where k is increasing with no restriction on and c_1 is a constant number and d is the Long memory parameters that must be estimated.

There are numerous studies that show the effects of shocks on volatility, but not as rapidly and exponentially also slowly over time is declining[1]. So discussing about $I(0)$ or $I(1)$ of these process has to be delivered. In a $I(0)$ process Shocks with exponential rate are declining, which is said to be a series of short-term memory, whereas in a $I(1)$ process Shocks remain in a very long period that is said that the series does not have mean reversion. But with $0 < d < 1$ assumption Shocks decrease over time with very little hyperbolic rate, it means that there is a long-term memory.

Baillie Bollerslev and Mikkelsen (1996) to measure the effects of long memory in volatility, introduce the non-conditional variance model in which the ratio β_j has an accumulated deficit hyperbolic rate, that is additive, and provides a single root condition. Model FIGARCH (p, d, q) is as follows:

$$\phi(L)(1-L)^d \varepsilon_t^2 = \omega + [1 - \beta(L)]\upsilon_t \qquad (1)$$

Where all the roots $\phi(L)$ and $[1 - \beta(L)]$ are outside the unit circle. The presented FIGARCH model above, can be formed by substituting the operator instead in equation (1):

$$h_t = \underbrace{\omega[1-\beta(L)]^{-1}}_{\omega^*} + \underbrace{\left\{1 - [1-\beta(L)]^{-1}\phi(L)(1-L)^d\right\}}_{\lambda(L)}\varepsilon_t^2 \qquad (2)$$

$$h_t = \omega^* + \lambda_i(L^i)\varepsilon_t^2 = \omega^* + \lambda(L)\varepsilon_t^2$$

So $0 \le d \le 1$. Phrase $(1-L)^d$ When $0 < d < 1$ Is Fractional delay operator and its amount of the reduction rate shocks depends to the conditional volatility. Its value can be added by the above function geometrically as follows:

$$(1-L)^d = \sum_{k=0}^{\infty} \frac{\Gamma(d+1)}{\Gamma(k+1)\Gamma(d-k+1)} L^k$$

$$= \sum \binom{d}{k}(-L)^k = 1 - dL - \frac{1}{2}d(1-d)L^2 - \frac{1}{6}d(1-d)(2-d)L^3 - \dots$$

$$= 1 - \sum_{k=1}^{\infty} c_k(d)L^k \qquad (3)$$

That $c_1(d) = d$, $c_2(d) = \frac{1}{2}d(1-d)$ and......

---

[1] *As an example chewik and Koorkmaz studies, aostoch (2009) as well as Casman and toran (2007), Christensen and Nielsen (2009) Coonrad, Zhiang Carasoonas (2003) can be referenced.*

3.2   ICSS ALGORITHM

As previously discussed, the purpose of the present study was to determine whether the financial crisis, has changed or not the stock market return volatility pattern Tehran? And, if so, whether considering such a failure increase the prediction accuracy of the model of volatility. Accordingly the used technique in this study is the ICSS algorithm. Icss Algorithm was presented[2] by Inclan Tiao that in this method the variation for multiple changes in a series of multiple observations was developed. ICSS Algorithm, use the sum of the repeated square root to find the failures on a regular research series of different pieces.

ICSS algorithm is based on this assumption that the variance in the initial till the period of the oscillation pattern is constant. Again, the variance is constant until a crisis or other event change the pattern of volatility. This procedure was repeated over time to provide a time series of observations to provide one or more failure.

Now it is assumed that $\{\varepsilon_t\}$ is an independent time series with normal distribution with mean zero and unconditioned variance of σ_t^2 . That variance in the distance τ_j^2 was $j = 0.1. \dots. N_T$ at which N_T is the total number of changes that have occurred in the total variance of T observations. It means that on $1 < t_1 < t_2 < \cdots < t_{N_T} < T$ it is a set of observations that happened changes in the variance. The variance in the distance is equal to:

$$\sigma_t^2 = \begin{cases} \tau_0^2 & 1 \langle t \langle t_1 \\ \tau_1^2 & t_1 \langle t \langle t_2 \\ \dots \\ \tau_m^2 & t_{N_T} \langle t \langle T \end{cases}$$

To estimate the number and location of the failure the cumulative sum of squares ε_t is used. Therefore, it is assumed that $C_k = \sum_{t=1}^{k} \varepsilon_t^2$, $k = 1,2,.,T$ .that is the sum of cumulative squares from the initial point of series until the last minute of observation. Based on these the D_k statistics is defined as follows:

$$D_k = \frac{C_k}{C_T} - \frac{K}{T}, \quad K = 1,2,\dots T, \quad D_0 = D_T = 0$$

If the D_k statistic distribution is greater than the critical value, the null hypothesis that there is no single point of failure at a certain level of risk has been rejected and therefore there is a clear break at that point. Therefore, if the D_k maximum absolute value is greater than the critical value, the null hypothesis that there is no single point of failure is rejected. Now it is assumed that the k^* is the value of k at which $\max_k|D_k|$ occurs. If $\max_k \sqrt{(T/2)}|D_k|$ is greater than the critical value, k^* is an estimate of the point where the structural failure had been occurred. Factors of $\sqrt{(T/2)}$ is used to standardize distribution. This method will help researcher to identify random failure on variance.

Under the null hypothesis that the variance is the same in period, the critical value at the 5% error for Asmpotik distribution $\max_k \sqrt{(T/2)}|D_k|$ is equal to 1.36.

The above steps are repeated whereas the number of failure does not change (wang.2006). Finally the identified failure by dummy variables is put in the equation given the significant variation coefficient of the dummy variable, it can be said that the alleged failure has no significant effect on the pattern of volatility. In the GARCH (1,1) model variance is explained as follows:

$$h_t = c + \sum_{i=0}^{p} \alpha_i \varepsilon_{ti}^2 + \sum_{k}^{q} \beta_k h_t + a_1 D_1 + \cdots + a_n D_n$$

---

[1] *Iterated Cumulative Sum of Squares (Icss)*

Where the dummy variables D_1 to D_n *are* the places where structural failure occurred in variance and select for the after-failure number of 1 and to provide a zero for the remaining days.

3.3   COMPARISON OF THE DIFFERENT MODELS PREDICTION ACCURACY

In this study, the studied period includes Stock Exchange Price Index observations from 05/01/2008 to 31/03/2014 which is divided into two periods: the first period 1.5.2008 to 10.05.2012 which is 70% of the sample and the second period includes remaining volume of the sample. To estimate the first term and the second term, it is intended to evaluate the predictive models. To evaluate the predictive model, the mean square error (MSE), root mean square error [RMSE], theil inequality coefficient (TIC) and median errors (MedSE), the mean absolute error (MAE) are used. [3]

4   DATA ANALYSIS

In this section the existence of a crisis that has led to a structural break in the pattern of return volatility of the price index of Tehran Stock Exchange by the ICSS algorithm is detected. We will define the dummy variable for these failure,   to investigate its effect on the pattern of volatility and with short-term and long-term GARCH models, returns and return volatility will be predicted and the models will be assessed with different parameters. First, the characteristics of the data can be described as follows.

$$\phi(L)(1-L)^d \varepsilon_t^2 = \omega + [1-\beta(L)]\upsilon_t \qquad (1)$$

Where all the roots $\phi(L)$ and $[1-\beta(L)]$ are outside the unit circle. The presented FIGARCH model above, can be formed by substituting the operator instead in equation (1):

$$h_t = \underbrace{\omega[1-\beta(L)]^{-1}}_{\omega^*} + \underbrace{\left\{1-[1-\beta(L)]^{-1}\phi(L)(1-L)^d\right\}}_{\lambda(L)}\varepsilon_t^2 \qquad (2)$$

$$h_t = \omega^* + \lambda_i\left(L^i\right)\varepsilon_t^2 = \omega^* + \lambda(L)\varepsilon_t^2$$

So $0 \le d \le 1$. Phrase $(1-L)^d$ When $0<d<1$ Is Fractional delay operator and its amount of the reduction rate shocks depends to the conditional volatility. Its value can be added by the above function geometrically as follows:

$$(1-L)^d = \sum_{k=0}^{\infty} \frac{\Gamma(d+1)}{\Gamma(k+1)\Gamma(d-k+1)}L^k$$

$$= \sum \binom{d}{k}(-L)^k = 1 - dL - \frac{1}{2}d(1-d)L^2 - \frac{1}{6}d(1-d)(2-d)L^3 - \dots$$

$$= 1 - \sum_{k=1}^{\infty} c_k(d)L^k \qquad (3)$$

That $c_1(d) = d$, $c_2(d) = \frac{1}{2}d(1-d)$ and……

---

[3] *To evaluate the predictive model of forecast errors or functions are usually used. One of the statistics that have traditionally been used as a measure of the accuracy of the prediction model, the variance of the prediction error.*

4.1   RESEARCH DATA

Used Data in this study according to the hypothesis, the price index of Tehran Stock Exchange TEPIX And the used time period ,and the index for the period 01.05.2008 to 03.31.2014 daily data contains 1503 observation. Obtained data from the official website of the Stock Exchange of Tehran[4] were prepared and study of the diagram indicates that the variable is unrelaiable[5] . Also, what is the plot of the logarithm of the differential index return series indicates that, there is the volatility of the return series and the consequent effects on the arch. This means that the low volatility with low volatility and high volatility associated with high volatility. Unlike the TEPIX series   the return series reliability is evident from its chart.
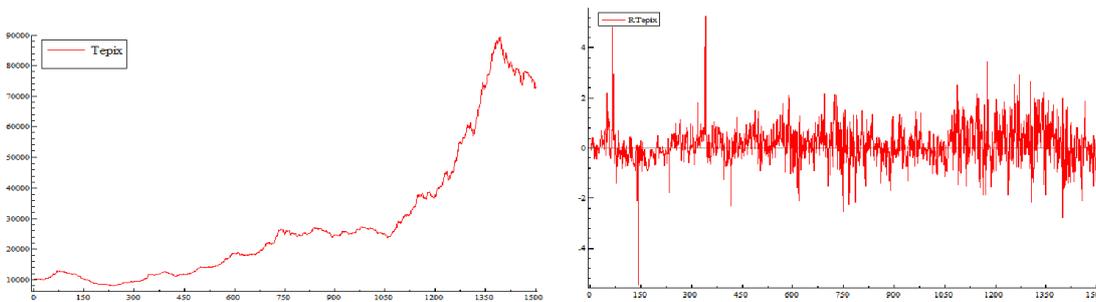
Figure 1. The general price index series and returns

The following table displays the descriptive statistics of the price index return series.

Table 1. Descriptive statistics

Variable	The mean	Middle	SD	Skewness	Strain
RTEPIX	0.131	0.068	0.758	0.260	7.954

Based on the above table, we see that the return series has the daily returns mean of 0.131and mean of 0.068 and standard deviation of 0.758. Also, the return has the Skewness of 0.260. Means that market forces are more likely to see negative returns. Returns Series Strain is 7.954 that is higher than normal distribution and, means that the market factors considered more likely abnormal returns.

4.2   RESULTS

In this section, given the research aim to recognize the possible point or points that the price index return volatility pattern of failure of Tehran Stock Exchange have been implemented, model ARMA must be extracted for return series model in the remaining series. It means that the ICSS algorithm residues ARMA model for each series that is total output price index. Given the autocorrelation plot log return series, Akaike and Schwarz criteria model ARMA (2, 1) for each set of output price index of Tehran Stock Exchange is estimated. Then the rest of the model series that is the main food of ICSS algorithm are derived for identification of structural failure caused volatility in the pattern of returns.

[4] *Www.irbourse.com*

Table 2: Sudden changes in the pattern of volatility in output by the algorithm ICSS

Year	Beginning of period	End of period	Breakpoint	Dummy variable
2008	05/01/2008	20/03/2008	20/03/2008	D1
	21/03/2008	02/05/2008	02/05/2008	D2
	03/05/2008	05/08/2008	05/08/2008	D3
2009	06/08/2008	04/05/2009	04/05/2009	D4
2010	05/05/2009	05/10/2010	05/10/2010	D5
	11/05/2010	08/02/2010	08/02/2010	D6
	08/03/2010	24/12/2010	24/12/2010	D7
2011	12/25/2010	19/05/2011	19/05/2011	D8
2012	20/05/2011	06/12/2012	06/12/2012	D9
2013	06/13/2012	13/11/2013	13/11/2013	D10
2014	11/14/2013	03/31/2014	-	

Source: Results are calculated based on the ICSS algorithm in Excel

In Figure 2, the series returns with positive/negative returns during periods unconditioned above three standard deviations has been inserted.
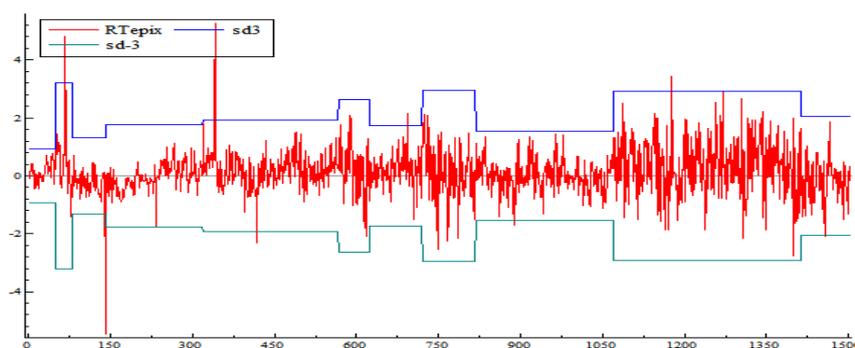
Figure 2: The series returns and three positive / negative unconditioned standard deviations

Then, to estimate the possible impact of identified volatility failure in the model, the number of dummy variable will be defined where the dummy variable in the failure day, and the number of days in the days before the failure select zero. For example, the D_1 is dummy variable that select zero on 20.03.2008 and future days and the number of days before it.

4.2.1 SPECIFYING SHORT-TERM AND LONG-GARCH MODELS FOR RETURNS

With regard to the ARCH LM test which indicates the presence of heteroscedasticity in the residuals of the models[6], ARMA-GARCH model and AREFIMA-FIGARCH series returns with regard to the failure are implemented so some features of Tehran Stock Exchange and the failure effect of volatility in the pattern will be specified. Based on the results listed in Table 3, it can be seen that in both ARMA-GARCH model and ARFIMA-FIGARCH only from dummy variables D2 and D3, the only variable that indicates the presence of a structural break in the pattern of oscillations in days 20 /3 / 2008 to 05/02/2008 the D4 to D10 dummy variables are not statistically significant, and a dummy variable D1, is significant at the 10% confidence

---

[6] *To summarize, the test results were not come.*

level. Therefore, the null hypothesis cannot be rejected which is based on the pattern of volatility in output price index of Tehran Stock Exchange has   a structural failure. The dummy variables that are statistically significant variables, D6, D8 and D10 has significant negative effect on the conditional volatility of return which means on 08.02.2010 and 05.19.2011 and of 11/13/2013, pattern of volatility change to decline to the rest of the days that the failure occurred in the volatility pattern changed to the volatility increasing .

   In both models, the coefficients of ARCH (Phil) was highly statistically significant level, indicating that the volatility in market returns are affected by significant news shocks and the efficiency GARCH (Beta1) indicates the volatility in the current period is also affected by the turbulence of the past. Also the necessary condition for a positive conditional variance estimating based on positive Arch and GARCH coefficients is supplied and their sum is smaller than the unit.

Table 3: Estimation of ARMA-GARCH models and ARFIMA-FIGARCH

model	ARMA-GARCH		ARFIMA-FIGARCH	
	coefficient	Statistics t	coefficient	Statistics t
The average equation				
ω_M	0.076	1.632	0.073	1.098
AR1	0.950***	37.66	0.181	0.567
MA1	-0.495***	-11.52	0.030	0.089
MA2	-0.329***	-9.279	-0.117	-1.335
d-arfima	-	-	0.254***	4.496
The variance equation				
ω_V	0.038***	2.302	0.042***	2.123
D1	0.339*	1.603	0.319*	1.574
D2	-0.270	-1.315	-0.247	-1.249
D3	-0.043	-1.374	-0.047	-1.433
D4	0.057***	2.257	0.056***	2.095
D5	0.289***	2.029	0.284***	2.132
D6	-0.243***	-1.921	-0.241***	-1.885
D7	0.334***	2.413	0.324***	2.321
D8	-0.386***	-2.656	0.376***	-2.525
D9	0.420***	3.114	0.409***	3.889
D10	-0.294***	-2.632	-0.279***	-2.412
ARCHPhil	0.135***	3.391	0.496***	2.663
GARCHBeta1	0.335***	1.976	0.356***	1.960
d-figarch	-	-	-0.006	-0.436
StudentDF	6.527***	5.324	6.608***	5.319
Diagnostic statics				
Log Likelihood	-1298.437		-1298.627	
Excess Kurtosis	8.69		8.161	
Skewness	-0.695		-0.647	
J-B	4861***		4276.2***	
ARCH LM TEST	0.227		0.261	
Q(50)	38.11		39.35	
Q^2 (50)	41.04		44.18	

Note: The numbers in parentheses are t-statistics indicate. Indicates significance at 1%, respectively. Error is 5% and 10%.

Source: The findings of this study, using a software package Ox / Metrics

Diagnostic statistics show the appropriate specification model. So statistics Q (50), Q (50) were 38⁄934and 41⁄802respectively, and the difference is not statistically significant, which indicates staying beyond serial autocorrelation in the residuals and squared residue of both models and thus affirm the right model, respectively. The ARCH LM Test show that ARCH effects do not exist in the residuals of the model that shows the proper specification model.

4.2.2 MODELS ASSESSMENT TO PREDICT RETURNS AND VOLATILITY

In the second hypothesis, we seek to answer the question whether to consider the failure in the pattern volatility, if it is not considered failure, whether or not will be improved. Therefore, ARMA-GARCH models for the estimation of ARFIMA-FIGARCH are implemented and according to the forecast period, measures of return and return volatility forecasting performance of the models used in two modes with / without considering the failure were extracted and the results in Tables (4) and (5) is reflected.

Table 4: Comparison of the predicted efficiency measures

	ARMA-GARCH		ARFIMA-FGARCH	
	Regardless of failure	Given the failure	Regardless of failure	Given the failure
MSE	0.8982	**0.8942**	0.9087	**0.9017**
RMSE	0.9477	**0.9456**	0.9533	**0.9496**
TIC	0.9361	**0.9307**	0.9558	**0.9409**
MedSE	0.3787	**0.3744**	0.3862	***0.3846***
MAE	0.7474	**0.7455**	0.7514	**0.7488**

The minimum value of each parameter is shown in bold .

	ARMA-GARCH		ARFIMA-FGARCH	
	Regardless of failure	Given the failure	Regardless of failure	Given the failure
MSE	**1.86**	2.106	167.3	2.104
RMSE	**1.364**	1.451	12.93	1.451
TIC	**0.6712**	0.8038	0.8557	0.8028
MedSE	0.1662	**0.05387**	90.72	0.05454
MAE	**0.7718**	0.7838	10.45	0.7835

The minimum value of each parameter is shown in bold.

Based on the findings contained in Table 4, to predict efficiency in mind, considering the failure in the oscillation pattern is predicted to lead to improve performance criteria. So the criteria for predicting the performance of the ARMA-GARCH models and ARFIMA-FIGARCH Given the failure choose the lower value than when the break point is not considered. But rather different situation exists in predicting return volatility. So that Major criteria, all the criteria except the criterion MedSE on ARM-GARCH model with not considering the predicted points select lower values and therefore we can say that the use of the model and to predict the volatility of returns, not considering the failure in the pattern of failure prediction will be more accurate. However, in consideration of the characteristics of long memory in volatility modeling and using ARFIMA-FIGARCH, taking into consideration all the criteria except the MSE criterion of failure , provide a lower values that means the concept of power in the prediction of the failure. Finally, according to the above-mentioned range, the second hypothesis cannot be rejected that is based on the increasing in stock market volatility considering the points that it has changed the pattern.

5 CONCLUSIONS AND RECOMMENDATIONS

This study sought to evaluate the effects of the financial crisis leading to structural failure in Tehran Stock Exchange market volatility model. Accordingly, using daily data from the date of 01/05/2008 to 31/03/2014 for the Price Index, first using the ICSS algorithm day in which oscillation pattern of structural failure occurred have been identified. Then, to estimate the possible impact of identified failure in the volatility model, to the number of failure, a dummy variable were defined where the dummy variable in the failure day, and the number of days in the days before the failure select zero number.

Then variables in the variance equation are put on ARFIMA-FIGARCH model and the ARMA-FIGARCH that the results show that in both ARMA-GARCH model and ARFIMA-FIGARCH the identified structural failure of 10 points, 8 points significantly fluctuated the pattern. Accordingly, the null hypothesis cannot be rejected which is based on this fact that pattern of volatility in output price index of Tehran Stock Exchange has a structural failure.

In the second hypothesis, we sought to answer this question that, whether with considering the failure in the oscillation pattern, do the performance of the models will be improved rather than when   we do not consider these failure. Based on the findings, considering the failure to predict the efficiency of oscillation pattern is predicted to lead to improve the criteria performance. So that the criteria for predicting the performance of the models among ARMA - GARCH and the ARFIMA - FIGARCH Given the failure select lower value than when the break point is not considered. But rather different situation exists in predicting return volatility. So if you use the model ARMA-GARCH to predict the return volatility, not considering the failure of oscillation pattern will have more accurate prediction. However, in consideration of the characteristics of long memory in volatility modeling, taking into consideration all the criteria predicted failure (with the exception of criteria MSE) choose lower level which means it has high power in volatility predicting.

5.1 POLITIC RECOMMENDATION AND SUGGESTION

Based on the results of the study it is recommended that not considering the occurred structural failure points in the pattern of volatility in returns for prediction of yields and volatility of stock returns on the whole price index, will be followed by misleading results. Therefore, it is recommended to consider the occurred structural failures in the parts of the identified pattern of volatility in the modeling and the volatility of returns prediction and in terms of the ratio in the model itself. It is also recommended In future studies of other identification methods of wavelet analysis failure are also used, and for the prediction of the model of the other members of the family such as EGARCH JGR, and non-linear Garch models are also used.

REFERENCES

[1] Khezri. M.. Investigating the effects of financial crisis on the economy of United States on Iran. *Journal of Strategic Studies*. Twelfth year. The first number. 2008

[2] Rasekhi.S and the khanali Poor. A.. Empirical analysis of stock market volatility and performance data of a case study: Tehran Stock Exchange. *Journal of Economics researches*, Iran. Pp. 29-57. 2009

[3] Ataie.A and Aziznezhad .S., Global financial crisis and its impact on the economy of Iran. *Unpublished report of the Office of Economic Studies*. The Islamic Shura Council. 2008

[4] Zargar.M and Kheirkhahan. A.. Opportunities. Threats and strategies of the global financial crisis in Iran. *Journal strategy of Yas*. Pp. 220-242. 2010

[5] Elmi. D., Provided Guidelines in selected countries of the world for financial crisis dealing. *Trade Promotion Organization publication of Iran*. 2008

[6] Farhadi Poor. M., World financial crisis: opportunities and threats. *Selected fashion magazine. 10th years*. No. 92. 2009

[7] Karimkhani Forati and Rafiee.. Investigating the United States financial crisis on the economy and banking. *Reported research published by the Bank Sepah risk and risk controlling*. 2009

[8] Asgari Mohammadi.T. co-accumulation. Important points and weaknesses. Journal of economical business researches, *Faculty of Economics, University of Allameh Tabatabai economy*. No. III. Page 33. 1998

[9] Alfreedi, A. Zaidi. I. and Abu Hassan, Regime shifts in asymmetric GARCH models assuming heavy-tailed distribution: evidence from GCC stock markets. *Journal of Statistical and Econometric Methods*, vol.1. no.1. PP. 43-76. 2012.

[10] Anderson. J,. Volatility on Oslo Stock Exchange Master Thesis Financial Economics. Norges Handelshoyskol.Aggarwal. R.Inclan. c. & Leal. R. Volatility in emerging markets. *Journal of Financial and Quantitative Analysis*. 34. 33. 55, 2006.

[11] Babikir Ali AND ELS., Structural Breaks and GARCH Models of Stock Return Volatility: The Case of South Africa. *Working Paper Series. University of Pretoria*, 2006/

[12] Gottschalk. Ricardo, The Implication of current Global Financial Crosis for Developing Countries. *Institute of development Studies*. Available at: www.ids.ac.uk, 2008.

[13] Hamilton. J. D. and R. Susmel., Autoregressive Conditional Heteroskedasticity and Changes in Regime. *Journal of Econometrics*. NO. 64. PP. 307- 333. 1994.

[14] Hamilton. J... and G. Lin. Stock Market Volatility and the Business Cycle, *Journal of Applied Econometrics*. No. 5. PP. 573-593. 1996.

[15] Hammoudeh. S... Li. H., Sudden changes in volatility in emerging markets, *Journal of the International Review of Financial Analysis*.No.17. 2005.

[16] Gottschalk. Ricardo., The Implication of current Global Financial Crisis for Developing Countries. *Institute of development Studies*. Available at: www.ids.ac.uk, 2008.

[17] IMF. World Economic outlook projections. Available at: www.imf.org, 2008.

[18] Inclan. C. and G. Tiao., Use of cumulative sums of squares for retrospective detection of changes in variance. *Journal of the American Statistical Association*, No. 89. 913-923. 1994.

[19] Kang. S.H. Jung. J... Park.K. and Yoon. S. Sudden Changes in Variance and Volatility Persistence in Asian Foreign Exchange Markets *The Journal of the Korean Economy*. No 4. PP. 129-143. 2010.

[20] Kumar. D and S. Maheswaran. Modelling asymmetry and persistence under the Impact of sudden changes in the volatility of the Indian stock market. IIMB Management Review. No. 24. PP. 123-136. 2012.

[21] Sang Hoon Kang. Hwan-Gue Cho. Seong-Min Yoon , Modeling sudden volatility changes: Evidence from Japanese and Korean stock markets. *Journal: Physical A-statistical Mechanics and Its Applications - PHYSICA A* . vol. 388. No. 17. pp. 3543-3550. 2009.

[22] Terasvirta. Tim. An Introduction to Univariate GARCH Models. SSE/EFI Working Papers in Economics and Finance. No.646. 2006.

[23] Viviana Fernandez. Stock Market Turmoil: Worldwide Effects of Middle East Conflicts. Emerging Markets Finance and Trade. M.E. Sharpe. Inc... vol. 433. Pages 58-102. June. 2007.

[24] Wang. Kuan Min**.** The Impact of Financial Liberalization Announcement on the Volatility of Emerging Stock Markets in the Short Run. *International Journal of the Information Systems for Logistics and Management IJISLM*. Vol. 1. No. 2. PP 117-126. 2006.

The Effect of Political Support on Companies' Cash Holding Level

Farzin Rezaei[1] and Kamaloddin Saadati[2]

[1]Assistant Professor, Department of Accounting, Islamic Azad University of Qazvin, Iran

[2]Master of Accounting, Islamic Azad University of Qazvin, Iran

---

ABSTRACT: Since the political power ring is not clearly separable from the economic power ring, and the government's political support affects the economic role-making of companies, this study seeks to explore the effect of the political support of the government on the company's cash holding level. In addition, the intervening effect of the agency cost was examined. Political support means extensive relationship with companies and government. Maintaining extensive relationship with government over time leads to satisfaction and political support of the government. The time period of the research is during the years 2003-2012 .The sample consists of 98 companies. The research method is correlational. The "Least squares method" was used in order to test the hypotheses. The results suggest that there is a negative and significant relationship between political support and cash holding level .Furthermore, the effect of political support on the cash holding increases with the rise in agency cost and the negative relationship between political support for companies and cash holding is affected by high agency cost.

KEYWORDS: political support, cash holding, agency cost.

1 INTRODUCTION

Cash as the current and effective asset in company's operation cycle has always been of interest to managers and researchers. Cash management plays an important role in the use of opportunities and consequently the profitability of companies. Surplus cash causes the inefficiency of monetary sources and the investment opportunity cost. On the other hand, companies with less cash are encountered with the risk of failure. Governments can always complement and provide cash. Facilitating the process of acquiring resources results from the political support of the government. Since governments are the largest sources of financial resources, they can support companies in two ways: a) In Iran, certain banks work directly under the supervision of presidency. Thus, in order to fulfill the objectives, the government pays the financial resources to the executive company. b) Many other banks which generally operate under the supervision of the Central Bank have payment rows that pay according to the Supreme Leader's and the President's discretion . Thus, the political support for the company causes the difference in the cash holding level of companies compared to the unsupported companies. In fact, companies with the political support, in addition to having a comprehensive budget, benefit from the soft budget. Soft budget refers to gaining political support of the government through the performance and benefits of advantages of that support. It seems that the companies which are successful in gaining political support from the government hold less cash, because managers of these companies can whether provide their goods purchase and services with a higher level of reliability that do not require cash payment, or in case they need financial resources ,they will have access to financial resources at a shorter time .The companies that do not use the available financial resources in investing projects with the current positive values have high agency costs. Thus, gaining political support that itself prevents the company's cash holding, in addition to the aforementioned advantages, reduces the agency costs (Boubakri, et.al, 2012). This study not only aims to examine the effect of political support of government on the cash holding level, but it also aims to investigate the regulatory role of political support in companies with high agency costs. Therefore, the following questions are propounded:

---

1. Can political support have an impact on the cash holding level?

2. Is political support for companies having cash holding affected by high agency costs?

2 THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

2.1 POLITICAL RELATIONS AS THE FOUNDATION OF POLITICAL SUPPORT

Communication, based on the definition given by Charles Cooley's, the American sociologist, is the mechanism upon which human relations are created and all intellectual aspects and transmission equipment and its maintenance in place and time develop on this basis. In fact, establishing and maintaining communication in various forms with the government's executive organizations would lead to gaining their political support. Thus, the development of communication with the government increases the possibility of political support. Regardless of the country's desired strategic product, or the existence of ministers or the members of parliament, this study merely deals with the establishment and maintaining the communication with the government to express political support. Empirical evidences of political support consider the three potential sources of access to credit, tax breaks and market power as the advantages of political support (Boubakri et.al, 2013).

Faccio (2010) came to the conclusion that the companies with political relations and high financial leverage have lower financial rates (tax break) and more share of the market (market power). Faccio et .al identified the additional direct channel in which companies with political support compared to the companies without this support are more likely to be supported by the government compared companies without such support during the financial crisis.

Narayana swamy (2013) stated that the increasing role of the private sector in the economy after liberalization of economy reinforced the link between companies and the political system. Government intervention in the economy and the entrance of companies in the politics (political participation and related business activities) and the dependence of the political parties concerning financing on companies has increased the importance of political support in business. He concluded that the companies with political support, compared to the unsupported companies, gain lower quality benefits. Therefore, the risk of the audit also increases.

Rezaei and Afrouzi (2014), by studying the effect of political relations of companies on the cost of debt in companies listed In Tehran Stock Exchange, arrived to the conclusion that the political relations of companies reduce the cost of their debt.

While studying the relationship between the unreasonable comment of audit and financial constraints of the companies with broad political relations in companies listed In Tehran Stock Exchange, Rezaei and zijoudi (2014) concluded that receiving unreasonable comment of audit does not eliminate financial restrictions in companies with broad political relation.

2.1.1 FORMS OF POLITICAL RELATIONS

Political relations between companies and government can be created in various ways including:

A) Ownership structure: the government becomes the shareholder of companies directly or indirectly and imposes influence.

B) The structure of the board of directors: the government's representative is effective and the determiner of the company's policies by being present in the structure of the board of directors as the chief executive or being its member.

C) Product: by producing strategic, security and vital products, companies and government interact with one another.

D) Network communication: another factor that leads to the creation of the political relationship between the company and government is network communication. Several factors are involved in the formation of these relationships and this study examines the factors of the size of the company and creating political relations.

THE SIZE OF COMPANY, POLITICAL RELATIONS AND CASH HOLDING LEVEL

The present study uses six variables as the measure of the size of company, they include: 1) the number of employees, 2) foreign sales (exports), 3) total assets of the company, 4) tax on income, 5) Social Security Insurance, 6) the value of stock market

1. THE NUMBER OF EMPLOYEES

The number of employees is one of the most politically sensitive indicators, since the more the number of employees becomes, the more pressure on the company will be. The company also uses it as a tool to impose pressure on the government, since human force is of great importance in societies. Creating jobs are one of the concerns of governments. Thus, the companies that attract a large labor force, in fact, reduce the pressure on the government. The labor protests and strikes are the social problems that the government is trying to avoid. According to the mentioned reasons, companies with a large labor force are more supported by the government. In order to handle personnel matters such as payment of benefits, subsidies, etc. and in order to interact with the Social Security Organization regarding the personnel' insurance ,the companies need to hold cash and this issue varies according to the size of company, because large companies that have many personnel should obviously hold more cash. Thus, the companies are of interest to the Ministry of Cooperatives, Labor and Social Welfare.

2. FOREIGN SALES

Iran's revenue is mainly oil and non-oil exports. Oil export is peculiarly done by government and non-oil export is done by public sector alongside the private sector. Bringing currency is one of the privileges of foreign sales, since part of the required currency for the country and the government is funded by the private sector. Furthermore, although the companies' exports products have the company's name and brand, it causes the interaction between governments and this business relation is very desirable for the companies. Hence, the companies that export more and consequently bring high currency are supported by the government more. In order to maintain its sales market, companies that have more sales and exports, should be ready to face financial fluctuations in the cost of sales such as transportation costs and the cost of exports. This requires having adequate cash and cash holding. Thus, the government considers certain facilities for this group of companies that have the ability to bring credit in cross-border for their country. For instance, these facilities can be in the domain of allocation of public currency and tariffs, receiving facilities with lower rates tax incentives and so on. From this perspective, they have extensive interaction with the Ministry of Industry, Mine and Trade, the economic sector of Ministry of Foreign Affairs, the custom and banking sector of Ministry of Economic Affairs and Finance and in the domain of transportation they have interaction with the Ministry of Roads and Urban Development.

3. TOTAL ASSETS AND THE SIZE OF COMPANY

Large amount of the company's assets suggests its large size and small amount of assets suggests its small size. In fact, there is a direct relationship between the size of company and its total assets (Rezaei, Heidarzadeh, 2012). The government is responsible for providing foundations, welfare and social services that sometimes provide them itself and in some cases, it uses the facilities and assets under ownership of private sector. Thus, the amount and the value of the assets that the companies give the government indicate the largeness of that company. That's why the government supports these companies. Also, the companies that have capital assets with high holding costs should hold a lot of cash to deal with likely costs and to avoid closure. Hence, for the imports of machinery, they interact with customs department of the Ministry of Economic Affairs and Finance, for banking facilities, they interact with banking sector of the Ministry of Economic Affairs and Finance, and for identifying the foreign dealer of machines, and they have interaction with the Ministry of Foreign Affairs.

4. THE VALUE OF STOCK MARKET

The stock market is an organism which is dependent on the government and it is a link between private sector and government. The companies whose stock and the value of their stock is greater play a more important role in comparison with small ones in this field, therefore, government has interactions with business owners for the purpose of keeping the balance of capital market. On the other hand, the value of stock market is a really important issue that the shareholders pay more attention to it and in order to avoid the reduction of the value of stock, it is necessary that companies hold cash for handling market of the company's share and spend the opportunity cost of holding cash for Keeping the stock price. Therefore, companies will have interaction with the Ministry of Economic Affairs and Finance in this regard.

5. TAX

Zimmerman (1983) studied the empirical relationship between the company's tax rate and its size or largeness. Larger companies, in comparison with small ones, have higher rate of tax and such description is consistent with the fact that they pay more political cost (assuming that large companies have higher rate of tax and probably benefit from more political

interests so that they can make governmental lucrative contracts and use the import rules of import limitation, etc.) in a way that that they can neutralize higher rate of tax. Tax form an important part of the revenue of government in Iran, tax is dependent on taxpayer's more revenue. In order to increase the revenue of these companies and consequently to increase the amount of their tax payment, the government should pave the way for these conditions and offer some concessions to companies and have interaction with them. In some cases, it is necessary that companies hold the necessary cash in order to have interactions with tax affairs office and use the included discount and the reached agreements .By doing so, the payments are done on time. This issue varies depending on the size of companies, since the companies which pay more tax should hold more cash for this purpose. Accordingly, these companies have an interaction with Ministry of Economic Affairs and Finance.

6. EMPLOYER'S CONTRIBUTION AND UNEMPLOYMENT INSURANCE

Social Security Organization which is responsible for health insurance and retirement of the many Iranian people is dependent on the government. The main revenue of this organization comes from the premium which is charged by the employers to this organization. Since the government is responsible for providing social welfare, the bulk of expenses of this responsibility is achieved by these revenues, therefore, larger companies with more employees, have to pay more premiums. Government supports them by offering the facility and impunity, etc. to protect and continue these companies .On the other hand, companies may fail to pay the debts including the employee contribution and unemployment insurance due to lack of liquidity. In order to offer concession to these companies and receive its demands, Social Security Organization usually indemnities companies' insurance charges including those companies which is larger and have more employees. Thus, it is necessary that companies hold cash in companies in order to use these concessions at a desired level. Therefore, by the development of relationship of the governments' executive organizations with companies, gradually government's support can be gained. This support is done politically. In following section, hypotheses are propounded regarding this relationship.

3   RESEARCH HYPOTHESES

Hypothesis 1: The broader political support for companies has an inverse relationship with cash holding.

Hypothesis 2: the relationship between the political support for companies which hold cash is intensified by the rise in agency costs.

Hypothesis 3: the relationship between the political support for companies which hold cash is affected by high agency cost.

4   RESEARCH METHODOLOGY

In this study, the relationship between variables (political support, agency and cash holding costs) are examined, therefore, this research is correlational. Since it aims to study the relationship between political support and cash holding, it is an applied research. After selecting 98 companies using the political support variable (POL) and cash, and agency cost (AC) as the independent variable and other control variables by multiple regression and by using the software Eviews7, hypothesis test was done. The study population consists of all listed companies in Tehran Stock Exchange. In this study, a screening method was used for sampling. For this purpose, the following 2 criteria are taken into account. And if a company has established a high level of all criteria, it is selected as the company with political support.

1) To homogenize the sample in the studied years, the companies should be listed in Tehran Stock Exchange before the year 2001.

2) To increase comparability, the financial period should end in March and companies should not change their fiscal year during the years 2002-2011.

3) They should not be a bankrupt company and inclusive of the article 141 of the commercial code.

4) Companies, due to the special nature of activities, should not be a part of investment and holding industry.

5) Companies' transactions should not be interrupted more than once a year during the years 2003-2012.

6) All required financial and non-financial information such as financial records should be available.

After considering all of the abovementioned criteria, 98 companies remained, all of which have been selected as the sample. Thus, our observations are based on 98 companies.

5 RESEARCH VARIABLES

The research variables and the method of their measurement are listed in Table 2. In order to analyze the research data, first, the data was collected, Afterwards, the data matrix was entered in Excel spreadsheet based on the research regression model.

5.1 THE METHOD OF MEASUREMENT OF THE INDEPENDENT VARIABLE OF POLITICAL RELATIONS OF COMPANIES

In this study, to determine the independent variable of political relations, political companies are measured using the multi-criteria model by TOPSIS method and Shannon entropy weighted index method. The companies are prioritized by this method (to the ratio of 40%, 20%, and 40%) and the companies which rank the 40% top are regarded as the political companies. In other words, in prioritizing the options based on TOPSIS method, the options that are most similar to the ideal solution rank higher. To separate the political companies from non-political ones, the political costs indicators such as (the number of employees, the size of company, the total export sales, and the total market value of equity, income tax and unemployment insurance) are used. The decision matrix for separating the political and non-political companies is shown in the following table.

Table 1- decision matrix model

company	the number of employees	the size of company	total foreign sales	employers unemployment insurance	total stock market value	tax on income
A	X 11	X 12	0	0	0	X 1m
B	X 21	X 22	1	0	0	X 2m
C	0	0	0	0	0	0
	0	0	0	0	0	0
D	X n1	X n2	0	0	0	X nm

Table 2-research variables and the method of their measurement

measurement method	variable	symbol	title
t in the year i, cash divided by company's net cash	cash	$CASH_{it}$	dependent
calculated by the multi-criteria model by TOPSIS method and Shannon entropy weighted index method	political support for companies	POL	independent
Q agency cost is considered as a function of interaction between fcf(free cash flow) and tobbin (agent of growth opportunities	agency cost	AC	independent
$MTB = \dfrac{MVE + TD}{TA}$	market value ratioto assets	MTB	
based on Stock market price	The total value of stock market $: MVE$		
from Balance sheet	total assets $: TA$		
from Balance sheet	total debts $: TD$		
$CF = \dfrac{CFO}{NA}$	ratio of operating cash flows to net assets	$\_CF$	
from Cash flow	Operating cash flows $: CFO$		
$NA = TA - TD$	net assets $: NA$		
$NWK = \dfrac{NWK}{NA}$	net working capital ratio to Net assets	NWK	
$NWK = CA - CL$	Net working capital $: NWK$		control
from Balance sheet	current assets $: CA$		
from Balance sheet	curent liabilities $: CL$		
$NA = TA - TD$	net assets $: NA$		
$CAPEX = \dfrac{\Delta TFA}{NA}$	investing costs	$CAPEX$	
$\Delta TFA = TFA_T - TFA_{T-1}$	$: \Delta TFA$ Changes in fixed evident assets		
$NA = TA - TD$	net assets $: NA$		
from Balance sheet	totalassets $: TA$		
from Balance sheet	total debts $: TD$		
$LEV = \dfrac{TD}{TA}$	Ratio of total liabilities to total Assets	$\_LEV$	
from Balance sheet	total assets $: TA$		
from Balance sheet	total debts $: TD$		
$DIV = \dfrac{DIV}{NA}$	dividend ratio to net assets	$\_DIV$	
$DIV = DPS * N$	total dividend $: DIV$		

$PAYOUT = \dfrac{DPS}{EPS}$	ratio of dividend	PAYOUT	control
from benefit and los	Dividend per share $: DPS$		
from benefit and loss	benefit pershare $: EPS$		
$SG_T = \dfrac{S_T - S_{T-1}}{S_{T-1}}$	Sales growth	S G	
from benefit and loss	Net sales in a year $: S_T$		
shares ownership percent for legal companies and righful individuals above 5%	ownership percent of institutional shareholders	INIST	
$SVT = \dfrac{MVE}{GDP}$	ratio of stock market value to GDP	_SVT	
from Tehran Stock Exchange website	$: MVE$ (Stock market value (Total Exchange		
from strategic monitoring of vice president ofand Iran's Statistics Center	Gross domestic product $: GDP$		
$QTOBIN_{it} = \dfrac{MV_{it} + TD_{it}}{TA_{it}}$	Company's growth opportunity	QTOBIN	
Equal to multiplying the number of released shares of company at the latest price at the end of the year	The market value of equity $: MV$		
FCF=(INC-TAX-INTEXP-CSDIV)/ASSET	Free cash flow	FCF	
from benefit and loss and administrative and organizational costs notes	$: INC$ Operating profit before deduction depreciation cost		
from financial tax status notes	Tax on Income $: TAX$		
from financial notes	Interest expense $: INTEXP$		
from the invoice of the accumulated benefit and loss	$: CSDIV$ paid benefit to ordinary shareholders		
from the balance sheet	The total book value of assets $: Asset$		

5.2 THE METHOD OF THE MEASUREMENT OF AGENCY COSTS

Agency costs are considered as the function of the interaction between the index Q-Tobin (the agent of growth opportunities) and fcf (free cash flow). To calculate free cash flow, Lehn and Poulsen model is used. Based on this model, free cash flows are obtained by the operating profit before depreciation deduction and by summing total taxes, plus interest cost and dividend and by dividing those by total assets, they are standardized. By multiplying these two factors (Q Tobin index and free cash flow), agency cost is obtained.

6 DATA ANALYSIS

6.1 DESCRIPTIVE STATISTICS

Descriptive statistics of research variables that were measured by using the data from 39 active companies listed Tehran Stock Exchange during the years 2002-2011 include the number of observations , mean , standard deviation , maximum ,

minimum , coefficient of skewness and elongation factor that are presented in table3. According to the results of table 3, the average cash with 13.5 percent suggest that the sample company by average hold a low level of cash. The minimum value of this variable indicates that in the studied sample, MAGSAl Company had the lowest level of cash holding (0.002) in the year 2008.on the contrary; the maximum variable with the value of 1.31 indicates that OFFSET Company had the highest level of cash holding (131 %) in the year 2010. The average variable of political companies is 0.3983 that indicate that 39.8% of the sample companies have political relations. And the comparison of central and dispersion indexes for this variable demonstrate that the data is not normally distributed and has skewness to the right. Also, the elongation factor of this variable is 1.172 which indicates its proximity to the elongation factor of normal distribution. The average variable of agency costs 0.032011 which suggests that the agency costs of the data is by average 3.9 %. The minimum and maximum of this variable indicates that the company "Sufian Cemetry" had the lowest level of agency costs with -2.52 in the year 2003 and Sand Foundry Company had the highest level of agency costs with 1.31% in the year 2006. The proximity of central indexes of this variable indicates the normal data distribution.

6.2 THE RESULTS OF HYPOTHESES TESTS

Hypothesis 1: The broader political support of companies has an inverse relationship with cash holding.

Since the research is a compilation of cross-sectional (companies) and time-series data (time interval between 2002 to 2011), the method of hybrid or cross-sectional data of F -Limer test is used for selection, before estimating the model number (1), and other models.

Table 3- Descriptive Statistics of Research Variables

SD	minimum	maximum	mean	number	symbols	variables
0.316	-1.254	3.957	0.112	980	CAPEX	Investing costs
0.146	0.002	1.313	0.135	980	CASH	cash
0.488	-2.065	4.282	0.403	980	CF	Cash flows
0.352	0.000	2.800	0.310	980	DIV	dividends
2.568	0.000	80.790	0.781	980	INIST	Institutional shareholders
0.147	0.118	0.934	0.640	980	LEV	Financial leverage
1.204	0.564	11.804	1.656	980	MTB	Market value to book value
0.679	- 5.307	1.898	0.121	980	NWK	Working Capital
0.460	-5.000	7.500	0.667	980	PAYOUT	Dividend benefit
0.489	0.000	1.000	0.398	980	POL	Political companies
0.545	-1.000	9.468	0.218	980	SG	Sales growth
6.394	0.017	59.94	2.606	980	SVT	Stock market value to GDP
0.171	-2.525	1.312	0.039	980	AC	Agency cost

Given that the probability of F-statistics is more than 1, the null hypothesis of F-Limer regarding the use of cross-sectional data is confirmed and Hausman test is not needed anymore. Therefore, the consolidated least squares regression model is used. To estimate the regression model of the first, second and third model, gravimetric method is used, due to the high autocorrelation and inconsistency of variances. The weights of this model are the inverse standard deviation of the dependent variable. To examine the absence of autocorrelation of the remainders, Breusch–Godfrey and Durbin-Watson statistics are used. To examine the absence of anisotropy of variance Arch test is used.

Table 4-the result of the first hypothesis

$$\text{CASH}_{i,t} = \alpha_. + \alpha_1 \text{POL} + \alpha_2 \text{MTB} + \alpha_3 \text{CF} + \alpha_4 \text{NWK} + \alpha_5 \text{CAPEX} + \alpha_6 \text{LEV} + \alpha_7 DIV + \alpha_8 PAYOUT + \alpha_9 \text{SG} + \alpha_{10} \text{INIST} + \alpha_{11} \text{SVT} + ei$$

Significance level	t-statistics		coefficient	symbol
0.000	- 5.40		-0.388	C
0.000	-8.06		-0.185	POL_HAC
0.000	- 3.78		-0.033	POL_LAC
0.000	- 8.19		-106	MTB
0.000	5.31		0.084	CF
0.355	-0.92		-0.032	NWK
0.000	12.8		1.16	CAPEX
0.000	7.74		0.223	LEV
0.0006	3.44		0.096	DIV
0.000	-4.00		-0.047	PAYOUT
0.715	- 3.364		-0.005	SG
0.000	- 3.34		-0.005	SVT
Durbin-Watson	56.4	F-Fisher	0.39	R
1.92	0.000	Significance level	0.38	Adjusted R
result	Significance level	Freedom degree	The statistics	test
Using cross-sectional data	1.000	97.95	0.000	F -Limer
With the confirmation of the use of cross-sectional data, this test is not needed.				Hausman

According to Table 6, regression coefficient of the variable of political companies is negative and 0.185990.Aslo, t-statistics is -8.060657. The probability of this statistics is less than 0.05. According to these results, statistically, the first hypothesis is significantly confirmed. This means that the variable of political companies has a negative (inverse) relationship with cash level which indicates that there is a relationship between the political relation of companies and cash holdings. Among control independent variables, only the relationship between capital costs and institutional shareholders, and dependent variable is not statistically confirmed. The relationship of the other dependent variables with the independent variables, statistically, is not significantly confirmed .

Fisher F test of the first hypothesis test model is 56.47 and the probability of this statistics is less than 0.05 which indicates that the designed regression model is statistically confirmed. The coefficient of determination model is 0.39 that shows the explanatory power of the independent variables on the dependent variable. Durbin-Watson statistics is equal to 1.91 and since it is between 1.50 and 2.50, it indicates the lack of correlation between the remainders of regression model.

$$\text{CASH}_{i,t} = \alpha_. + \alpha_1 \text{POL} + \alpha_2 \text{HAC} + \alpha_3 \text{LAC} + \alpha_4 \text{POL.HAC} + \alpha_5 \text{POL.LAC} + \alpha_6 \text{MTB} + \alpha_7 \text{CF} + \alpha_8 \text{NWK} + \alpha_9 \text{CAPEX} + \alpha_{10} \text{LEV} + \alpha_{11} DIV + \alpha_{12} PAYOUT + \alpha_{13} \text{SG} + \alpha_{14} \text{INIST} + \alpha_{15} \text{SVT} + e_{i,t}$$

(Model 1)

Hypothesis 2: the relationship between the political support of companies with cash is intensified by agency costs increase.

As table 5 shows**,** given that the probability of F Limer statistics is more than 0.05, the null hypothesis of F Limer is confirmed based on cross-sectional data. Therefore, consolidated least squares regression model is used.

Table 5-the result of the second hypothesis

$$CASH_{i,t} = \alpha_0 + \alpha_1 POL + \alpha_2 HAC + \alpha_3 LAC + \alpha_4 POL.HAC + \alpha_5 POL.LAC + \alpha_6 MTB + \alpha_7 CF + \alpha_8 NWK + \alpha_9 CAPEX + \alpha_{10} LEV + \alpha_{11} DIV + \alpha_{12} PAYOUT + \alpha_{13} SG + \alpha_{14} INVIST + \alpha_{15} SVT + ei$$

Significance level	t-statistics		coefficient	symbol
0.000	- 5.31		-0.380	C
0.000	-6.57		-0.251	POL_HAC
0.000	- 7.07		-0.170	POL_LAC
0.001	- 3.23		-0.029	MTB
0.000	8.32		0.108	CF
0.000	5.36		0.84	NWK
0.399	-0.842		-0.029	CAPEX
0.000	12.5		1.14	LEV
0.0006	7.20		0.211	DIV
0.000	-3.39		0.094	PAYOUT
0.000	- 3.97		-0.046	SG
0.001	- 3.19		-0.005	SVT
Durbin-Watson	57.1	F-Fisher	0.393	R
2.021	0.000	Significance level	0.387	Adjusted R
result	Significance	Freedom degree	The statistics	test
Using cross-sectional data	1.000	97.95832	0.000000	F -Limer
	With the confirmation of the use of cross-sectional data, this test is not needed.			Hausman

In the second model, the variable of political relations were compared and tested with both high agency costs and the low ones simultaneously to examine the impact of political relations on cash holding level**.** As it is shown in the above table, the regression coefficient on the variable POL_HAC (relationship between high agency cost and the political relations of the company) is negative and equal to -0.251 and t-statistics is equal to -6.571.Furthermore, the probability of t-statistics is less than 0.05 and according to these results, the variable POL_HAC has an impact on prediction of dependent variable (cash holing level). The regression coefficient on the variable POL_LAC is negative and is equal to -0.170 and t-statistics is equal to -7.073. The probability of t-statistics is equal to 0.000 and less than 0.05.The above results suggest that the variable POL_HAC has an impact on prediction of dependent variable (cash holing level).The comparison of the absolute values of the coefficients of the variables of POL_HAC and POL_LAC indicate that the absolute value of the coefficient POL_HAC variable is greater than POL_LAC. This shows that if the political relations of companies are coupled with increased agency costs, they have more impact on the cash holding level, compared to the reduction of agency costs with the existence of political relations. Thus, according to the results, the second research hypothesis regarding the reduction of cash holding level in the condition of the combination of political relations with the rising agency cost, statistically, is significantly confirmed   . Among the control independent variables, only the relationship between investment costs and the dependent variable is not statistically confirmed and the relationship between other independent variables with the dependent variable is statistically confirmed. Fisher F-statistics of the second hypothesis test model is equal to 57.143 and the probability of this statistics is less than 0.05 which indicates that the designed regression model is statistically confirmed. The value of the coefficient of determination is equal to 0.39 which demonstrates the explanatory power of the independent variables on the dependent variable. Durbin-Watson statistics camera is also equal to 2,021 and since it is between 1.50 and 2.50, it indicates the lack of correlation between the remainders of regression model.

$$CASH_{i,t} = \alpha. + \alpha_1 POL + \alpha_2 HAC + \alpha_3 LAC + \alpha_4 POL.HAC + \alpha_5 POL.LAC + \alpha_6 MTB +$$
$$\alpha_7 CF + \alpha_8 NWK + \alpha_9 CAPEX + \alpha_{10} LEV + \alpha_{11} DIV + \alpha_{12} PAYOUT + \alpha_{13} SG +$$
$$\alpha_{14} INIST + \alpha_{15} SVT + e_{i,t}$$

(Model 2)

Hypothesis 3: the political relations of companies with cash are affected by high agency cost.

According to F-Limer test result, the probability of F-Limer statistics has become more than 0.05.The null hypothesis of F-Limer test regarding cross-sectional data is confirmed. Therefore, consolidated least squares regression model is used.

Table 6-the result of the third hypothesis

$$CASH_{i,t} = \alpha_{.} + \alpha_{1}POL + \alpha_{2}AC + \alpha_{3}AC.POL + \alpha_{4}MTB + \alpha_{5}CF + \alpha_{6}NWK + \alpha_{7}CAPEX + \alpha_{8}LEV + \alpha_{9}DIV + \alpha_{1.}PAYOUT + \alpha_{11}SG + \alpha_{12}INIST + \alpha_{13}SVT + ei$$

Significance level	t -statistics		coefficients	symbol
0.000	- 4.752		-0.364	**C**
0.000	-5.833		-0.159	**POL**
0.897	- 0.128		-0.003	**AC**
0.089	- 1.702		-0.070	**AC_POL**
0.001	-3.119		-0.028	**MTB**
0.000	8.239		0.107	**CF**
0.000	5.287		-0.083	**NWK**
0.422	- 0.802		-0.028	**CAPEX**
0.000	12.060		1.132	**LEV**
0.000	6.824		0.204	**DIV**
0.001	3.220		0.091	**PAYOUT**
0.000	-3.932		-0.046	**SG**
0.738	-0.334		-0.004	**INIST**
0.001	-3.267		-0.005	**SVT**
Durbin-Watson	48.356	**F-Fisher**	0.394	**R**
1.92	0.000	**Significance level**	0.386	**Adjusted R**
result	**Significance level**	**Freedom degree**	**statistics**	**test**
Using cross-sectional data	**1.0000**	97.958	**0.000**	**F -Limer**
With the confirmation of the use of cross-sectional data, this test is not needed.				**Hausman**

According to the results of table 6, regression coefficient of the variable POL is equal to -.0159 and its t-statistics is equal to -5.833,the probability of t-statistics is 0.000 and less than 0.05.Thus, the variable POL has an impact on prediction of dependent variable. Due to the negative coefficient of regression, it can be concluded that the companies with political relations hold less cash. On the other hand, variable coefficient of AC_POL is negative -0.070 and has in inverse relationship with the dependent variable of the model (cash). By considering t-statistics and its probability which is more than 0.05, statistically, the relationship between this variable and the dependent variable of the model is weakly confirmed. The comparison of the absolute POL variable with the variable AC_POL represents the oppositeness of the absolute value of coefficients of these two variables .As a result, according to the results , the third hypothesis is also confirmed. Among the control independent variables, only the relationship between agency costs, investment costs and institutional shareholders with the dependent variable is not statistically confirmed and the relationship between other independent variables with the dependent variable is statistically confirmed. Fisher F-statistics of the third hypothesis test model is equal to 48.356 and the probability of this statistics is less than 0.05 which indicates that the designed regression model is statistically confirmed. Value of the coefficient of determination is equal to 0.39 which demonstrates the explanatory power of the independent variables on the dependent variable. The value of the coefficient of determination is equal to 0.39 which demonstrates the explanatory power of the independent variables on the dependent variable.

The following regression model was used to test the third hypothesis:

$$\mathrm{CASH}_{i,t} = \alpha_. + \alpha_1\mathrm{POL} + \alpha_2\mathrm{AC} + \alpha_3\mathrm{AC.POL} + \alpha_4\mathrm{MTB} + \alpha_5\mathrm{CF} + \alpha_6\mathrm{NWK} +$$
$$\alpha_7\,\mathrm{CAPEX} + \alpha_8\,\mathrm{LEV} + \alpha_9 DIV + \alpha_{10} PAYOUT + \alpha_{11}\mathrm{SG} + \alpha_{12}\mathrm{INIST} + \alpha_{13}\mathrm{SVT} + e_{i,t}$$

(Model 3)

7 CONCLUSION

In this study, the relationship between the government's political support for companies and cash holding level was examined. As it was mentioned in the section of literature review of foreign and domestic researches, many of researches that have been conducted regarding the relationship between the government's political support of the company and cash holding level suggest that increasing the political support for the company reduces cash holding level in companies. The present study which was conducted on the listed companies in Tehran Stock Exchange suggests that the companies with high political support in our country hold less cash due to the political backing and support of the government, since the government supports these companies as a supplier of liquidity in critical periods. Thus, the results of the first hypothesis test suggest that there is a negative and significant relationship between the political relations of companies and cash holding level. On the other hand, the companies with high free cash flow may , due to a conflict of interest between shareholders and manager, invest in projects with negative net present value and cause high agency costs in companies which these agency costs could have an reverse effect on the company's returns . Therefore, due to the increase in agency costs resulting from cash holding, the impact of political relation on cash increases with agency cost rise. Accordingly, the agency costs of the companies that have strong political relations are reduced, since they hold less cash. Therefore, the results of the second hypothesis test suggest that the effect of political support on cash is intensified with the increase in agency costs. Furthermore, the results of the third hypothesis test indicate that the relationship between the government's political support and cash is affected by high agency cost. In fact, the results of the study demonstrate that in the companies where the agency cost of the board of directors is high, extensive interaction with the government that leads to gaining its political support causes the reduction of agency costs, in a way that this organizational healing is more effective in the high level of agency cost. According to the results of the present study regarding the reduction of cash holding resulted from extensive political support and also the influenceability of this relationship by agency costs, it is recommended that managers and institutional shareholders expand their relationship with the government in order to provide the required timely liquidity of company in critical periods and also in order to reduce the agency costs resulting from cash holding.

8 RESEARCH LIMITATIONS

Since the sample is selected from the companies listed in Tehran Stock Exchange and the sample companies are not necessarily the representative of all active economic units in the country in terms of size, industry, ownership structure and type of products, the generalization of the findings should be done carefully.

9 RECOMMENDATIONS

1) In this study multi-criteria model by TOPSIS method and Shannon entropy weighted index method are used in order to determine independent variable of the political support. It is recommended that other methods of index weighting such as the least square method , the method of logarithmic least squares, special vector method and approximate method be used in the future researches.

2) It is recommended that in addition to the variables used in this research, other variables such as ownership structure , the structure of board of directors , and the companies' products be taken in to account to measure political relations.

3) It is recommended that this subject be studied in various industries.

REFERENCES

[1]   Azar, Adel. Mansour,Momeni (2006) , "Statistics and its Application in Management. Vol. 1. Tehran Publications

[2]   Azad, Asadollah.(2007) ," Information and communication : concepts , theories and political geography " , Tehran ,Ketabdar Publication,2007

[3]   Ebrahim Kordlar , Ali ; Alireza Shahriari (2009). "Studying the relationship between political costs and conservativeness (Political theory) in the Tehran Stock Exchange. "Accounting and Audit Studies, period 6,no.57, p3-16

[4]   Bashiri, Mahdi. Hejazi ,Taha Hossein. Mohtajab,Hossein(2011), A new approach to Multi-criteria decision- making ", Tehran. The University of Shahed Publcation

[5]   Khajavi.Shokrollah, Seyed Hossein .Hosseini.(2010) ,Investigating the relationship between political support of the government and the capital structure of companies listed in Tehran Stock Exchange. "Journal of Accounting Developments of University of Shiraz, second period.no58.3.p 67-84

[6]   Rezaei , Farzin , Afrouzi. Leila . "Effects of political relations on the cost of debt." MA Thesis, University of Alborz in Qazvin,(2014)

[7]   Rezaei , Farzin , Shahin Heidarzadeh . "The effect of the credit of the board of directors on the relationship between Investment deficiencies (High and low investment) and agency costs with cumulative abnormal returns ". MA Thesis, Azad University of Qazvin, 2014-11-29

[8]   Rezaei ,Farzin,Naeimeh , zijoudi, The relationship between unreasonable audit comments and Financial constraints of companies with emphasis on political aspects , " MS Thesis , Azad University of Science and Research , Qazvin , 2014

[9]   Zimmerman,Gerald(1947),Wats,Russel(1942), PAT " , translated by Ali Parsayyan,Termeh Publication,Tehran,2011

[10] Ghorbani,Saed,Mojtaba Adili (2012) . Cash holding , the company value and lack of information asymmetry " Journal of Accounting ,third year, no.8,p131 to 149

[11] Boubakri, N., S. El Ghoul. and W. Saffar (175), 'Cash holdings of politically connected firms', Journal of Multinational Financial Management, Vol. 5, Issue , Pages 55 -533

[12] Boubakri, N., J.C. Cosset and W. Saffar (11), 'Political Connections of Newly Privatized Firms',Journal of Corporate Finance, 7 , pp. 3 - 15.

[13] Boubakri, N., J.C. Cosset and W. Saffar (177), 'The impact of political connections on firms' operating performance and financing decisions', Journal of Financial Research, forthcoming.

[14] Chansong,F,K.and , Liandong , z (175). , 'Corporate Political Connections and Tax Aggressivenss', Working Paper. Email: cm7 5 @ wayne .edu

[15] Chaney, P.K., M. Faccio and D.C. Parsley (177), 'The Quality of Accounting Information in PCFs', Journal of Accounting and Economics, 37, pp. 3 -1 .

[16] Faccio, M., R. Masulis and J. McConnell (11), 'Political Connections and Corporate Bailouts', Journal of Finance, 7, pp. 3 1- 53.

[17] Faccio, M. (171), 'Differences between Politically Connected Firms and Non-Connected Firms: ACross-Country Analysis', Financial Management, 5 , pp.13- 1.

[18] Kusnadi, Y., Wei, K.C.J., (177). , 'The effect of political connections on the level and value of cash holdings: International evidence', Working Paper

[19] Narayana swamy. R.(175). , 'Political Connections and Earning Quality: Evidence From India', Working Paper No : 55. Email: narayan@iimb.in .

[20] Subramaniam,Venkat,Tony T. Tang, Heng Yue ,Xin Zhou(177)."Firm Structure and Corporate Cash holdings ",Journal of Corporate Finance ,No71,pp.13 -115.

Trust in e-commerce

Dr. Roozbeh Habibi[1] and Zahra Hajati[2]

[1]Assistant professor of Payame Noor University of rasht, Iran

[2]MA student of business management, Islamic Azad University of rasht, Iran

ABSTRACT: A necessity that is plays an important role in today's turbulent environment is e-commerce. E-commerce, despite being young has tremendous progress and especially recently, there has been more tendency in Iran. But on the other hand, since e-commerce is not tangible as traditional trade, one important requirement in the buying in e-commerce area is the concept of trust. Hence, this paper tries to investigate the relationship between trust and e-commerce that sometimes considered as a missing link in the e-commerce issues. This paper first discusses the concept of e-commerce and with a glance, explains the beginning of this type of e-commerce in Iran and examines the types and dimensions of trust. Then, the strategy of building customer trust and the importance of confidence in e-commerce was discusses. Building business to business trust and business to customer in e-commerce, the relationship based on mutual trust can be established and facilitate and expedite the process of e-commerce and its growth.

KEYWORDS: Trust, E-commerce, Information Technology (IT).

INTRODUCTION

Nowadays E-commerce is rapidly penetrating into organizations and has profound impact on the businesses as the ordinary lives of people and the boundaries between information systems and electronic commerce is rapidly fading. On the other hand, development of electronic commerce has raised new issues in the international arena. Since buyers and sellers from different countries of the world are linked by communication technologies for electronic commerce, the necessity attention to ethical, cultural and confidence issues become greater. In general, there are more risks in e-commerce and increasingly the challenges of creating and sustaining safe and secure ways for businesses on the Internet are added. For example, how to ensure verify of digital signatures and the legality of the Internet space. These complexities are indicative of the fact that mistakes are possible in e-commerce. Among these, the service for building trust is a major factor leading to greater confidence in using the Internet and always is considered as a major factor in the success of e-commerce. The concept of trust in business is not a new discussion. Rather, business always has been witness to attendance of legal financial and insurance institutions that creates the trust in commercial contract.

E-COMMERCE

The electronic communication is a set of communication, information management and security capabilities that allows the organizations, agencies, companies, public, and government.... to provide their goods and services Information more efficient, easier and faster using computer communications networks, particularly the Internet. E-commerce is the paperless business. By e-commerce, information exchange for purchase and sale and transportation of goods is done with less effort. E-commerce makes the relationship between the companies, firms and all related entities are doing easier and faster. Many people consider e-commerce sales exclusively doing via the Internet, while this represents only a small part of e-commerce. In principle, e-commerce can take all commercial and economic aspects. Simply any commercial and financial activity

---

between institutions and individuals may be in the areas of e-commerce. And we can say that e-commerce is a bridge between the commercial centers, buyers and sellers (Baratipour, 2007).

ELECTRONIC COMMERCE IN IRAN

Iran, like other developing countries have many companies for development of their market is related to the Internet. The aim of most of these companies to creating sites on the Internet is indeed, the export development. Unfortunately, there is a lot of expense to net sales and is not affordable for many. Corporate world with macro capital and enough staff have created specialized databases for cases such as export and business sale. Several companies are also in hand to create such facilities, but since there is no authority and central to this phenomenon, these organizations are doing actions island and self-centered that still not encompass business complete process and doing as sectional. No accurate statistics is available from Internet users and users of personal computers and yet not look at it as a national project. So e-commerce is in the early stage and is nascent and need much care and support from the government. The government should provide a national project to change the purchase culture of today's Iranian society. Since 1381, a successful pilot project was started in the name of electronic payment that despite all of the aforementioned problems that has created an appropriate solution for e-commerce in Iran. In this system, at first the buyer enters into the seller's website and selects a product (S) and puts in their shopping basket and after entering the shipping information in pay site finalized its purchase. This information inform dealer to evaluate and decide on the website. If want to send, seller prepare the received orders and after the annunciation in the online system receives its Email from the seller and the transfer it to buyer and will receive the cost of the goods plus the cost of shipping from the buyer. Financial pay unit in specified period of time settle accounts with vendors. All the operating system informs the buyer, seller, branch postal and system management system via the Internet. The system is designed so that it is possible to connect to electronic systems of banks and financial and credit institutions and in addition to payment system at delivery, electronic payment capability also predicted in it. Payment is appropriate infrastructure for e-commerce and trade in Iran. This system has facilitated the e-purchase/sale and even without a credit card formulates new methods of electronic payment. Similar systems have also been established in other countries of which can be pointed to China and South Korea each work according to their economic and social conditions (Baratipour, 2007).

ADVANTAGES AND DISADVANTAGES OF E-COMMERCE

Use of e-commerce, intentionally or unintentionally is inevitable and due to its numerous benefits, ignore this kind of exchange is not possible in today's world. If we want to briefly analysis its benefit and defects, the following can be mentioned:

- Lack of broker
- Better communication and service to customer
- Reducing the cost of goods international advertising
- Fast delivery of product to customer
- Youth entrepreneurship in the long run
- Cost savings
- Ease of doing business
- Rapid and timely information
- Increase the welfare of the people life
- Shortening delivery time
- Its potential impact on social relationships and loss of face to face communication
- Mastery of English and American Language and Culture

Increased competition and economic superpower dominance and finally, because the Internet is a network of non-owner and policymaking and is uncontrollable makes E-commerce risky (Kotler, 2000).

TRUST

It should be noted that there is no single and clear define on the factors that affect trust. But usually the trust is considered as synonymous with confidence, belief and relies. Oxford Dictionary is defined trust as:

- Certainty or reliance on certain characteristics or traits of a person or organization
- Accept or give credit to the person or organization without review and receive evidence

- Believe or trust or rely on the integrity of a person or organization
- Having certain expectations from the individual or organization
- Honesty, integrity and loyalty

"Rogers' is defined trust by ensuring that activities are consistent with their speech. In another definition, he says: Trust means that the people with whom you are working are interests towards your interest and welfare without that you have the ability to do something for them. "McGregor" writes: Trust means that I know you intentionally or inadvertently, not take advantage of me. "Rocky" defined trust as: Trust is the ability to calculate, reliability and predictability. "Kely" express about trust as: Trust is generally defined in terms of expectations or beliefs.

Believes is that, others have characters such as benevolence, integrity, competence and predictability.

So if only one of these beliefs is the base, this relationship may be very unstable. Trust is a mixture of sense and rational thinking (Pennanen, 2009)

TYPES OF TRUSTS

Trust can be dividing into trust in individual, trust in the group and trust in organization. There is close relationship between these three categories of trust with each other. Trust in organization can form from the trust in person or persons working in the organization. Trust in person can because of trust in organization where person works. Trust in person and trust in organization through tasks and situations in which individuals have and the roles they play in the organization are connected. In a general classification, trust is divided into two calculus-based trust and identification-based trust:

Calculus-based trust: This type of trust is dependent on continued good behavior of trustee. In other words, calculus-based trust is due to the assumption that person serves against his/her items because they are rewarded for consistent their words and deeds or are fear from the results of their lack of action. So the fear of punishment is the main factor shaping trust. This appears more in market interaction.

Identification-based trust: This type of trust is associated with the intention and desire of others. The reason for trust formation in this level is mutual understanding between the parties and respect to their wishes, desires and values. Basically, this kind of trust is formed in interpersonal relationships. In this regard, once people understand each other's interests, with respect to the other party and achieve mutual understanding between them, mutual trust is formed.

"Bunker" believes that trust find mean with its perspective. For example, in the institutional perspective business trust is creating among the people who have the same job. Because they have similar interests and needs that form inter-organizational trust between them. Ross has mentioned this type of trust as network trust. Mollering theoretical analysis of trust indicating three types of trust: 1) Reasonable perception- based trust of trust in a context 2) Institutional trust that is the image of trustier from trustee in certain positions and 3) Active trust from the development of trust level in times of rapid change.

In summary, we can say that six pillars of trust include:

1) Capabilities or competencies of trustee

2) Principles and standards of practice

3) Expectations of the trustee from benefits obtainable from trust.

4) Situation or context in which the concept of trust is placed

5) Dynamic nature of trust (the trust can change over time)

6) Compliance risk adventure

CHARACTERISTICS OF VIRTUAL TRUST

Wang and colleagues place four characteristics for trust, these specific concepts include:

A) Trustier and trustee

There are two specific parties in any trust-based relationship: trustier and trustee. These two roles of trust can a charge on a person, a company or a product. Develop trust based on the ability to trustee to perform activities is according to the

trustier interest. In virtual space unlike the real time, trustier is a customer or one who deal with e-commerce trough Website. And in contrast, trustee is the intended website (Marcella, 1999).

B) Vulnerability

Trust is including to accept vulnerability by trustier. In other words, trust may be manifested only when the environment is uncertain and risky and trustier present them as vulnerable or in other words, risk acceptance.

Because of the complexity and risk in e-commerce vendors can behave in ways unpredictable on the Internet. Buyers and consumers are uncertain about the risk when using the site as well as at the risk of online transactions. As asserted by Gefen even when consumers only evaluate internet site and do not buy it, again the data automatically collected from the activities which can then be exploited (Gefen ,2002).

C) Behavior of trust

Trust leads to actions and behaviors that are often associated with the risk. The form and type of action depends on the concerned position and this behavior can be tangible or intangible. Customer trust in e-commerce can lead to two types of action by the customer:

1- Virtual buy that is associated with presenting credit card and personal information.

2- Watching electronics stores. These actions can lead to positive outcomes for electronics retailers that can be seen as potential sale.

D) Subjectivity

Trust is a subjective matter directly related to and affected by the difference between personal and environmental factors. Different people differently evaluated the role of trust in different scenarios and they have different attitude from them. Trust in virtual environment as well as trust in the real environment is a subjective concept. The level of trust needed to establish transactions due to the individuality of each person is different. The people have different attitudes towards that technology (Kraeeter, 2002).

STRATEGIES TO BUILD TRUST IN CUSTOMERS

1- Preliminary testing strategy

This means that customer uses the product of the individual or organization temporarily or buys his goods. But it not sure if the seller upon return of the product or intended use of the warranty may accept the product. Customers use from the preliminary test widely in traditional shopping and e-commerce in order to reduce risk (Kotler, 2000). There is a debate that instead of just using preliminary test in order to reduce risk, customers can use it to evaluate the reliability of e-seller in e-commerce. For example, in order to convince him to trust electronic supplier, customers can examine e-buyer and seller before any purchase or exchange. In addition, the customer can uses the preliminary test to assess the electronic reliability. For example, customer may be detecting high risks associated with trust to buy goods and services and before any actual use of the trust must test it. Consequently, the preliminary test will help to both individual and organizational trust. It can be used to evaluate the reliability of the e-supplier (interpersonal trust) and trust in technology (organizational trust) and to provide preliminary tests of products and services on the Net use as a strategy to build trust in customers (Pennanen K, 2009)

2 - Exploration Order strategy

This means that customers used different purchase rules for solving problems or decisions making. Faced with the exploration order (initiative), Mike and Furnier suggests that customers purchase the latest models of products offered and models with less complex and more expensive models and better known brands. There is also evidence that customers also use exploration order in fields of e-commerce. For example, it found that brand reputation of an electronics shop directly related with the level of perceived trust in the brand and well-known brand is an important factor to reduce and remove the risk to customers (Serva et el, 2005). Customers can assess the reliability of e-commerce by purchase from the seller with well-known brand. One can be considered a customer buying books through electronic. The customer can seek electronic bookstore and for example, Amazon's website and a lesser known Web sites identified and compared with each other. In such case, known as Amazon can convince customers that the website is more reliable than other stores. The result is that the customer buying from Amazon. Thus, consumer evaluate different electronics vendor reliability and Amazon well-known brand has convinced the customer about reliability of the site (Personal trust) and as a reliable channel (institutional trust) (Pennanen, 2009). Consequently, using a well-known brand and brand can be an important factor in establishing trust in e-commerce and positive assessment of consumer from the reliability of e-vendor.

3- Developed decision-making strategy

The third strategy that customers can use it to evaluate the trustworthiness of e-commerce is developed decisions. Mike and Furnier defined developed decisions as seek and perseverance to obtain detailed information about the product brand and then order the most appropriate and most cost-effective option. Also there are other ways for customers to develop their knowledge and reduce perceived known risk (Grönroos et al, 2000). For example, customers can get advice from their friends about their product. In the field of e-commerce, customers can obtain their knowledge using the information contained in the Web site to derive information about the product which they are willing to buy. In building trust, customers can use developed decisions to evaluate the reliability of electronic vendor (interpersonal trust) and technological trust (organizational trust). For example, customers can use opinions and experiences of other customers in order to evaluate the reliability of e-commerce and magazines and newspapers can be a good resource for customers to access the information. As a result, valuable information needed for customer on the website, can be an important factor in establishing consumer trust in the Internet (Pennanen, 2009)

4- Strategies for maintenance and warranty contracts

The last strategy to build trust in a customer is maintenance and warranty contracts. Many researchers have stated that customers use various warranties to reduce the perceived risk. Three different categories of warranties are: Warranty contract, Maintenance contracts and money-back guarantees. As "Mike and Furnier" have expressed warranties and maintenance contracts reduces the customer perceived risk. The money-back guarantees are considered as an important strategy to reduce risk and build trust in customer. Customer used guarantees and maintenance contracts in e-commerce. "Tan" found that customers' perceived risk in e-commerce is reduced with the money back guarantee. Customers can able to assess the trustworthiness of an Internet marketer by analysis of whether the e-seller offers money-back guarantees or not. If the e-seller does not offer money-back guarantees, it is possible that customer comes to the conclusion that the seller may not reliable. Therefore, considering the types of guarantees and maintenance contracts and money back guarantees is an important strategy to build e-trust in consumer to online retailer in e-commerce (Pennanen K, 2009).

THE NECESSITY AND IMPORTANCE OF TRUST IN ELECTRONIC COMMERCE

Use the Internet to purchase goods and services has several advantages. The Internet enables customers to carry out transactions and interact with organization. But a global survey indicated that using the Internet to shop on-line has a slow increase and marketers specified the lack of trust as the main factors preventing on-line purchase. Previous studies also indicate that lack of customer trust is the main obstacle in using online shopping. Internet users have not enough trust to share and communications and information with Internet vendors (Lee M. K. O, 2006). Trust plays a major role in making satisfaction and achieving the expected results in the on-line transactions. Building e-trust is considered as a first step of forming the basis of an electronic interaction. The reason for the importance of trust in electronic commerce and electronic transactions is higher level of economic uncertainty in e-commerce transactions over traditional business and lack of the applicability of many solutions creating the traditional world in e-commerce space. Economic transactions in the Internet world associated with numerous risks. These risks either associated with the use of technological infrastructure in information exchange (uncertainties associated with the system) or factors associated with Internet transactions (transaction-related uncertainty). The researchers also found a close relationship between trust and risk perception by customers. Perceived risk means the condition, situation, or event with the potential ability to create economic problems for data or as a network resource as destruction, disclosure, modification of data, denial of service or fraud or misuse of user data. On the other hand, risks related to e-commerce is divided into four categories of risks related to personal data, risks relating to product quality and price, risks associated with providing personal service and risks related to the business reliability. On-line trust reduces the perceived risk associated with the exchange process. Web sites can upgrade on-line customers trust by reducing environmental risks and enhance security. Because customers may disclose their personal information on the web site when recognize its reliability and validity and reduced their concerns about security and privacy and felt trust to the website (Chen and Dhillon, 2003). Uncertainty arises from the fact that service provider is not completely predictable and customers are required to understand suppliers' actions. Trust in the electronic work is more important than the other transaction. The fact is that in the electronic activity, uncertainty and risk are inevitable and the parties are absent in the process of communication. Internet environment has all these features that caused uncertainty and there is no possibility to see the other side. Due to the importance of trust in the Internet environment, trust is a major factor in the growth of electronic commerce (Eastlick and Lotz, 2011).

TRUST IN E-COMMERCE PLATFORM

Trust is seen as a vital component in e-commerce. Trust creates a social atmosphere where organizations can work in that space. Trust is one of the ways to reduce social complexity and is replaced to regulation. Trust in promote communication within the organization and between the organization through virtual collaboration environments like the Internet is a very effective. Development of trust level in organizations increase the loyalty and reliability of the values in contact with and organizations can benefit more and from the consumer's perspective, higher levels of trust leads to greater commitment to customers. Web environment destroys to examine the product, dealer direct observation and guarantees mechanism which people have gotten used to it over years. As "Delarukas" says: Greater spatial and temporal differences between the two sides of the business relationship is more, the level of risk goes up. Initial Trust in a Web environment is a kind of trust in which the person does not have any previous experience about it. However, with interaction over the time of initial authentication takes place followed by a second trust. Thus, a secondary trust of the individual to the content of Web advertising is create in the bed of initial trust and calls an understanding of the risks and uncertainties related to persuade. For this reason, Initial trust is very important for successful sales and attracts users. Signs and Symbols, appearance of Web Design and the reputation of selling agents are very effective at creating a basic trust. "Barry" refers to trust as a powerful marketing tool based on a relationship of trust. According to studies of Fui-Hoon, customers decide to buy online just based on trust. According to the "White and Roman", World Wide Web (www) was the first public relations (PR), which was controlled by mass media that gatekeepers act did not apply on it. Before the Internet, advertising was the only way to transmit controlled messages through the mass media." Folto" and "Goyant" believe that Internet will be provided an opportunity to all areas of the organization to express its activities in the international area and regardless of geographic and other barriers form effective and direct communication with the public.

CONCLUSION

As the e-commerce is moving speedily and one necessity of today trade is e-commerce, Iran has also developed strategies to enter into the commercial market. As learning principles of e-commerce and creating basic infrastructure and entering related technologies and their localization, steps can be taken towards e-commerce. However, the main role of trust is not far and less important. As mentioned before, one of the essential requirements in e-commerce is trust. Building trust between the business to business or business to customer in e-commerce can be established a relationship based on mutual trust and facilitate and expedite the process of e-commerce and its growth.

REFERENCES

[1]   Baratipour, Mehdi, Macro security strategies in e-commerce, Tehran, 2007.
[2]   Chen, S. and Dhillon, G. S. 2003. Interpreting dimensions of consumer trust in e-commerce. Information Technology and Management . 4. 303–318.
[3]   Eastlick، Mary. And Lotz، Sherry .2011. Cognitive and institutional predictors of initial trust towardan online retailer. International Journal of Retail & Distribution Management .39. 234-255.
[4]   Gefen, D. 2002. Reflections on the Dimensions of Trust and Trustworthiness among Online Consumers. ACM Special Interest Group on Management Information Systems. Vol. 33. No. 3. 38-53
[5]   Grabner,Kraeeter, S. 2002. The role of consumers_ trust in online-shopping. Journal of Business Ethics. No. 39. 43–50
[6]   Grönroos, C. & .Heinonen, F. & Isoniemi, K.. and Lindholm, M. 2000. The NetOffer Model: a Case Exampleof from the Virtual Marketspace. Management Decision. 38. 243–252
[7]   Kotler, P. 2000. Marketing Management: The Millennium Edition. New Jersey: Prentice Hall Inc.
[8]   Lee, M. K. O. 2006. Understanding consumer trust in Internet shopping: multidisciplinaryapproach. Journal of the American Society for Information Science and Technology 57. 479–492.
[9]   Marcella, A. J. 1999. Establishing trust in vertical markets" Altamonte Springs, FL: The Institute of Internal Auditors.
[10] Pennane, K. 2009 . The Initial Stages of Consumer Trust Building in e-Commerce: A Study on Finnish Consumers. Business Administration Marketing .83 .1-85.
[11] Serva, M. A .& Benamati, J. And Fuller, M. A. 2005. Trustworthiness in B2C ecommerce: an examination of alternative models. DATABASE for Advances in Information Systems. 36 .89–108.

The relationship between firm's growth opportunities and firm size on changes ratio in retained earnings of listed companies in Tehran Stock Exchange

Mohammad Reza Asgari[1], Ali Asghar Shaban Pour[2], Reza Ataei Zadeh[3], and Samaneh Pahlavan[2]

[1]Department of Accounting, Yadegar-e-Imam Khomeini (RAH) SHAHRE-REY Branch, Islamic Azad University, Tehran, Iran

[2]Department of Accounting, South Tehran Branch, Islamic Azad University, Tehran, Iran

[3]Young Researchers and Elite Club, Ardabil Branch, Islamic Azad University, Ardabil, Iran

ABSTRACT: The purpose of this research is to investigate the relationship between firms growth opportunities and firm size on changes ratio in retained earnings of listed companies in Tehran Stock Exchange. This study is a literature study and analysis - scientific, and is based on the analysis of panel data (panel data). In this study, the financial data of 101 companies listed in Tehran Stock Exchange during the period 2006 to 2011, has been reviewed (606 companies - the Year). To analyze the results of research, software Spss20, Eviews7, Minitab16 are used. in connection with the first hypothesis of research, we find that there is an inverse and significant relationship between company's growth opportunities and changes ratio in retained earnings ratio of companies. Finally, results of research in connection with the second hypotheses confirmation suggest that is a direct and significant relationship between firm size and with changes ratio in retained earnings of companies.

KEYWORDS: Capital structure, The Company's Growth Opportunities, Changes Ratio of Retained Earnings, Firm Size, Panel Data.

1 INTRODUCTION

The company's dividend policy is its long term financial strategy with regards to deciding how much earnings to pay out as against retaining them for investment in the company. It leads to division of profits between dividend payment to shareholders and reinvestment in the company. There are no transaction and bankruptcy costs associated with retained profits [2].Thus, retained earnings constitute a major source of finance for companies. Investors prefer capital gains over dividends, because capital gain taxes can be deferred into the future and are taxed at a minimum rate while taxes on dividends must be paid as soon as they are received and are taxed at a relatively higher rate. Whenever there is an increase in personal income tax of the shareholders, companies tend to retain and reinvest more of their earnings. Payment of earnings as dividend is associated with agency cost and an opportunity for existing shareholders is lost to reinvest their earnings for growth of the company.. The level of internal funds conveys information about growth prospects of companies [6]. Growth firms pay lower dividends, reinvest more of their earnings, and provide a greater percentage of their total returns in the form of capital gains. Companies with a few major investment opportunities would limit paying out a larger percentage of their earnings. For this reason, higher dividends are paid in stable, low-growth industries. By contrast, high-growth companies with lots of investment opportunities are likely to pay low dividends because they have profitable uses for the capital. So, growth is likely to place a greater demand on internally generated funds. Higher growth firms use less .[14] This is because conflicts of interest between debt and equity holders. Myers (1977) also argues that firms with growth potential would have less capital structure. Growth opportunities can produce moral hazard effects and push firms to take more risk. In order to mitigate this problem, growth opportunities should be financed with equity or retained earnings instead of debt. It has been predominantly supported by the empirical studies that internally generated funds have enormously contributed to financing growth of corporations in recent times.[16].Most previous researches investigated

---

company's growth factor with a factor, but in this paper, we focus on mentioned issues, we are looking for finding a convenient and effective relationship between several factors influencing the growth of the firm, and its relation to retained earnings. Finally, the main research question of research is that whether its growth parameters have impact on (growth opportunities, firm size) on the changes ratio in retained earnings of companies or not. The main purpose of this study is to find the relationship between various factors of the company's growth and sustainability of firms' capital structure.

2 REVIEW OF LITERATURE

Kim et al (2003) examine the relationship between corporate earnings management and the firm size. They investigate the earnings of the small, medium and large companies in relation to their size and the beginning of the market value of each year by taking a sample data of 18 years. They find that company size had a strong impact on the earning management. Small sized companies are avoiding the addition of earnings management as compared to large companies. On the other hand the medium and large size companies are more involved in earning management as compare to small firms.[8]

Iram Naz and et al (2011) in their study examined the Impact of Firm Size and Capital Structure on Earnings Management Evidence from Pakistan has paid The results indicate a significant negative impact of capital structure on earning management. Thus we concluded that firms with debt based capital structure have creditors acting as watchdog on its earning management practices, however results firm size were not significant.[12]

Ravi Thirumalaisamy, (2013). in their study examined the Firm Growth and Retained Earnings Behavior – A Study on Indian Firms ,The results suggest that across the classifications of sample companies cash flow and dividend are found to be the most influencing variables on retained earnings. Companies with low investment opportunities for growth and expansion prefer to distribute much of their earnings as dividend. The potential investment opportunities are likely to arise far off in the future for these companies. So profit, if retained, remains unutilized for long time or utilized in short-term investment opportunities which would yield low return on investment. Such companies prefer to pay out the earnings and raise capital whenever needed. Thus, the level of earnings retained is very much influenced by the growth rate of the companies.

3 THEORETICAL LITERATURE OF RESEARCH

According to the theory of stable equilibrium, growing companies in bankruptcy more than other lose their value. Several theories which have been proposed in the theory of agency costs, have confirmed this negative relationship. In contrast, the hierarchy theory of financing options suggests that we expect firms with high investment projects, over time, have accumulated a lot of debt [9].Theoretically, the relationship between firm size and financial leverage is not clear. According to ISNA balance model, larger firms have greater debt capacity. Also, larger companies usually have more diversity, and therefore, have more stable cash flows. Stability of cash reduces the risk and their bankruptcy. They also during the use of debt, have more bargaining power, and can reduce transaction costs associated with the release of long-term debt. Another possibility is that larger companies have more diverse shareholders causing less control over the management of the company. Thus it is likely that managers for reducing the risk of personal loss arising from bankruptcies use more debt. However, when the size of the company as a risk default variable, is considered, where the costs of financial distress is trivial, should not there is a significant positive relationship between financial leverage and firm size.[11]

4 THE HYPOTHESIS OF THE RESEARCH

1. There is a significant relationship between growth opportunities of the company and changes ratio in retained earnings of companies.
2. There is a significant relationship firm size and the ratio of the changes in retained earnings of the companies.

5 METHODOLOGY

5.1 RESEARCH METHODOLOGY IN TERMS OF NATURE, PURPOSE AND METHOD FOR DOING RESEARCH

Present study in terms of nature and content is Correlation study, and in terms of type of work is a research study and in terms of purpose in a applicable study, and as well as in terms of the method for doing research is in the framework of deductive-inductive reasoning.

5.2   DATA COLLECTION TOOLS

To study theoretical foundations and literature review, the library method with using books and papers and theses have been used, and information needed is extracted from financial statements of listed companies on the Stock Exchange.

5.3   VARIABLES OF RESEARCH

5.3.1   INDEPENDENT VARIABLE

Growth opportunities (M/B): Growth opportunities is the ratio of market value to book value (Cheng et al, 2009)

Firm Size ($Size_{i,t}$): is equal to the natural logarithm of the book value of total assets .[18]

5.3.2   DEPENDENT VARIABLES

The ratio of changes in retained earnings ($GRE_{i,t}$): This formula is derived from the research of Graham and Harvey (2001):[7]

$$GRE_{i,t} = \frac{\text{retained earnings at end of year t} \quad - \quad \text{retained earnings at end of year (t-1)}}{\text{Book value of total assets}}$$

5.3.3   CONTROL VARIABLES

Tangible assets ratio ($Tang_{i,t}$): Net property and equipment and machines divided by the book value of total assets .[13]

Investment policy ($Inv_{i,t}$): To get the investment policy, the ratio of capital expenditure to book value of assets is used.[17]

Dividend of the Company ($DivPayer_{i,t}$): Dummy Variable that if the company has paid a cash dividend, it is equal to 1 otherwise it is equal to zero .[3]

Cash assets ratio ($CashHolding_{i,t}$): cash assets divided by the book value of total assets .[15]

Sales growth rate of company ($SG_{i,t}$): This formula is derived from the research of Cooney et al (1993):[5]

$$SG_{i,t} = \frac{S_{i,t} - S_{I,t-1}}{S_{i,t-1}}$$

$SG_{i,t}$: Sales growth of firm i in year t
$S_{i,t}$: Net sales of firm i in year t
$S_{i,t-1}$: Net sales of firm i in year t-1

5.4   THE POPULATION

The population of the study is all listed companies in Tehran Stock Exchange during the period of 2006-2011, of the 520 companies listed in Tehran Stock Exchange, which meet all of the following criteria:

1) To March 2006 are listed, and their names until the end of March 2012 from the list of listed companies are not removed.
2) During the desired period, their shares are traded actively on an exchange.
3) Their financial period must be ended 29 March, and in the course of the study, the financial terms have not changed.
4) They are not among financial intermediation companies (investment, holding, leasing, and banking and insurance) because of their different performances.
5) The information you need is available.

In this study, 101 companies as sample are selected.

5.5   DATA ANALYSIS METHOD

In this study, to evaluate and determine the appropriate model, panel data method of Chow test using, Hausman test is used and to test the significance of the model, the F statistic and for significance of the coefficients, T-statistics and for normalizing variables, Kolmogorov-Smirnov test is used and software Spss 20, Eviews7 and Minitab16 are used for analysis.

6   DESCRIPTIVE STATISTICS FOR RESEARCH VARIABLES

Mean is the most important central index, and shows mean data so that, if the data are aligned on an axis on a regular basis, the mean value is precisely the balance point or center of distribution. Standard deviation is a distribution parameter, and shows scattering of data. Skewness is determining parameter of deviations from symmetry and is symmetry index of data. Summary descriptive statistics of the variables modeled after the screening and removal of outliers using software Spss20 are presented in table 1.

Table 1.   Descriptive statistics of variables of Research

Variable	Number	Average	Standard deviation	The Minimum amount	The maximum amount	Skewness	Elongation
The ratio of changes in retained earnings	606	0.0052	0.1069	-0.9446	0.5119	-1.701	16.168
Growth opportunities	606	1.0068	1.0068	-3.0076	4.5546	-2.231	9.387
Company size	606	0.1018	0.1018	1.5383	2.0781	0.499	0.145
Tangible assets ratio	606	0.1889	0.1889	0.0008	0.8786	0.859	0.391
Investment policy	606	0.0348	0.0348	0.0000	0.4803	4.616	46.689
Dividend	606	0.4259	0.4259	0.0000	1.0000	-1.226	-0.474
The ratio of cash assets	606	0.2179	0.2179	0.0713	0.9723	-0.547	-0.547
Rate of sales growth	606	2.0804	2.0804	-1.0000	49.1606	21.763	5.6.818

According to table 1, the average the ratio of changes in retained earnings of sample companies has been 0.0052 , and minimum and maximum value, respectively, has been -0.9446 and 0.5119. Evaluation of skewness and elongation of this variable, which should be 0 and 3, to variable has normal distribution indicates that this variable does not has normal distribution. Based on the descriptive statistics presented in table 1, the average variables of growth opportunities and firm size, sample companies during the positive period, respectively are 1.0068 and 0.1018. The positive mean the ratio of Tangible assets, investment policy, dividend, ratio of cash assets and the growth rate of sales respectively are 0.1889, 0.0348, 0.4259, 0.2179 and 2.0804.

7   TEST FOR NORMAL DISTRIBUTION OF THE DEPENDENT VARIABLE OF RESERCH

In this study, this issue through Kolmogorov-Smirnov (KS) is investigated. H_1 and null hypothesis in this test is as follows:

$$\begin{cases} H_0 : Normal\ Distrbuton \\ H_1 : Not\ Normal\ Distributi\ on \end{cases}$$

If the level of significance of the test statistic is more than 0.05 (Prob> 0.05), H_0 hypothesis based on normal variable distribution will be accepted. In table 2, the K-S Statistics results for factors of the changes in retained earnings ratio of companies in the sample are provided.

Table 2.   Descriptive statistics of variables of Research

Variable	Number (N)	Statistics (KS)	Significance level (Sig)
The ratio of changes in retained earnings	606	4.322	0.000

Given that, for a variable of changes in retained earnings, significance level of K-S Statistics is less than 0.05, therefore, H_0 hypothesis based on normal variable distribution is rejected at the 95% confidence level, indicating that the variables of the ratio of changes in retained earnings don't normal distribution. Being normal of dependent variable is necessary condition for regression models, so it is necessary that before hypothesis test, this variable is normalized. In this study, for normalizing data, Johnson's Transformation function is used, and it is analyzed by software Minitab16. The results of the K-S test, after normalizing the data, are provided in table 3.

Table 3. Descriptive statistics of variables of Research

Variable	Number (N)	Statistics (KS)	Significance level (Sig)
The ratio of changes in retained earnings	606	0.637	0.812

According to table 3, since after normalizing data, significance level (Sig) of statistic Kolmogorov - Smirnov for the dependent variable is greater than 0.05 (0.812), thus the hypothesis at 95% confidence level is confirmed and indicates that the variables of ratio of changes in retained earnings, after normalization process, have normal distribution.

8   THE INVESTIGATION OF CORRELATION VARIABLES

In this section, using Pearson's correlation coefficient, the relationship between variables of research and the correlation between them is examined. Matrix of correlation coefficients between variables is presented in table 4. The ratio of changes in retained earnings also has significant and positive correlation with ratio of dividend and has significant and negative correlation with the investment policy. Growth opportunities have significant and positive correlation with ratio of tangible assets. In connection with the company's size, this variable has negative and significant correlation with the ratio of cash assets. Tangible assets ratio also has significant and negative correlation with investment policy, and the ratio of cash assets and the investment policy also has significant and positive correlation with the ratio of cash assets.

Table 4. The matrix of Pearson correlation coefficients between variables

	The ratio of changes in retained earnings	Growth opportunities	Company size	The ratio of Tangible assets	Investment policy	Dividend	The ratio of cash assets	Rate of Sales growth
The ratio of changes in retained earnings (P-Value)	0 1							
Growth opportunities (P-Value)	0.025 (0.541)	1						
Company size (P-Value)	0.008 (0.852)	-0.005 (0.899)	1					
The ratio of Tangible assets (P-Value)	-0.004 (0.924)	0.090 (0.027)	-0.045 (0.682)	1				
Investment policy (P-Value)	-0.314 (0.000)	-0.063 (0.121)	0.052 (0.197)	-0.132 (0.001)	1			
Dividend (P-Value)	0.249 (0.000)	-0.001 (0.988)	-0.054 (0.186)	-0.053 (0.194)	0.030 (0.463)	1		
The ratio of cash assets (P-Value)	-0.050 (0.216)	-0.069 (0.090)	-0.163 (0.000)	-0.669 (0.000)	0.200 (0.000)	0.075 (0.063)	1	
The ratio of sales growth (P-Value)	0.064 (0.114)	-0.019 (0.641)	0.052 (0.203)	0.002 (0.952)	-0.043 (0.290)	0.004 (0.920)	- 0.026 (0.525)	1

9   RESULTS OF HYPOTHESIS TESTING

9.1   TEST RESULTS OF THE FIRST HYPOTHESIS TEST

In the first hypothesis, the relationship between growth opportunities and the ratio of Changes in retained earnings of companies is studied, and its statistical hypothesis is stated as follows:

H_0: There is no significant relationship between growth opportunities and the ratio of Changes in retained earnings of companies.

H_1: There is a significant relationship between growth opportunities and the ratio of Changes in retained earnings of companies.

This hypothesis using the model (1) as the panel data is estimated, and if the coefficient β_1 is significant at a confidence level of 95%, it will be confirmed.

$$GRE_{i,t} = \beta_0 + \beta_1 M/B_{i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \qquad (1)$$

The results of the Chow test (to determine the use of panel data or hybrid data method) and Hausman (to determine the use of fixed or random effects in the method of panel data) for model (1), are presented in Table 5.

Table 5. The results of Chow and Hausman results for model (1)

Test	Number	Statistics	Degrees of freedom	Statistics value	P-Value
Chow	606	F	(100.499)	1.6054	0.0087
Hausman	606	χ^2	6	6.4038	0.0495

According to the results of the Chow test and P-Value, panel data methods can be used, and also according to the results of Hausman test and P-Value, it is necessary to estimate the model using fixed effects. In investigation of assumptions of the classical regression, the results of Jarque-Bera indicate that, the remaining of the research model at 95% confidence level have normal distribution, and Breusch-Pagan test results based on this issue that model has problem of non-homogeneity of variance. In this study, to solve this problem, generalized least squares estimation (GLS) is used. Statistic of Durbin-Watson also indicates that the residuals are independent (because Durbin-Watson Statistics is between 1.5 - 2.5). In addition, Ramsey test results indicate that the model does not have clear error. Summary results of these tests are presented in Table 6.

Table 6. the results of the first hypothesis test using fixed-effects method

Jarque-Bera statistic		Breusch-Pagan test		Durbin Watson statistic	Ramsey test	
χ^2	**P-Value**	**F**	**P-Value**	**D**	**F**	**P-Value**
3.3482	0.1874	6.4049	0.0000	2.18	23.9161	0.1132

According to the results of Chow and Hausman tests, and also the results of test the assumptions of the classical regression, model (1) using panel data and as fixed effects be estimated. The results are presented in Table 7.

Table 7. The results of the first hypothesis test using fixed-effects method

The dependent variable ratio of Changes in retained earnings (Number of views: 606 years – now)				
Variable	Coefficient	Statistics (t)	P-Value	Relation
Fixed component	-0.0298	-1.1400	0.2548	Meaningless
Growth opportunities	-1.0006	-1.4349	0.0038	Negative
The ratio of Tangible assets	-0.0123	-0.4360	0.6630	Meaningless
Investment policy	-0.5377	-4.4987	0.0000	Negative
Dividend	0.0469	10.2654	0.0000	Positive
The ratio of the cash assets	0.0355	1.1074	0.2686	Meaningless
Rate of sales growth	0.0023	1.0319	0.3026	Meaningless
The determination coefficient of model				0.2870
Statistics F (P-Value)				1.8955 (0.0000)

The model is estimated using Eviews 7 software as follows:

$$GRE_{i,t} = -0.0298 - 1.0006M/B_{i,t} - 0.0123Tang_{i,t} - 0.5377Inv_{i,t} + 0.0469DivPayer_{i,t} + 0.0355CashHolding_{i,t}$$
$$+0.0023SG_{i,t} + \varepsilon_{i,t}$$

In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 28.70 percent of ratio of Changes in retained earnings is explained by the variables entered in the model. In investigation of being significant of coefficients given the results presented in Table 7, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0038), therefore, it is confirmed that there is significant relationship between Growth opportunities and ratio of Changes in retained earnings at the 95 percent confidence level. A negative coefficient for this variable (-1.0006), indicating that there is an inverse relationship between Growth opportunities and ratio of Changes in retained earnings.

10   THE RESULTS OF SECOND HYPOTHESIS TEST

The purpose of the second hypothesis is to examine asymmetric relationship between cash flows due to company size and the ratio of changes in retained earnings of the companies, and its statistical hypothesis is stated as follows:

H$_0$: There is no significant relationship between firm size and the ratio of changes in retained earnings of the companies.

H$_1$: There is a significant relationship between company size and the ratio of changes in retained earnings of the companies.

This hypothesis using the model (2) as the panel data is estimated, and if the coefficient β_3 is significant at a confidence level of 95%, it will be confirmed.

$$GRE_{i,t} = \beta_0 + \beta_3 LnSize_{i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \quad (2)$$

The results of the Chow test (to determine the use of panel data or hybrid data method) and Hausman (to determine the use of fixed or random effects in the method of panel data) for model (2), are presented in Table8.

Table 8.   The results of Chow and Hausman test for the model (2)

Test	Number	Statistics	Degrees of freedom	Statistics value	P-Value
Chow	606	F	1.6749	(100.499)	0.0016
Hausman	606	χ^2	6.8950	6	0.0199

According to the results of the Chow test and P-Value, panel data methods can be used, and also according to the results of Hausman test and P-Value, it is necessary to estimate the model using fixed effects. In investigation of assumptions of the classical regression, the results of Jarque-Bera indicate that, the remaining of the research model at 95% confidence level have normal distribution, and Breusch-Pagan test results based on this issue that model has problem of non-homogeneity of variance. In this study, to solve this problem, generalized least squares estimation (GLS) is used. Statistic of Durbin-Watson also indicates that the residuals are independent (because Durbin-Watson Statistics is between1.5 - 2.5). In addition, Ramsey test results indicate that the model does not have clear error. Summary results of these tests are presented in Table 9.

Table 9.   The results of test related to the statistical assumptions of the model (2)

Jarque-Bera statistic		Breusch-Pagan test		Durbin Watson statistic	Ramsey test	
χ^2	P-Value	F	P-Value	D	F	P-Value
3.1077	0.2114	5.8643	0.0000	2.01	22.4094	0.1612

According to the results of Chow and Hausman tests, and also the results of test the assumptions of the classical regression, model (2) using panel data and as fixed effects be estimated. The results are presented in Table 10.

Table 10. The results of the first hypothesis test using fixed-effects method

The dependent variable ratio of Changes in retained earnings (Number of views: 606 years – now)				
Variable	Coefficient	Statistics (t)	P-Value	Relation
Fixed component	-0.3730	-2.9809	0.0030	Negative
firm size	1.1995	2.8131	0.0051	Positive
The ratio of Tangible assets	-0.0132	-0.4643	0.6426	Meaningless
Investment policy	-0.5200	-4.3414	0.0000	Negative
Dividend	0.479	10.6815	0.0000	Positive
The ratio of the cash assets	0.5844	0.5473	0.5844	Meaningless
Rate of sales growth	0.0020	0.8856	0.3762	Meaningless
The determination coefficient of model				0.2964
Statistics F (P-Value)				9 (0.0000)

The model is estimated using Eviews 7 software as follows:

$$GRE_{i,t} = -0.3730 + 1.1995 LnSize_{i,t} - 0.0132 Tang_{i,t} - 0.5200 Inv_{i,t} + 0.0479 DivPayer_{i,t} + 0.0178 CashHolding_{i,t}$$
$$+ 0.0020 SG_{i,t} + \varepsilon_{i,t}$$

In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 29.64 percent of ratio of Changes in retained earnings is explained by the variables entered in the model. In investigation of being significant of coefficients given the results presented in Table 10, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0051), therefore, it is confirmed that there is significant relationship between company size and ratio of Changes in retained earnings at the 95 percent confidence level. A positive coefficient for this variable (1.1995), indicating that there is a direct relationship between company size and ratio of Changes in retained earnings.

11 CONCLUSION

In this study, we have examined the relationship between various measures of company growth and sustainability of the capital structure of listed companies in Tehran Stock Exchange with a total of 101 samples in 2006 to 2011. To gather information, the library method, and also for extracting statistical information, the audited financial statements of listed companies in Tehran Stock Exchange are used, and for analysis, panel data method is used. Using the first hypothesis can be concluded that there is a direct relationship between company's growth opportunities and the ratio of changes in debt. The result of the first hypothesis is in accordance with the significant relationship between the independent variable and dependent of research of Alti (2006), but in terms of the type of relationship (direct or inverse), it is related to the results of Cheng et al (2009) and it is inconsistent with the research of Graham and Harvey (2001). In relation to confirmation of the first hypothesis, it can be concluded that there is significant and inverse relationship between growth opportunities for the company and the ratio of changes in retained earnings of companies. In relation to confirmation of the second hypothesis, it can be concluded that there is significant and direct relationship between company size and the ratio of changes in retained earnings of companies. The results of second hypothesis of our study in terms of relationship are consistent with the results of some studies such as Liu (2009) and pastor and veronesi (2003), and it is inconsistent with the results of other research such as: Kachik and colleagues (1990).

REFERENCES

[1]   Alti. A. "How persistent is the impact of market timing on capital structure?",2006.

[2]   Altman. I E. (1993). Corporate Financial Distress and Bankruptcy: A Complete Guide to Predicting and avoiding Distress and Profiting from Bankruptcy', John Wiley and Sons Limited, New York.1993.

[3]   Baker. M. And Wurgler. J. Market timing and capital structure. Journal of Finance57, PP.1–32.2002.

[4]   Chang .X. And Dasgupta. S. "Target behavior and financing: how conclusive is the evidence?" Journal of Finance 64, PP.1767–1796.2009.

[5]   Cooney. J. and Kalay. A." Positive information from equity issue announcements". Journal of Financial Economics 33, PP.149–172.1993.

[6]   Gilchrist. S. Charles. P. and Himmelberg. "Evidence on the role of cash flow for investment", Journal of Monetary Economics, Elsevier, vol. 36(3), PP. 541-572, 1995.

[7]   Graham .J. and Harvey .C. " the theory and practice of corporate finance: evidence from the field". Journal of Financial Economics 60, PP187–243.

[8]   Kim .J B. Chung. R. and Firth. M. (2003). "Auditor conservatism, asymmetric monitoring and earnings management". Contemporary Accounting Research. 20(2).PP. 323-359.2003.

[9]   Kimiagari. A M, And Eynali. S. " A comprehensive model of capital structure (firms listed in Tehran Stock Exchange)," Financial Research, No. 25, PP.108 -91.2012.

[10] Korajczyk .R. Lucas. D. and McDonald .R. "Understanding stock price behavior around the time of equity issues. In: Hubbard", R.G. (Ed.), Asymmetric Information, Corporate Finance, and Investment. University of Chicago Press, Chicago.1990.

[11] Kordestani . GH .and Najafi Omran .m. " theinvestigation of the determinants of capital structure: An empirical test of ISNA equilibrium theory versus hierarchical theory", Journal of Financial Research, Volume 10, Number 25, PP.90-73.2008

[12] Naz . I. Bhatti. KH. and Hussain Khan. G. " Impact of Firm Size and Capital Structure on Earnings Management: Evidence from Pakistan" . International Journal of Contemporary Business Studies: 2(12): PP.22-31.2011.

[13] Pastor. L.. and Veronesi . P. Stock valuation and learning about profitability. Journal of Finance 58, 1749–1790.2003.

[14] Rajan. Raghuram G. and Zingales. Luigi. " What Do We Know about Capital Structure? Some Evidence from International Data," Journal of Finance, American Finance Association. 50(5), pages 1421-1460.1995.

[15] Stein. J." Rational capital budgeting in an irrational world". Journal of Business69, PP.429–455.1996.

[16] Thirumalaisamy. R. "Firm Growth and Retained Earnings Behavior – A Study on Indian Firms". European Journal of Business and Management: 5(27): 40-58.2013.

[17] Wu. X. and Wang. Z. " Equity financing in a Myers –Majluf framework with private benefits of control" . Journal of Corporate Finance 11, 915–945.2005.

[18] Wu. X. Wang. Z. and Yao. J. Understanding the positive announcement effects of private equity placements: new insights from Hong Kong data. Review of Finance 9,PP.385–414.2005.

Relevance and effectiveness of financial markets on quality of economic growth and mature in Iran

Naim Esmaily[1], Sanaa Kaaregar[1], and Mojtaba Totonchi Sotobadi[2]

[1]Faculty of Economics and Management,
Urmia University,
Urmia, Iran

[2]Department of management,
Tabriz University,
Tabriz, Iran

ABSTRACT: One of the most important and determinant factors in economic growth and glory is capital account and investment inside of economy and in its pursuant, there is the financial markets and its importance impress in economy efficiency and effectiveness. In sight of economists, capital account and investment are acting the main role inside economy, so attention and investigating to this importance could be very big step on growth and glory of economy. The financial market`s affects are appreciated in a time that, the capitals need to be managed and conducted, and in its pursuant they need to have economic efficiency. In permanent economic growth and economic development, we are dealing with several principles in the areas of financial markets that playing an important role in economic development by financial markets and being financial markets served up in industry, are known as the most important principles. By these describes, the financial market as itself is detected as the most influential factor in economy`s mature. The purpose of this essay is that, after providing useful information in plain language to the readers about financial markets, assess the relevance and impact of financial markets on how to grow and mature in economy

KEYWORDS: Economy, Capital account, Investment, Financial markets, Growth

1   INTRODUCTION

A market is a place which brings together the consumers and supplier of merchandises and facilitates their interaction with each other. Financial markets are places in which individuals and legal persons, by paying a very small cost, can transact securities, exchangeable commodities, and in short any products for which the prices are determined by the 'supply and demand.' Here, by securities, stokes, bonds, and valuable metals, or agricultural products is meant.

Extending the definition of market, it can be inferred that markets are places where people needing capital are easily introduced to the people willing to invest it. It goes without saying that in financial markets the lender of the capital receives a receipt, called a security guarantee, from the receiver of the money to guarantee refund which is also salable. In addition to the money he/she pays, the provider of the loan expects a reward in return of his/her investment which is called interest.

In Iran, financial markets are divided into two branches, namely the capital market and the currency market. The currency market itself is also divided into two branches of primary and secondary markets. The primary market is where the capital is made and the shares are distributed and transacted for the first time. However, the secondary market is where the securities which have already been transacted in the first market are circulated.

Currency markets are made up of currency organizations which in the developing countries are mainly represented by banks. Banks and other currency organizations are the main operators of the financial system and it can be said that money depositors lend their money to the public and private institutes through such organizations; this type of investment is referred to as indirect investment. With a brief look, it can be easily discerned that our country is one of the countries belonging to this model of economy and the financial system of Iran is a bank-based one. In Iran, a number of studies have attempted to uncover the relationship between development of currency markets with the economic growth.''[4]''[5]'' These studies have not been able to confirm the existence of a clear relationship between the progress of currency markets and economic growth. Also, unfortunately, the research into the negative effects of financial indexes on economy, which its main causes are lack of supervision and specialty, has been ineloquent.

2 THE EFFECT OF FINANCIAL SECTOR ON ECONOMIC GROWTH AND THE RELATIONSHIP BETWEEN THEM

2.1 THE COMPARISON OF THE GROWTH RATE OF IRANIAN FINANCIAL SECTORS WITH THAT OF OTHER PARTS OF THE WORLD

In the economical literature, the physical hoarding of currency is known as one of the important factors to reach production, growth, and development.

Table 1 – the comparison of economic growth of Iran with other parts of the world

Year/Regions	1960	1970	1980	1990	2000
Iran	3.8	3.3	2.4	2.4	3
Turkey	2.3	2.1	2	2.5	2.8
Africa	2.3	2.5	2.3	1.5	1.5
Latin Americas	2.4	2.9	3	3.4	3.5
South Asia	1.6	1.7	2.4	2.7	2.9
East Asia	1.8	2.9	4.1	5.7	5.8
Industrial Countries	3.9	4.6	5.1	5.9	6

As can be seen from the statistics released by the International Monetary Fund (**Table 1**), up to 2000, we had not had a satisfactory financial and/or economic growth. According to the most recent statistics from the same organizations we still do not have an acceptable financial growth rate which, of course, is mainly due to the sanctions put against our country and some other problems. ''[1]''[5]''

2.2 THE COMPARISON OF THE DEVELOPMENT OF FINANCIAL MARKETS OF IRAN WITH OTHER MENA (MIDDLE EAST AND NORTH AFRICA) COUNTRIES

Considering the fact that the income from oil is one of the most important economic characteristics of Mena countries, comparing the economic condition of Iran with other countries in the same category will lead us toward a more accurate understanding of its economy ''[1]''[5]''

Table 2 – the comparison of the conditions of financial markets and economic growth of Mena countries

low	Average	high
Mauritania	Al Jazeera	Bahrain
Libya	Egypt	Jordan
Sudan	Djibouti	Kuwait
Syria	Iran	Lebanon
Yemen	Pakistan	Qatar
		Arabia
		Emirates

2.3   IN ORDER TO SHOW THE DATA TABULATED ABOVE MORE CLEARLY THEY HAVE BEEN PUT INTO DIAGRAMS HERE
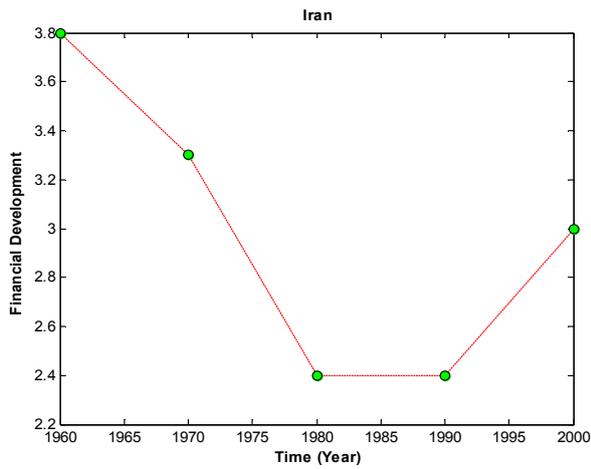

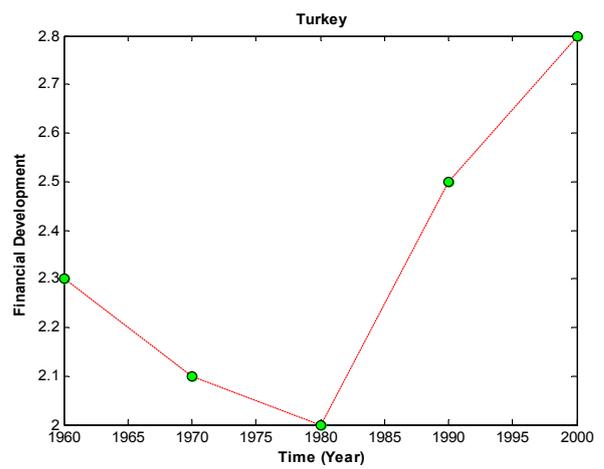*Fig.1 – Financial development of Iran*

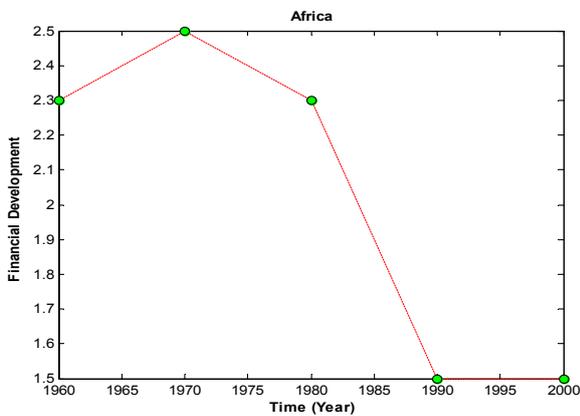*Fig.2 – Financial development of Turkey*

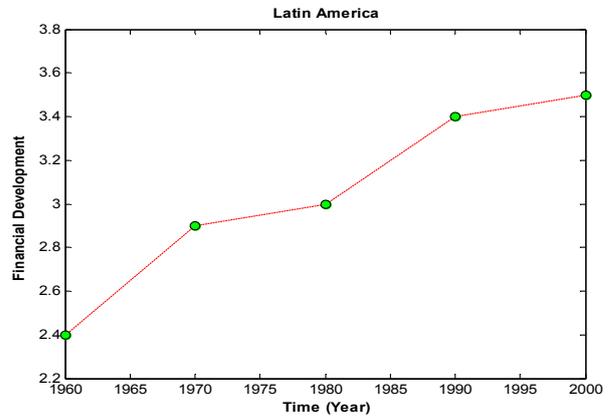*Fig.3 - Financial development of Africa*

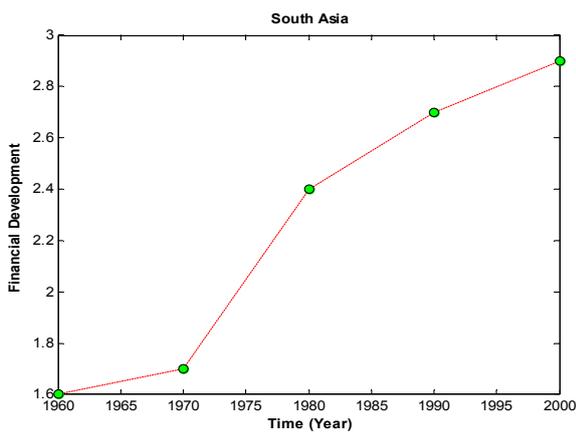*Fig.4 - Financial development of Latin Americas*
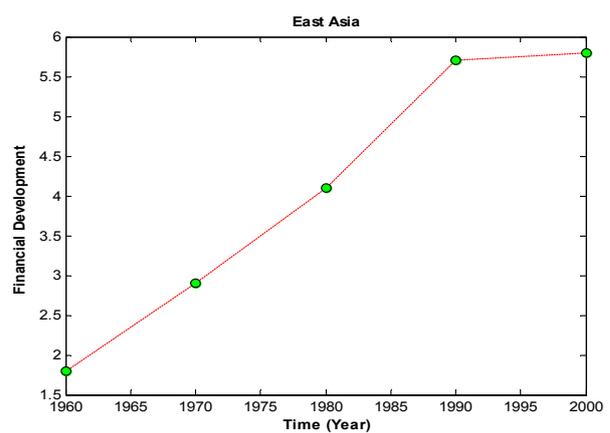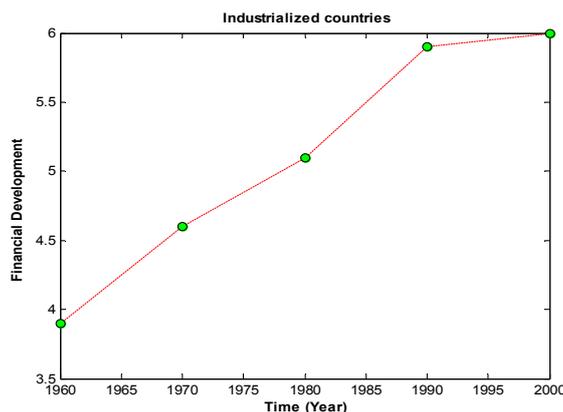

Fig.5 – Financial development of South Asia

Fig.6 – Financial development of East Asia

Fig.7 – Financial development of industrial countries

The results from these tables show that Iran does not have a favorable condition with regard to its financial markets and economic growth and, by looking at the diagrams above (**Fig.1** to **Fig.7**), it can be easily inferred that in order to fulfill the goals brought in the National Perspective document we must have a correct and proper planning. ''[8]''

3   THE FUNCTIONS OF FINANCIAL MARKETS

The functions of financial markets are as follows:

- The transfer of the extra money from the families interested in investment toward people or organizations who require the money (actually, based on the definition of the market the relationship between these entities is made easier through the market).
- Equipment of saving

Now, this question rises that while our country has the highest amount of deposited money among the Middle Eastern countries, why should its economic growth be among the lowest ranks compared to other countries mentioned above?

- Proper identification of the capital and helping the process of price discovery

The price of currency and capital is determined in the market. By determining the price, the financial market helps the financial establishments in making decisions about investment and planning and makes it possible for them to compare the price of the capital with their profit expectation. This way, the establishments can allocate their capital to the investments for which there is higher or equal return rates. Also, by determining the price of the capital in the currency market, the comparison of the choices of long- and short-term investments becomes feasible. However, the process of identifications of the right prices is only possible when there is a state of competition in the market. Only under such circumstances the supply and demand of money will determine the price appropriately. Provided that the prices are determined in this way, they can provide the best guide for the providers of the capital (i.e. the money depositors) and the investors, or the borrowers, of the money. Under such circumstances, the making of decisions will be much easier for the both parties of depositor and investors and the money resources will be allocated in the best way possible. ''[6]''

- Increase in cashablity and decrease in the amount of risk
- The creation of a situation in which it is possible to control the amount of risk

4   THE RELATIONSHIP BETWEEN FINANCIAL MARKET AND ECONOMIC GROWTH

By creating a tunnel between the two groups of money depositors and entrepreneurs, equipment of small and large savings, and through the already mentioned procedures, the financial market can provide an appropriate atmosphere for promising financial activities. In an economy in which the financial market operates satisfactorily, on one hand, the amount of investment increases, and on the other hand, the vigor and quality of investment amplifies. The increase in the availability to financial organizations and establishments decreases the costs of transactions and simplifies the process through which information are obtained. The sum of the effects of all these factors will eventually lead to economic growth. ''[4]''[2]''

5   THE FUNDAMENTAL OBSTACLES ON THE WAY OF FINANCIAL MARKETS AND ECONOMIC GROWTH IN IRAN

Our dear country, Iran, has the highest amount of capital among the competing financial markets. However, the rate of economic growth is not satisfactory. There are a number of reasons which prevent our country form growing economically. The three most important ones of these obstacles will be discussed here. First, we do not have a proper system for the circulation of capital among the generators of the capital, entrepreneurs, and in short, the sectors that can cause economic growth ''[3]''

It goes without saying that one other reason that has been hindering the growth of economy in recent years is unreasonable interferences in the capital markets such as the stoke market. The codification of rules and regulations in order to prevent these types of interferences has been given priority by the 'Contrivance and Hope' government and some bills have been passed in this regard by the parliament. Through such efforts, some of the obstacles in this area have been removed ''[9]''

Third, in the last several years we have had a rather closed economy and in areas such as importing and exporting our country has not had sufficient international vitality due to political problems such as the sanctions and lack of functional planning. Here, it should be noted that importing and exporting are of the most vital indexes of economic growth. These problems have engendered several obstacles on the way of our economic growth. Under such state of affairs and with a closed economy, the national manufacturers decrease the amount of their production because of the difficulties associated with exporting their products. Similarly, because of the impediments on the way of importing, the provision of necessary raw materials for the production faces problems. In the long run, these problems can take away the possibility of growth form our economy.

Of course, there are several other factor factors which deserve consideration. The author, however, has just mentioned three of the factors because of their utmost importance.

6   CONCLUSION

According to what has been said thus far, we have a number of obstacles on the way of our economic growth due to the following reasons:

1. There are shortcomings in both distribution of capitals and identification of the factors which can bring about economic growth.

2. There is lack of proper planning in the areas such as management of the loans distributed by the banks.

The question here is that why in spite of the existence of huge amounts of money deposits in the banks of the country, which are the most important capital markets of Iran, there is not a proper and functional supervision over their functioning (either in the allocation of the capital or in the supervision of the distributed loans)?

3. The economy is closed because of sanctions and political problems (Of course, based on the economic principles, there cannot be a completely closed economy; here by closed economy the existence of numerous obstacles in the area of international transactions is meant).

4. There is a lack of consistent laws that can prevent unreasonable interferences in the financial markets such as the stoke market.

7   SUGGESTIONS

A) Considering the negative effects of indexes of financial development on economic growth whose main culprits are lack of specialty and proper supervision of the way loans are distributed by the banks, it is recommended that banks employ specialized workforces and use them in the related areas such as directing the expenditure of loan money in manufacturing.

B) Since the openness of economy, both in short- and long-term, affects the economic growth positively, the removal of the obstacles of transactions including the importing and exporting and increasing the amount of international economic transactions and alleviating other economic problems can help us reach a higher economic growth rate.

C) Strong legislation in order to create a healthy financial market to prevent unwarranted and non-normative interference from outside.

REFERENCES

[1]   Asari A, Naseri A and Aghayi M. Financial Development and Economic Growth: Comparing OPEC and Non-OIL Developing Countries with using Generalized Method of Moments (GMM). Journal of Economic Research, no. 82, pp. 141-161.

[2]   Beck T and Levine R and Loayza N 2000. Finance and the Sources of Growth: journal of finance economics, 58. Pp. 261-300.

[3]   Komijani A. (2008). Development of financial institutions in Iran, 19th Annual Islamic Banking Seminar, Iran Banking Institute, Tehran.

[4]   Akbarian R and Nejati M. (2006). Examine the relationship between financial market development and economic growth with a collective effort approach, 16th Conference on Monetary and Foreign Exchange Policy, Monetary and Banking Research Institute, Central Bank of the Islamic Republic of Iran, Tehran.

[5]   Nili M. Financial Development and Economic Growth: Comparing East Asia and oil-exporting countries. Journal of Planning and Development, 3rd year, no. 3and4, pp. 4-20.

[6]   Trablesi M (1998). Finance and Growth: Empirical Evidence from Developing Countries 1960-1996 Forum Working paper 0228, Economic Research.

[7]   Anonymous 1998 Unctad, Foreign Portfolio Investment, Implications for the Growth of Emerging Market.

[8]   Anonymous, Vice-Presidency for Strategic Planning and Supervision, Statistical Center of Iran.

[9]   Anonymous (2013). SENA, securities and exchange news agency

[10] Teall, John L. Financial market analytics. Greenwood Publishing Group, 1999.

[11] Hasan, Iftekhar; Hunter, William C. (2004). Bank and financial market efficiency. Emerald Group.

[12] Mishkin, Frederic (1998). The economics of money, banking, and financial markets. Addison Wesley.

[13] Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. J. Econ. Lit, no. 35, pp. 688-726.

Considering the relationship between internet services and using internet banking in Branches of Sepah bank in Guilan province

Roozbeh Haghighi[1] and Rahaman Chek[2]

[1]Assistant professor of payam-e-noor university, Iran

[2]MA student of Business management at Islamic Azad University, Iran

ABSTRACT: This research is considering the relationship between internet service quality and using internet banking in branches of Sepah bank in Guilanprovince. Statisticalsociety of this research is customers of branches of Sepah bank in Guilan province that is unlimited. Statistical sample of this research was 384 people regarding Morgan table and unlimited society and sampling method of the research was simple random. Current research based on goal is applied and regarding method of data collection it is descriptive and correlation type. For determining validity of research variable content method and for reliability cronbach alpha correlation has been used. For data analysis firstly by using kolmogrov-smirnov test normality of data were considered. For testing hypothesis Pearson correlation has been used. The result of research showed that there is relationship between internet service quality and using internet banking. Also there is relationship between accessibility, certainty of implementation, responsibility, attraction of website with using internet banking.

KEYWORDS: accessibility, certainty of implementation, security, responsibility, website attraction, using internet banking.

1 INTRODUCTION

Internet banking is one important activities at global electronic trade that is rapidly increasing (Ariff& Yun, 2012). Nowadays internet service is increasing rapidly (Ranganathan, 2013). Effective supply of electronic service quality (e-SQ) is a necessary work at competitiveness of internet banking services (Ariff&yun, 2012). Based on e-mail statistical report in 2010-2014, number of internet exchanges in 2010 has reach from 2.9 billion to 3.8 billion to 2014 (Radicati, 2010). Companies for increasing their customer loyalty have tended toward internet services (Ranganathan et al, 2013). Nowadays regarding challenges ruling on business atmosphere, organizations are not going to attract new customers, but have done strategies of keeping current customers and enhancing their loyalty to organization, so satisfaction of customers weren't sufficient and marketers should pay special attention to this point (Osman, et ,al, 2009). In this direction pioneering organization in customer-orientation axis, have taken plans for enhancing customers loyalty. Loyalty is resulted from belief of service quality, psychological decision(behavioral intentions) and positive and favorable attitude and as repeat of buying behavior and consistence at buying behavior in organizations usually due to reasons such as low number of customers, more continue of customers use of services by them, high importance of keeping and strengthening long term relation of organization with customers, closer and deeper relations withcustomers and professional customers caused paying attention to effective factors on customer loyalty get significant importance (Jayawardhen, et al, 2007).

One factor that increase satisfaction and reliance and customer satisfaction os electronic service quality. Many studies have considered the relationship between customer satisfaction and reliance on customers loyalty (Kaur&Scoch, 2013). Presenting proper services based on identification of needs, interests, facilities and customer's expectation is not possible. Nowadays just satisfying customers is not sufficient and companies shouldn't be accept only this subject but the should be certain that their satisfied customers are also loyal (Kotler& Armstrong, 2008). Nowadays the importance of service section at global economy is increasing rapidly. Development of service quality has been a key strategy for increasing customer

satisfaction and loyalty (Lee et al, 2011) Electronic service quality is one important factor in service market (Yusoff et al, 2010). Electronic service quality in Ribbing research in 2004 is consist of 5 dimensions of aesthetic of interne database. Certainty, easiness of application, ordering and on-time accountability. Dimensions of electronic service quality in this research based on research of Arif and Yuan (2012) has been consist of 5 dimensions of accessibility, certainty of implementation, security, accountability, website attraction (Ariff& Yun, 2012).

Sepah bank in Guilan province believes that customer is main capital and preserving personality and enhancing customer satisfaction affects durability of organizations. Observing justice, relationship between customer and bank, using new banking services, responsibility and saving secrets is counted as important duty of organizations (2013, Ansari) and attempt for enhancing speed, accuracy, precision and service quality provides satisfaction of organization's customers, therefore meeting customer need in a calm environment with openness based on the latest daily technology was considered by organization and by using strategies and principles of client-orientation, will promises better future. In recent decade studies has developed about customer behavior (Sedaghat, 2013).

This research has been done in branches of Sepah bank in Guilan province. This research has high importance in this case that by identification of dimensions of electronic service quality internet customers' satisfaction increases on the other side the result of this research can used by banks and companies and institutes that deal with electronic services and electronic services is one important subject for attracting customers and keeping them. Since Sepah bank is moving toward services electronically and also it should attract satisfaction and reliance of its customers like past and causes continuity and loyalty of customers (that nowadays are internet customers). Therefore they should enhance their electronic service quality to precede other banks and their competitors that have taken steps in this relation.

Therefore researcher is going to answer this question that if there is relationship between electronic service quality and using electronic banking?

2   RESEARCH THEORETICAL FRAMEWORK

Electronic banking means we can take services and bank products to its beneficiaries through channel of proper and secure electronic distribution such as ATM, telephone (fixed and mobile), internet and any electronic distribution channel to consumer (bank customers/ buyers/sellers) and facilitate giving services to bank customers and decrease their physical presence as finally satisfy customers and acted about increasing profitability through reduction of costs (Delavar, 2010).

2.1   ELECTRONIC SERVICE QUALITY

Simultaneous to increasing customer awareness of delivering services by banks and financial service institutes, enhancing service standards caused increase of customers' expectation. This problem especially the on-line world that accessing information is possible simply and at the least time is observed more. Customers have increasingly show sensitivity to receiving service quality as motivating them to continuity of relationship with organization and awareness of effective factors on service quality that leads to satisfaction and reliance and loyalty has high importance (Niliahmadabadi, 2003). Electronic quality in this research has been consistent of 5 dimensions of certainty, accessibility, and attraction of database, responsibility and security.

2.2   DEFINITION OF CERTAINTY

Since electronic trade at internet environment is formed as an open network certainty is an important factor in this field although technological achievement such as digital signs, graphology that al were presented with the aim of increasing security of transaction at internet environment. Users don't feel security while doing financial transactions (Ranganathan&granaoaty, 2002).

2.3   ACCESSIBILTY

Satiyeh (1999) knows two factors of "risk" and "difficulty" as main barrier of applying internet banking. As customers know internet banking services difficult it will not have value for them (Galbarith, 1998).

2.4   ATTRACTION OF INTERNET DATABASE

Ribnik et al(2004) know beauty of internet database as way of displaying information, coloring, and configuration. Proper designing of internet data base increases capability of application of application of database and involves units success (Ribbinik et al, 2004). Rangatan and Ganapati (2002) states that designinginternet data base affects creating internet in customers for using and continuity of applying on-line services(Rngannathan and granapaty 2002).

Ribing et al(2004) know on-time responsibility as one basis of electronic quality and claim that on-line customers like traditional customers expect receiving rapid feedback from service presenters about their suggestions for improving services. They also expect in case of occurrence of problem while online interaction with organization of related experts try to solve this problem accurately and with sufficient sympathy (Ribbinik et al, 2004).

2.5   SECURITY

The meaning of security is saving data against unhallowedand criminal people at the process of e-trade process. Internet is totally open network and up to the time that necessary strategies are not predicted for lack of accessing of unauthorized people for getting information and interference in them, it can be manipulated (Velayati, 2011).

Regarding above subjects, research model has been considering the relationship between internet service quality and using internet banking in branches of Sepah bank in Guilan province. Independent variable has been research internet service and dependent variable is using intent banking. Research model was as below:
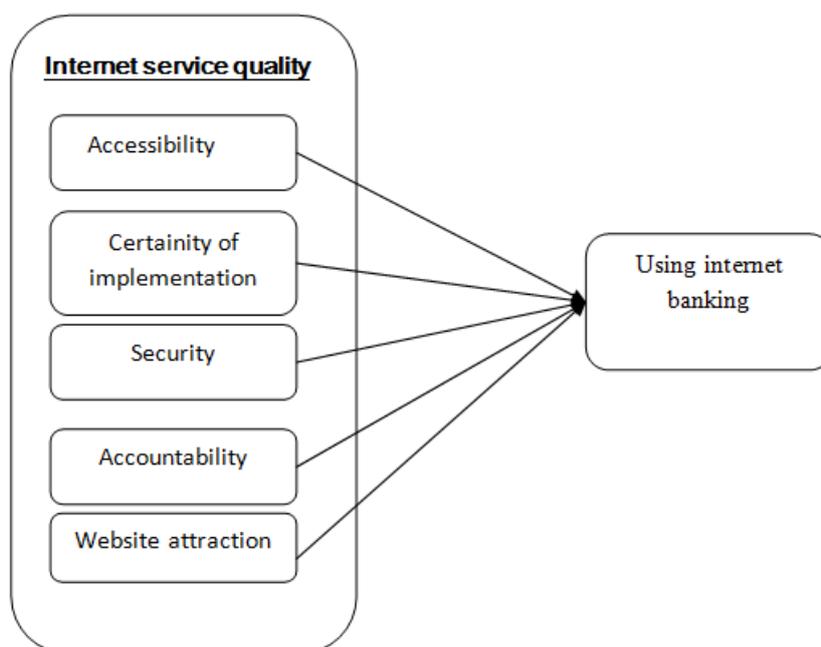

Figure 1: research analytic model

3   RESEARCH HYPOTHESIS

Based on theoretical framework of research and relations that have been shown in research analytic model, main and subordinate hypothesis have been written as below:

Main hypothesis

There is relationship between internet service banking and using internet banking.

Subordinate hypothesis

1- There is relationship between accessibility and using internet banking.
2- There is relationship between certainty of implementation and using internet banking.
3- There is relationship between security and using internet banking.
4- There is relationship between accountability and using internet banking.
5- There is relationship between website attraction and using internet banking.

Current research is applied based on goal and regarding method of data collection it is descriptive and correlation type. Statistical society of this research is customers of Sepah bank in Guilan province that its number is unlimited. Statistical sample of this research has been determined 384 people through Morgan table and regarding unlimited society. Method of sampling is random simple.

Tools of data collection in this research includes 25 questions and taken from Ansari research (2012) and pakghalb(2012). Validity of questionnaire in this research was confirmed through surface or content validity by experts and professors related to the subject. Also since cronbach correlation coefficient for all variables is higher than 0.7, reliability of questionnaire was confirmed. For data analysis two methods of descriptive and inferential (correlation coefficient) has been used by SPSS software.

4   RESEARCH FINDINGS

4.1   DESCRIPTIVE STATISTICS

Regarding analysis of collected data it is observed that gender of 72.7 percent of respondent is male and 20.3 percent are female. 31 percent of respondent have diploma, 28.9 percent have post-secondary, 31.2 percent have bachelor, 8.1 percent have M.A and 0.8 percent have Ph.D. Regarding record of using internet service 24.2 percent of respondent are 1-2 years, 32.6 percent are 3-4 years, 19 percent are 5-6 years and 24.2 percent are higher than 6 years.

4.2   TESTING RESEARCH HYPOTHESIS

Regarding the result of Kolmogrov-smornov test, distribution of all variables of research are normal, for testing main hypothesis and subordinate hypothesis of the research pearson correlation method has been used.

Table 1: result of pearson correlation

Result	Coefficient	Sig	Number	Variables
Approved	0/339	0/000	384	اينترنتی Internet service quality and using banking
Approved	0/177	0/000	384	Accessibility and using banking
Approved	0/206	0/000	384	Certainty of implementation and using banking
Approved	0/481	0/000	384	Security and using banking
Approved	0/691	0/000	384	Accountability and using banking
Approved	0/148	0/004	384	Website attraction and using banking

5   SUGGESTION AND CONCLUSION

- Encouraging customers of Sepah bank for using electronic and internet services and many advantages that these type of services will have for customers
- Creating comprehensive database about customers based on identity of customers-not account number-for fallowing record of their online transaction
- Aesthetic of website of Keshavarzi bank and easiness of using items inside website as users don't be dissatisfied and don't feel tiredness during working with website
- Ordering and presenting information about different services based on records of interaction with customers with internet bank database
- Writing process of scoring to internet customers based on the degree or value of transactions that is done through internet bank services
- Granting cash discount or especial scores to customers that achieve scores more than determined limit at distinct time

- Determining proper basis of sectioning of internet customers as could apply its own strategies based on the result of priorities and varied needs of each group over time for each one
- Constant evaluation of internet customers with bank for increasing capability of predicting their future needs and supplying customers' demands at proper time
- Providing the possibility of creating personal pages for internet customers for creating sense of belonging in them

REFERENCES

[1] Ansari, Manouchehr(2013), considering effective factors on service quality management based on perception of staff of Tejarat bank in Fars province", M.A thesis, institute of higher banking, 22

[2] Delavar, Yousef(2010), marketing internet banking, marketing journal, 14 p 23-31

[3] Niliahmadabadi, Majid (2003), identification and ranking effective factors on loyalty of customers of Refah bank by techniques of multidimension decision making, M.A theis, Tarbiatmodarres university

[4] Velayati, Rezvan (2011), considering effective factor on loyalty of internet customers of banks, M.A thesis, Tehran university, p 34-45

[5] Kotler, P. and Armstrong, G. (2008), "Principles of Marketing", Prentice Hall, USA.

[6] Ranganathan, C., and Ganapathy, S. (2002), "Key dimensions of business-to-consumer websites", Information and Management, Vol.39, No.6, pp. 457-465.

[7] Ribbinik, D., Van Riel, A., Liljander, V., and Strukens, S. (2004), " Comfort your online customer: quality, trust, and loyalty on the internet", Managing Service Quality, Vol. 16, No. 6, pp. 446-456.

Modeling Dynamic Correlation between Crude Oil Price and Stock Price of Petrochemical and Refining companies (Using DCC-MGARCH)

Dr. Reza Tehrani[1], Samaneh Nikookar[1], Amir Khanali Pour[2], and Azar Hamidi[2]

[1]Department of Management,
University Of Tehran,
Tehran, Tehran, Iran

[2]Department Of Ecomonics,
University of Mazandaran,
Tehran, Tehran, Iran

ABSTRACT: The present research is seeking for finding the answer to these questions that is there a negative, significant dynamic conditional correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and West Texas Intermediate crude oil price return? Is there a positive, significant dynamic conditional correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and West Texas Intermediate crude oil price return? The correlation between West Texas Intermediate crude oil price with stock price of the petrochemical companies registered in Stock Exchange including Abadan Petrochemical Co, Arak Petrochemical, Isfahan Petrochemical, Khark Petrochemical, Farabi Petrochemical, Tabriz Oil Refining, Bandar E Abbas Oil refining and Isfahan Oil refining were studied, following the above mentioned questions were replied , through DCC method. According to research results, the petrochemical companies, in general, have negative, significant conditioned correlation with the crude oil price meaning the overflowing of crude oil price over petrochemical companies' stock price. Of the petrochemical companies' stock prices only Isfahan Petrochemical Co stock price was positively correlated with the crude oil global price; however, this positive estimated effect is not statistically significant. Thus, the first hypothesis of the conditioned negative correlation varying over time between stock prices of petrochemical companies registered in the stock exchange and the crude oil global price cannot be rejected.

On the other hand, it is on the contrary to the refining companies registered in Tehran Stock Exchange such that the stock prices of all three refining companies are positively correlated with the crude oil global price. Its significance indicates the correlation variability overtime. It means that correlation is some days positive and some days negative; therefore, the median impact will be positive. However, the stock price of Tabriz refinery with the overflow symbol lacks any significant correlation; whereas, this correlation was positively estimated, too. Finally, according to research findings, research second hypothesis that there is a positive, significant relation between the refineries' stock prices and the crude oil global price cannot be rejected.

KEYWORDS: Conditioned dynamic correlation; conditioned volatility; stock price; petrochemical and refinery companies; crude oil price.

1 INTRODUCTION

Today, many studies have been carried out that studied the spread of fluctuations among financial properties and even financial markets such as spreading the fluctuations within stock markets of different countries, gold in the stock market, interest rate on stock market and spreading even oil market fluctuations into stock market. The scope of spreading fluctuations has been increased through developing communication equipment's and the strong interdependence of the

---

financial markets. Identifying return spreading mechanism and the fluctuations of various properties are significant due to several reasons.

The studies indicate that the data associated to the financial variables will spread over together over time. This issue becomes more important by developing the communication systems and the increasingly interdependence of the financial markets. The returns' spreading mechanism and properties' fluctuation is important due to several reasons including the spreading mechanism gives some data of the market efficiency. Spreading of the assets' returns shows a profitable trading strategy and if the interest of this trading strategy is higher than its operational costs, it potentially gives the evidences of market inefficiency. Second, spreading mechanisms are critical component of the property portfolio as being informed of the returns' spread impact can influence on selecting return portfolio and reducing its risk. And the third one, the data of spreading properties' fluctuations and turbulences can be used in predicting the turbulence [2].

Spreading properties' fluctuations provides us some information of the market efficiency. A property return must not be predicted in an efficient market through using the previous returns of other properties. The existence of spreading among properties' returns may provide the possibility of using a profitable trading strategy and if the interest of this trading strategy is higher that its operational cost; then, it is regarded as the potential cause of inefficiency in the market.

Studying the effect of oil market on Iran's capital market can be considered as the most critical economic issues in Iran. Since, on one hand, stock market is the source of collecting people's savings and establishing a proper foundation for investment; and on the other hand, is the oil price as a good which supply the country's major income. Oil market as a good with a globally determined price has been probably affected by financial-economic crises and experienced strong and weak fluctuations.

On one side, these fluctuations has caused economic activities' volume oscillation which may influence on investment and consequently on the stock market. The effect of crude oil price, on the other hand, on the stock prices of stock companies may be probably different according to the company's type. Crude oil is the raw material of the petrochemical companies and the final product of the refinery companies. Hence, the crude oil price can reversely influence on the aforementioned companies' stock prices. Thus, it is critically important to know the correlation structure between crude oil price and the petrochemical companies' stock prices. Therefore, this research main problem is to study the relation and correlation between petrochemical and refinery companies' stock price registered in Tehran stock exchange with the crude oil global price. So, research hypotheses are presented as follows:

- First hypothesis: there is a negative, significant conditioned dynamic correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and the West Texas Intermediate crude oil price return.
- Second hypothesis: there is a positive, significant conditioned dynamic correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and the West Texas Intermediate crude oil price return.

2 LITERATURE OF CRUDE OIL PRICE IMPACT ON THE STOCK MARKET

Capital market consists of two major sectors including banking sector and the financial market. The capital market itself is classified into two parts of the primary and secondary markets. The issuer of the securities, in the primary market, directly offers its securities for sale. This part of the capital market allows the possibility of transforming savings to investments. The current securities are exchanged in the secondary market. In other word, securities holders in the secondary market are allowed to sell the securities to each other which in turn ensure the funds flow in the primary markets. Supplying enterprises' required sources from securities is much easier than banking sector. However, it is worth mentioning that banking sector and securities market operates as complementary to meet the financial requirements of the enterprises; though, as it was previously mentioned, the major role of directing public savings and scattered capitals toward the desired investment depends on the securities market [3].

However, oil is considered as one of the production elements of any country and the world strategic commodity. As a result, strong fluctuations of oil price which is called oil shock (positive and negative effects) may significantly influence on the economy of developed or developing countries. On the other side, once a high share of GDP and annual budgets, in Iran economy, were attributed to oil incomes; then, Iran's economy was founded based upon a monoproduct economy indicating that oil price and revenues are regarded as an exogenous, simulating factor of prosperity and downturn in Iran such that

uncontrolled fluctuation of this factor cause oscillation of most economic variables. Thus, it is significant to study the effect of crude oil price on Iran's economy as an oil-rich, oil exporter and mono-product country.

Oil in oil-importing countries is considered as one of effective factors on commodity production. Hence, this impact will be manifested in companies' financial statements as the final cost. It is clear that the cost of product increases, the less profit and finally stock price decreases. Chen, Roll and Ross(1986) in a study named 'Economic factors and stock market' viewed oil as an effective factor in the product final cost; whereas, crude oil price changes may influence on the producing countries' foreign currency incomes. It can be expected that higher foreign currency incomes, if it is properly planned and applied, may lead to higher earnings in which industries are highly prospered and the companies' production and sales will increase; then finally, the firm's profitability and stock price will also increase. On the other hand, since oil is known as the major source of GDP of oil-producing countries, it can be also expected to have the same relation of GNP and price index in oil price and price index in oil-producing companies.

Different market participants, investors and financial experts as well as economic planners and policy makers, particularly in oil-exporting countries like Iran, require to study the effect of oil price changes on domestic markets and its interaction with property prices such as stock price in different conditions in policy making; in addition, they ask for a framework that represents how oil price change can affect stock price. Stock value equals to the sum of discounted value of the future cash flows which are influenced by the macroeconomic events and later by the oil stimulus (impulse). Iran is known as an important oil exporting country in which oil revenues are exclusive state possession. These two features can reveal oil market developments in the country's financial and budgetary policies such that once oil price increases, the earned oil currency will be deposited in the foreign currency account. If there is no sufficient demand for the currency at the target price; then, the central is forced to purchase the currency and convert it in to monetary resources (in Rials) for the budget goals. This policy can cause the central bank's foreign assets as well as increasing the country's monetary basis. Moreover, in the case of reduced oil price as the state will not reduce its costs and expenditures, the emerged budget deficit forces the government to borrow from central bank. So, government's net debt to the central bank increases which in turn enhances (strengthens) monetary basis. Therefore, the government fiscal policy in either increasing or decreasing oil price may cause increased monetary volume. When liquidity increases due to reduced monetary purchase, the financial investors are potentially motivated and encouraged to review the assets portfolios to keep the asset's value.

Investment property portfolio contains currency, stock, housing and etc. Increasing liquidity of monetary investors followed by increased inflation can cause discouraging of holding cash; so, more investments are flown toward assets markets. Assets market including stock market is a type of market that quickly changes monetary investments cash in to securities; so, it is highly sensitive and effective. In fact, reduced oil price can cause enterprises' investment plans to be subjected to uncertainty and since firms' profitability is influenced by oil revenues; then, stock price can decrease. On the other hand, if oil price and, as its consequence, the country revenue increases, optimistic expectations of prosperity and increased profitable activities will be created leading into positive growing of stock price index; therefore, it is not surprising that oil price significantly influence on this market through transferring individuals' capitals.

2.1 LITERATURE REVIEW

Giuwanini et al (2004), in a study, tested how stock market returns fluctuations are correlated with oil market. They answered this question that how much the current and future oil indices are conditionally correlated with stock market index, and whether this conditioned correlation is high or low.

Sung Hun (2006) and Seung Min (2006), in a study named 'Variance sudden changes and fluctuations of foreign currency markets' within a time period of 1990-2008, through ICSS algorithm showed that 1997 financial crisis of south East Asia and the west current recession significantly cause a structural rupture in the currency markets fluctuations. Tansochat et al (2009) , in a paper, studied the effect of crude oil future price fluctuations and oil companies returns' fluctuations overflow on several oil companies such as Royal Dutch Shell, Chorven, BP, Axon Mobile, as well as the current and future crude oil prices through using econometric techniques of constant conditioned correlation(CCC-GARCH), VARMA-GARCH and VARMA-AGARCH. Research findings demonstrated that the constant conditioned correlation between West Texas Intermediate future price and oil stock indices returns is extremely low. However, using VARMA-AGARC and VARMA-GARCH techniques showed no overflowing impact.

Babiker et al (2010) analyzed the impact of structural changes on the South Africa's stock market fluctuations. They found out 5 structural rapture points in the fluctuations non-conditioned variance leading to change GARCH model coefficients, through using ICSS algorithm and GARCH model, for price index daily data.

3 RESEARCH METHODOLOGY

Research statistical samples include all the petrochemical companies registered in Tehran stock exchange for within March 25, 2007 to June 21, 2014. So, the participants consist of stock exchange petrochemical and refinery companies. The present research, regarding the limited statistical participants, studied stock price dynamic conditioned correlation of the all aforementioned companies with crude oil global price (WTI). Petrochemical and refinery companies are, then, classified in the chemical material group as following:

Table 1. The present petrochemical and refinery companies in the stock exchange

Details	Co name	Stock symbol	Research Symbol	Beginning of the period
Petrochemical companies of the Tehran Stock Exchange	Abadan Petrochemical	Shepetro	Shepetro	March 26, 2007
	Arak Petrochemical (Shazand)	Sharak	Sharak	March 26, 2007
	Isfahan Petrochemical	Shasfha	Shasfha	March 25, 2007
	Khark Petrochemical	Shekhark	Shekhark	March 26, 2007
	Farabi Petrochemical	Shefara	Shefara	March 25, 2007
Refinery companies of Tehran Stock Exchange	Tabriz oil refinery	Shabriz	Shabriz	November 13, 2010
	Bandare Abbas oil refinery	Shebandar	Shebandar	June 24, 2012
	Isfahan oil refinery	Shapna	Shapna	June 29, 2008

3.1 MULTIVARIATE GARCH MODELS

Followed by the Angel early paper (1982), disregarding the importance of modeling financial and economic variables' fluctuations, extensive attempts were done to understand how financial assets' returns simultaneously move which resulted in introducing multivariate GARCH models. These models were initially applied for the effect of covariance on the asset pricing in the monetary assets' portfolios. The significant characteristic of these models is its adequate flexibility in modeling variance and covariance dynamics. Let's consider random vector $\{r_t\}$ with the order of $N \times 1$ and zero mean $(Er_t = 0)$ assuming that there is no linear correlation. According to the available data, matrix $H_t = [h_{ijt}]$ with the order of $N \times N$ is a conditioned covariance matrix r_t up to t time (i.e. Ω_{t-1}) and ε_t is the error vector in which $E\varepsilon_t\varepsilon_t' = I$ is as follows:

$$r_t = H_t^{1/2}\varepsilon_t \quad (1)$$

It stipulates general multivariate GARCH literature. Now, several methods are proposed to solve the model and estimate H_t matrix elements.

3.1.1 CCC-GARCH MODEL

Correlation model are based upon analyzing conditioned covariance matrix with the conditioned standard deviation and correlation.

The simplest multivariate correlation is Conditioned Constant Correlation (CCC) introduced by Bollerslev (1990). In this model, the conditioned correlation matrix is constant over time; and as a result, the conditioned covariance matrix can be written as follows[1]:

$$H_t = D_t R D_t = \left(\rho_{ij}\sqrt{h_{iit}h_{jjt}}\right), \ D_t = diag\left(h_{11t}^2,...,h_{NNt}^2\right)$$

---

[1] *Bauwens, L and els, (2006),"Multivariate GARCH Models: a Survey", Journal of Applied Econometrics, NO 21, PP 79-109.*

$$R = \begin{bmatrix} 1 & \dots & \rho_{1N} \\ \dots & \dots & \dots \\ \rho_{N1} & \dots & 1 \end{bmatrix}$$

Where ρij is the correlation coefficient of i and j assets; and the conditioned fluctuations diagonal matrix (standard deviation) changing within time D_t cane be represented as follows:

$$D_t = \begin{bmatrix} \sqrt{b_{11,t}} & 0 & 0 \\ 0 & \sqrt{b_{22,t}} & 0 \\ 0 & 0 & \sqrt{b_{NN,t}} \end{bmatrix} = \begin{bmatrix} \hat{\sigma}_{t,1} & 0 & 0 \\ 0 & \hat{\sigma}_{t,2} & 0 \\ 0 & 0 & \hat{\sigma}_{t,N} \end{bmatrix}$$

Any elements on the matrix main diagonalD_t, indeed, show fluctuations (standard deviations) of each asset at time t which is obtained in a non-matrix expression by GARCH (1, 1) process.

$$h_{ii,t} = \omega_. + \alpha_i \varepsilon_{i,t-1}^2 + \beta_i h_{ii,t-1}$$

$h_{ii,t}$ variances are, indeed, that σ_t^2 in the GARCH process which are shown by $h_{ii,t}$ here.

3.1.2 DCC-GARCH MODEL

Angel, in 2002, provided DCC model which is referred the heart (center) of dynamic conditioned correlations by rejecting the constant assumption of conditioned correlation. The correlation matrix, in this model, is allowed to change over time. This model is widely used for further calculations. There is no significant difference between CCC and DCC in definingH_t matrix; H_t matrix in this model is also a covariance-variance matrix:

$$\varepsilon_t|\varphi_{t-1} \sim N(0, H_t) \sim N(0, D_t R_t D_t)$$

$$H_t = D_t R_t D_t$$

Conditioned fluctuations diagonal matrix (standard deviation) changing with time D_t in DCC model is like CCC model extracted from a univariate GARCH process which can be rewritten in the matrix expression as follows:

$$D_t^2 = diag(a_{0,i}) + diag(a_{1,i})o\varepsilon_t \varepsilon_{t-1} + diag(b_{1,i})oD_{t-1}^2$$

Where, o is the matrices member operators (corresponding members). Moreover, $u_t = D_t^{-1}\varepsilon_t$. The only difference of DCC and CCC models is in the time variable of residuals conditioned correlation matrix i.e. R_t.

4 RESEARCH FINDINGS

Studying research variables graphs reveals that research variables are not reliable. Thus, variables' reliability was verified through the extended Dickey-Fouler reliability test which the results showed the unreliability of the studied variables. Test results are presented in Table (4-1).

Table (4-1) - Test results of unit root of the extended Dickey-Fouler and Fillips Prone at data level

Variable	Wti	Shepetro	Shekharak	Shesafa	Shefara	Sharak	Shapna	Shebandar	Shabriz
ADF statistic	-1.78	-1.69	-2.32	-2.12	-1.54	-1.84	-2.85	-2.54	-1.58
Prob	0.71	0.75	0.41	0.52	0.24	0.48	0.75	0.54	0.75

Source: the present research findings using Eviews 7 software package

The estimated statistic for Wti variable was -1.783 which is larger than its critical value at the confidence level of 95%; thus, the hypothesis of no unit root is rejected. This is the same for all other indices. Once the unit root is established in the all studied indices, Dickey-Fouler and Fillips Prone test is conducted for the first-order difference. The results are shown in Table (4-2).

Table 4-2- Test results of unit root of the extended Dickey-Fouler test for the variables' first-order difference

Variable	Wti	Shepetro	Shekharak	Shesafa	Shefara	Sharak	Shapna	Shebandar	Shabriz
ADF statistic	-10.17	-20.95	-21.02	-19.15	-21.79	-19.38	-14.87	-17.25	-20.2
Prob	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: the present research findings using Eviews 7 software package

The variables' first-order difference assuming the no intersect, the procedure, as well as Dickey-Fouler and Fillips Prone extended test results demonstrate the reliability of research variables. Therefore, it can be stated that research variables are I(1) meaning that they can be reliable by only one subtraction.

Reliability test revealed that research variables are I(1); hence, data level cannot be applied in GARCH models. So, difference log research variables were used. Reliability test results showed variables' reliability which is provided in Table (4-3).

Table 4-3- test results of the extended Dicky-Fouler unit root for the variables' returns

Variables	Wti	RShepetro	RShekharak	RShesafa	RShefara	RSharak	RShapna	RShebandar	RShabriz
ADF statistic	-9.80	-20.95	-22.35	-15.25	-26.25	-20.71	-8.25	-10.25	-15.25
Prob	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: the present research findings using Eviews 7 software package

4.1 STATISTICAL DESCRIPTION OF RESEARCH VARIABLES

The statistical properties of research variables must be identified. To do this, research variables returns are statistically described in the following table.

Table 4-4- Research variables descriptive statistic

Variable	Minimum	Median	Maximum	Standard deviation
*R*wti	-12.82	0.025	16.41	2.70
*R*Shepetro	-34.41	0.020	32.17	2.41
*R*Shekharak	-53.41	0.059	9.25	2.68
*R*Shesafa	-67.95	0.017	93.51	4.42
*R*Shefara	-40.41	0.199	52.95	3.26
*R*Sharak	-124.59	-0.016	36.19	4.24
*R*Shabriz	-15.25	0.394	50.06	3.27
*R*Shebandar	-4.08	0.638	53.24	4.00
*R*Shapba	-15.33	0.168	111.5	4.25

Source: the present research findings using EViews 7 software packag

It is known that applying GARCH models requires the variance heterogeneity in the series. Thus, it is necessary to refer the series graphs before any test is done. The graphs show the clustered fluctuations in the series indicating that low fluctuations are accompanied with low fluctuations and, in return, high fluctuations with high ones. This feature prevalent in the financial markets can be also considered as the variance heterogeneity.

4.2 VARIANCE HETEROGENEITY TEST

To ensure the variance heterogeneity of the GARCH models' estimation, it is required to conduct ARCHLM test. Research variables returns' graphs are shown in the following.
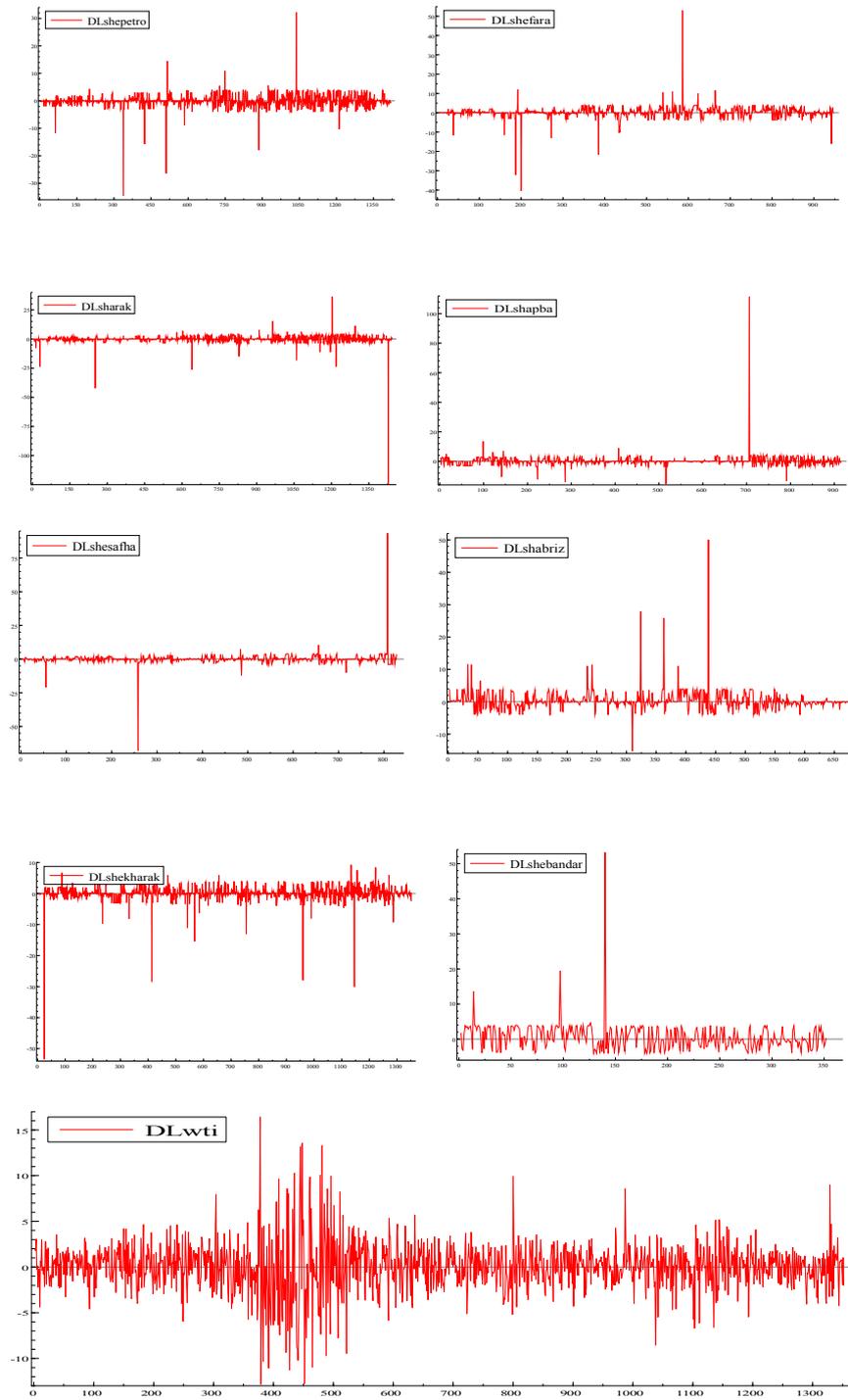
Graph 1- Research variables return graph within studied time interval

Though, the above graphs show variance heterogeneity in the model's residuals, ARCH LM test is done to ensure variance heterogeneity. The test results are presented in Table 4-5.

Table 4-5- ARCH LM test results

Variable	F statistic	Probability	Result
Rwti	14.21	0.00	Variance heterogeneity
*R*Shepetro	29.78	0.00	Variance heterogeneity
*R*Shekharak	8.13	0.00	Variance heterogeneity
*R*Shesafa	58.77	0.00	Variance heterogeneity
*R*Shefara	54.25	0.00	Variance heterogeneity
*R*Sharak	20.25	0.00	Variance heterogeneity
*R*Shabriz	20.21	0.00	Variance heterogeneity
*R*Shebandar	15.22	0.00	Variance heterogeneity
*R*Shapba	10.23	0.00	Variance heterogeneity

Source: the present research findings using EViews 7 software package

Variance heterogeneity in the returns series was ultimately determined according to ARCH LM test and graph. Now, it is possible to use conditioned heterogeneous variance models. DCC-GARCH technique can be used considering research goal stating that there is a significant relation between Tehran stock exchange and oil market. This technique was founded based on this hypothesis that the conditioned correlation between financial markets is not always a constant number (figure); rather, it increases or decreases in various periods. Furthermore, this correlation can be negative or positive in some periods. In contrast to the conventional models which regard a constant figure as the correlation between two or more variables, this technique estimates one figure per any time interval. Therefore, it allows us to evaluate the relation between various financial markets in various periods. For instance, maybe the correlation of two or more series can change following a monetary crisis.

4.3 ANALYZING THE SPREAD BETWEEN CRUDE OIL PRICE AND STOCK PRICE INDEX RETURNS OF PETROCHEMICAL AND REFINERY COMPANIES

As it was previously mentioned, estimating multivariate GARCH models requires two defaults of variables reliability and variance heterogeneity which analyzing the defaults indicated this. Now, research hypotheses are tested. So, DCC-APARCH bivariate model is estimated through OX/Metrics software as its usage facility and high efficacy in simulating and predicting financial variables. Table 4-6 shows non-conditioned and constant correlation between research data. Therefore, the estimated conditioned correlation by DCC-EGARCH pattern is not a constant figure and a different number is estimated per each period.

Table 4-6- Conditioned correlation coefficients between sample companies' stock price with crude oil global price

Variable	Stock exchange Petrochemical companies					Stock exchange Refinery companies		
	Shepetro	Shekharak	Shesafa	Shefara	Sharak	Shapna	Shebandar	Shabriz
WTI	-0.061	-0.041	0.015	-0.059	-0.06	0.17	0.070	0.011
Prob	0.10	0.00	0.56	0.08	0.08	0.06	0.09	0.73

Source: present research findings using OX/Metrics software package

As research findings demonstrate, petrochemical companies, in general, have negative, significant conditioned correlation with crude oil price which means crude oil price overflow over petrochemical companies' stock price. Of the petrochemical stock prices, only Isfahan petrochemical Co was positively correlated with the crude oil global price; however, this positive estimated effect is not statistically significant. So, the first hypothesis stating the negative conditioned correlation changing overtime between stock exchange petrochemical companies' stock price with the crude oil global price cannot be rejected.

On the other hand, it is the opposite in the refinery companies registered in Tehran stock exchange. Such that stock price in all three refinery companies is positively correlated with crude oil global price which its significance reveals the correlation variability over time. It means that correlation can be positive in some days and negative in other days; however, the mean effect is positive. Tabriz Refinery Company's stock price lacks any significant correlation with Shabriz symbol; though, it is also positive. Finally, research second hypothesis, regarding research findings, on the significant positive correlation between refinery companies' stock price with crude oil global price is maintained.

5 CONCLUSIONS AND RECOMMENDATIONS

The present research was seeking for finding the answer to these questions that is there a negative, significant dynamic conditional correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and West Texas Intermediate crude oil price return? Is there a positive, significant dynamic conditional correlation between stock price return of the petrochemical companies registered in Tehran Stock Exchange and West Texas Intermediate crude oil price return?

The correlation between West Texas Intermediate crude oil price with stock price of the petrochemical companies registered in Stock Exchange including Abadan Petrochemical Co, Arak Petrochemical, Isfahan Petrochemical, Khark Petrochemical, Farabi Petrochemical, Tabriz Oil Refining, Bandar E Abbas Oil refining and Isfahan Oil refining were studied, following the above mentioned questions were replied , through DCC method. According to research results, the petrochemical companies, in general, have negative, significant conditioned correlation with the crude oil price meaning the overflowing of crude oil price over petrochemical companies' stock price. Of the petrochemical companies' stock prices only Isfahan Petrochemical Co stock price was positively correlated with the crude oil global price; however, this positive estimated effect is not statistically significant. Thus, the first hypothesis of the conditioned negative correlation varying over time between stock prices of petrochemical companies registered in the stock exchange and the crude oil global price cannot be rejected.

On the other hand, it is on the contrary to the refining companies registered in Tehran Stock Exchange such that the stock prices of all three refining companies are positively correlated with the crude oil global price. Its significance indicates the correlation variability overtime. It means that correlation is some days positive and some days negative; therefore, the median impact will be positive. However, Tabriz Refinery Company's stock price lacks any significant correlation with Shabriz symbol; whereas, this correlation was positive, too. Finally, according to research findings, research second hypothesis that there is a positive, significant relation between the refineries' stock prices and the crude oil global price cannot be rejected.

5.1 RECOMMENDATIONS

Increased integration of financial markets in addition to information flow rate is the proper explanation in perceiving the effect of turbulences overflow of the global oil market to Tehran stock exchange. Overflows turbulences can lead to surrounded cross markets and changing in the common information; moreover, it can simultaneously influence the expectations throughout the markets. According to Tehran stock exchange structure, the fact that oil price fluctuations in the global markets can influence country's capital may not be such impossible. Since, up to 50% of Iran's stock exchange consists of oil and metal companies; so, increased oil price followed by metal market affecting can also influence on the more than 50% profit margin in the market. Therefore, according the aforementioned and research results, oil price monitoring will be more manifested in predicting petrochemical and refinery companies' stock price.

5.2 FURTHER RESEARCH

- It is recommended that future researches study and test the dynamic correlation of crude oil price with various industries' stock prices.
- It is suggested that further researches use other econometric methods such as BEKK to study crude oil price fluctuations spread into stock market fluctuations and in particular stock prices of petrochemical and refinery companies.

REFERENCES

[1] Abou Nouri, A., KhanAliPour, A. ,'Does uncertainty of crude oil price fluctuations influence on its supply?' *Economic studies*, 2010.

[2] Hosseini Nasab, A., Khezri, M., Rasouli, A., 'Determining the effect of oil price fluctuations on Tehran stock exchange stock returns: Wavelet analysis and Markov decision'. *Journal of Energy Economics*, Eighth year, No. 29, pp. 60-31, 2010

[3] Davani, Gh. , 'Exchange, Stock and companies pricing methods'. Nokhostin Pub, 2002.

[4] Keshavarz Haddad, Gh, Ma'navi, H., 'The interaction of stock and currency markets in Iran focusing on oil impulses'. *Journal of Economic Research*, No. 37, pp.155-177, 2008.

[5] Babikir. A. Gupta.G. Mwabutwa C. Owusu-Sekyere.E., Structural breaks and GARCH models of stock return volatility: The case of South Africa. *Economic Modeling*, No. 29. PP. 2435–2443, 2012.

[6] Bauwens, L., and els ., "Multivariate GARCH Models: a Survey*", Journal of Applied Econometrics*, NO 21. PP 79-109, 2006.

[7] Guillermo Covarrubias; Bradley T. Ewing; Scott E. Hein; Mark A. Thompson., *"Modeling Volatility Changes in the 10-Year Treasury"*, 2005.

[8] Shawkat Hammoudeh., Huimin Li, "The impact of the Asian crisis on the behavior of US and international petroleum prices", 2004.

[9] Filis, G., Degiannakis, S. and Christos Floros., "Dynamic Correlation Between Stock Market and Oil Prices: The Case of Oil-Importing and Oil-Exporting Countries", *International Review of Financial Analysis*, No. 20. PP.152-164, 2011.

[10] Giovannini, M, M, Grasso, A, Lanza, and M, Manera., "Conditional correlations in the returns on oil companies stock prices and their determinants", *Empirica*, Vol. 33, No.4, PP.193-207, 2006.

[11] Tansuchat, R, M. McAleer and C.Chang. "Volatility Spillovers between Crude Oil Futures Returns and oil Company Stock Returns", *18th World IMACS / MODSIM Congress*, Cairms, Australia, 2009.

[12] Martin Ågren. "Does Oil Price Uncertainty Transmit to Stock Markets?", *Working Paper Series from Uppsala University, No.23, Department of Economics,* 2006.

The effect of real exchange rate misalignment on account of the balance of payments

Amin Hatami[1], Asghar Abolhasani Hastiyani[2], Abolghasem Asna ashari[2], Narjes Asadi[3], and Fateme Jahangard[3]

[1]PhD Student in Economics, Faculty of Economics, Tahsilate Takmili Branch,
Payame Noor University,
Tehran, Iran

[2]Scientific Member of Payam Noor University,
Payame Noor University,
Tehran, Iran

[3]M.A of Economics, Islamic Azad University, Central Tehran branch,
Azad University,
Tehran, Iran

ABSTRACT: Real exchange rate is one of the factors as its deviation from the equilibrium values ,affect the performance of macro economical variables .In this paper the effect of real exchange rate misalignment on account of the balance of payments during the period 1976 to 2010 are examined. The model which was introduced in this article in order to estimate the misalignment of real exchange rate is the basic model of Edwards. The considered variables in this paper in order to determine the real exchange rate are; Oil incomes, government costs in the services department and buying the non-exchangeable goods, import tariffs, term of trade rate and index of depending on the degree of economic. The period in this study is from 1976 to 2010. Experimental results show that, among the variables affecting Misalignment, variable costs, the most significant impact on the real exchange rate and this variable can impact substantially on the deviation of the real exchange rate from its equilibrium value. The estimation results of Iran's balance of payments account model by the index of real exchange rate misalignment shows that this index had the negative effect on the balance of payments account and results into a deficient in this account.

KEYWORDS: balance of payments, Iran Economy, real Exchange rate misalignment, Real.

1 INTRODUCTION

Studying the changes of exchange rate is one of the main subjects for the economists who were done studies in the field of international monetary economics. In addition, studying the changes of exchange rate, the reciprocal effect of these changes on the macroeconomic variable and the consequences of exchange policies were considered by the policy makers, continuously.

During the recent years, the real exchange rate in different countries (developed or developing ones) is changingintensely. Even these changes affected the countries which were maintained their fixed exchange rate system after breaking the Bretton-Woodscontract. The studies about real exchange rate and the effects of its changes on the welfare level and economical growth show that the deviation of **real exchange rate**from**Equilibrium Real Exchange Rate** or **Misalignment** Real Exchange Rate contains of welfare costs.

In addition, misalignment in the real exchange rate or the misalignments of real exchange rate from its equilibrium value shows the lack of certainty and instability in the trend of relative prices among the countries. These deviations provide the

instable and uncertain space in the economy and also lead into the inappropriate distribution of sources, decrease of performance in the agricultural part and increase of capital loss[5]

But the most important cost related to the non-real expensiveness of money or monetary value associated with the intense controls in trade and exchange is the decrease of efficiency which leads into the widespread range of losses resulted from the misalignment of exchange rate[9]

Misalignment under the flexible systems creates most changes in the main variables of macro-economy especial investment and international trade and also the growth of economy[13]

In the other hand, the irregular fluctuations of RER affects the value of export goods and cost of import goods into national value of money and also decreases the risk taking of policy makers of Iran Foreign Trade to its fluctuations.

And also some of the importers and exporters who continue their activities in the global markets and in the uncertain or instable spaces of exchange rate may demand more profit in order to bear its risks. In the other hand, deviations of RER lead into the following cases;

- disorder in estimating the capitalized costs,
- guiding the production factors into the production of non-exchangeable goods,
- transferring the sources into the non-trade section and allocating them to the non-exchangeable activities,
- increasing the uncertainty and Encouraging people, banks and industries into trade are the effects of RER deviation on the financial market as they affect the macro-economical variables[6]

Account of the balance of payments is one the economical variables which shows the sensitivity to the changes of RER and if RER is not in consistent with the inside and outside world of economy, then instabilities in **account of the balance of payments** will happen. For some developing countries in particular Iran, the misalignment of RER was the origin of serious disorders of economy.

In fact, the disorders in the economy of this country during the several last years were in relation with the bad policy makings in the field of exchange rate. In spite the increasing information about the importance of RER, the measures in this field (the policy of exchange rate in Iran) were rare and limited; based on the aforementioned points, studying and analyzing the misalignment of RER and its effect on the macro-economical variables is important and necessary; for this reason, our attention is focused to the effect of this variable (misalignment) on theaccount of the balance of payments .Therefore, the order of parts of this paper is as the following;

- 2nd section: theoretical basics of exchange rate misalignment
- 3rd section: reviewing the literature,
- 4th section: modifying, correcting and estimating the related model
- 5th section: presenting a summary and conclusion.

2   RESEARCH METHOD

There are two theories in the field of economy which are about the effectiveness efforts in order to measure the Equilibrium RER. The 1st group shows that the RER is not misalignment for ever; means that it responds to the determinant basic factors.

However the 2nd group accepts the misalignment concept but they are not certain about the ability or power of each especial methodology in order to estimate the misalignment degree or level. Basically, based on the studies, equilibrium rate of exchange is being evaluated in two forms as:

Test of hypothesis validity PPP

Fundamental Equilibrium Real Exchange Rate or FEER

2.1   PURCHASING POWER PARITY TEST OR PPP

PPP test show the following equation for the changes of exchange nominal rate.

$$S = \alpha_0 + (P - P^*) + \varepsilon$$

S = nominal rate logarithm of exchange

P and P* = logarithm of internal and foreign or external price levels

α_0 is a stable function and **ε** is a random variable.

In this equation, RER logarithm was presented by using S+ P^*-P but LRER(Long-run equilibrium real exchange rate)logarithm is stable and equals α_0. Therefore, the change of real exchange rate is a temporary change from LRER or long term real exchange rate. It must be noted that none of these fundamental and basic factors exist in the above equation in the form of political and exogenous variables.

2.2 FUNDAMENTAL EQUILIBRIUM REAL EXCHANGE RATE

The other method in order to evaluate the upper – or lower – valuation of real exchange is based on the concept of **FEER** which defined first by **Nurks** (1945) and it is being considered as the level of relative prices of exchangeable and non-exchangeable goods which balances the internal and external economies simultaneously and also considered the long term economies in order to remove the periodic and cyclic effects.

There are different views about how to evaluate the fundamental real exchange rate which is an experimental work due to the different conditions and effectiveness of exchange rate of various variables in the considered countries and in large extent; it depends on the structural and institutional conditions of countries.

In the industrial and developed countries having the wide extended financial markets, the development level of financial markets is an effective factor on RER however, in the developing countries as the financial structure of their markets did not develop completely, it cannot be an effective factor on the exchange rate. Equilibrium exchange rate depends on the macro-economical variables first was defined by **Edwards** (1988) and then extended by **Cottani, Cavallo& Khan** (1990).

The application method in order to use the basic variables of macro economy was developed by International monetaryfund and in order to evaluate the exchange rate based on the application of basic variables, three methods were presented by the group of CGER or Consultative Group on Exchange Rates in the International monetary fund. In this method, evaluating the misalignment of exchange rate is accounted as the midterm deviation and principles. These three methods were presented in order as the following;

2.2.1 EQUILIBRIUM REAL EXCHANGE RATE APPROACH

This method includes three main stages; in the 1st stage, by using the cross sectional regression techniques, the equilibrium relationship between RERs and a set of basic factors is being evaluated. Then the ERERs are being defined as a function of midterm levels of these factors and at the end of this stage, the value of exchange rate modificationwhich can return the balance is being calculated as a difference between RER of the country and the defined equilibrium value in the 2nd stage, directly.

In this way, six variables are being used as the basic variables such as Net foreign assets, Productivity differential, Commodity term of trade, Government consumption, Trade restriction index and Price controls.

2.2.2 PARTIAL-EQUILIBRIUM APPROACH

This approach toward political aims had the utmost applications in order to evaluate ERER. This method is so important because it allows the calculation of changes' effects in the fundamental factors in order to evaluate ERER and also maintains the simplicity feature[14]. In the related studies, this approach depends on the current account which was shown in the following equation:

CA = current account of payments' balance
RB = balance function of resources
RER = real exchange rate
Y andY_f = internal (domestic) and external or foreign income
D = net international debts
r = mean of paying interest rate to the foreign debts

$$CA=RB (RER, Y, Y_f, ...)+ rD$$

RB or Resource balance depends on RER, internal and foreign or external income. By considering the value of target CA (CA*) and exogenous value of r, this equation can be used in order to determine the target value of RB means RB*.

$$RB* = CA* - rD$$

Y_f and Y are the values of internal and external incomes in a case of full employment during a year in which ERER was evaluated. The evaluation of RB can be used as the value of RER which leads into the following relationship.

$$RB* = RB (RER, y*, y*_f)$$

This estimate of ERER is consistent with internal and external balance in the form of full employment in both countries and in a form of a current account balance equals the value of "sustainable" net capital inflows, respectively.

2.2.3 MACROECONOMIC BALANCE APPROACH

Methodology of IMF or International monetary fund, in terms of a used method in order to evaluate the value of "sustainable" net capital inflows is different. This fund depends on the national income accounting unity which was presented in the following equation;

$$CA = S - I$$

In this equation, S and I show the national saving and gross domestic investment which give us an estimation of sustainable capital inflows in terms of determining the midterm saving and investment.

The current account in the above equation depends on RER and internal and external or foreign income level. For the values of internal and external or foreign incomes in the full employment and the other determinants of a current account, this function creates a curve with positive slope in RER-CA space which was presented in the following graph.
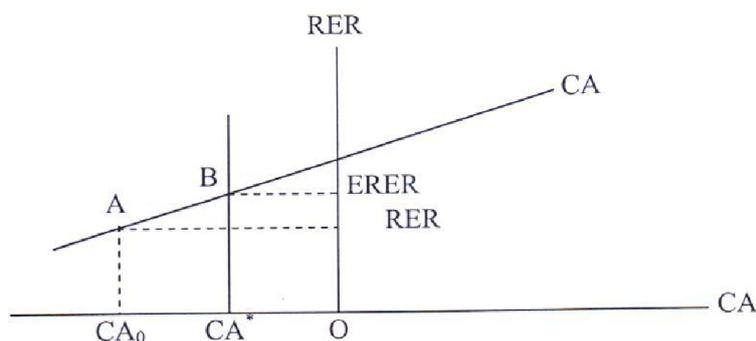
Note: an ascending movement indicates the decrease of ERE value

.

Investment – saving balance was modeled as a function of GDP per capita, tax condition, a gap between real and potential GDP and level of global interest rate. The midterm balance of Investment – saving is independent from real exchange rate; therefore the right hand of this equation creates a vertical curve in RER-CA space.

The intersection of these two geometrical places in B point in the above graph determines ERER. The main feature of macro balance approach is its ability in modeling the effect of fundamental changes of RER. Considering this methodology can be related to the changes in the fundamental factors as a function of current account balance, productivity levels and the other f fundamental factors such as government expenses, investment and … which affect the real exchange rate.

3 LITERATURE REVIEW

Evaluation of the related studies shows that equilibrium exchange rate dependant on the macro-economical variables first was presented by **Edwards** in 1988. He studied the real exchange rate and measured it in the developing countries during 1963-1983. He believed that the temporary and permanent shocks on the exchange rate is the reason of exchange rate deviation through balanced amount and proved that this deviation affects the economical growth negatively.

After Edwards in 1989, **Cottani, Cavallo& Khan** (1990) evaluated the misalignment of real exchange rate by extending the model of Edwards and its evaluation by an especial method. The results of their studies show that there is a negative

significant relationship between investment, exports and economical growth of developing countries based on the issues like instability and deviation of real exchange rate.

Then, the other researchers studied the misalignment effect on the macro-economical variables by modeling the methods of Edwards in 1989, Cottani, Cavallo& Khan in 1990 which were presented in the following table as a summary.

TABLE 1

Result	Subject	Year	Name
They studied the effects of real exchange rate's deviation through the balanced way on the economical growth and found that this deviation has a negative effect on the economical growth	Real Exchange Rate Misalignment and Growth	1997	Razin, O. and Collins
They studied the effect of real exchange rate's deviation and its fluctuations on the collective economical growth. The main finding of their studies was the negative effect of instability and the real exchange rate's deviation on the economical growth.	Real Exchange Rate Behavior and Economic Growth Evidence from Egypt Jordan, Morocco and Tunisia	1999	Domac, I. and Shabsigh
They studied the effects of real exchange rate's deviation through the balanced way on the economical growth of Iran during 1961-2001. In this paper, three criterions were used as formal and free rates of exchange, equal theory of purchase power PPP and structural model in order to measure the deviation index of real exchange rate. The results of empirical studies in this paper show that the deviation of real exchange rate in each three models has a negative effect on the economical growth of Iran.	Deviation of real exchange rate and economical growth in Iran	2002	Halafi and egbali
By using the relationship of investment and economical growth, they found the negative effects of real exchange rate fluctuations on the growth of some countries in Europe economical Area.	Exchange Rate Volatility and Growth	2004	Guerin J. and LahrecheRevil
They studied the instability effect of real exchange rate and its deviation from the balanced value on the indexes such as economical growth and investment. Based on their model, derived from Edwards, the deviation of real exchange rate had a negative effect on the economical performance of developing countries.	Misaligned? Overvalueda? The untold Story of the Turkish Lira"., **Journal of Economic Literature Classification**	2005	Atasoy, Deniz and Saxena, Sweta
They studied the misalignment effect of real exchange rate on the economical growth during 1959-2007 in Iran and found that misalignment of real exchange rate had a negative effect on the economical growth.	Misalignment of exchange rate and its effect on the economical growth of Iran	2009	Asgari and tofighi
They shown that the deviation of real exchange rate from PPP as Rodrik in 2008[18]was used cannot explain the long term growth; however the deviation from the basic real exchange rate, based on the view of Washington, explains the long term growth.	The Real Exchange Rate and Growth Revisited: The Washington Consensus Strikes back?	2010	Andrew Berg and Yanliang Miao

Sources: findings of researchers

There are differences toward the types of indexes and also Iran in this present study to the pointed articles and the other studies. In addition, most papers studied the misalignment effect of real exchange rate on the variables of economical growth, investment and the exports of agricultural part but in this article, it has been tried to study the misalignment effect of real exchange rate on inflation index of Iran, for this reason, this study is different from the other papers.

4   INTRODUCING THE CALCULATION METHOD REAL EXCHANGE RATE DEVIATION

In the present paper, in order to estimate the real exchange rate deviation, a method based on a designed model by **Edwards[9]** was used. Based on the view of Edwards, fundamental indications of balanced exchange rate is a group of real variables which plays an important role in determining the internal conditions and long term foreign or external situations in spite of the real exchange rates. These fundamental variables associated with the real exchange rate determine the internal and external situation of Iran.

Although the number of these variables is so high, we can discriminate between two groups of these factors in the analytical subjects; fundamental internal and external factors. The fundamental external factors of real exchange rate are:

- global prices (international exchange relationship (**terms of trade**)),
- international transfers contains of foreign aids inflows,
- Real rates of interest in the world.

The fundamental internal factors of real exchange rate are divided into two groups:

- the variables which are under the effect of economical policy makings decisions, directly and
- The variables which are independent from them.

Among the important fundamental factors of real exchange rate (related to policy makings), three groups must be considered;

- import tariffs, import shares and export tax,
- **exchange and capital controls,**
- other subsidies and taxes and
- **Combination of governmental costs.**

Among all fundamental internal factors which are not related to policy making, technology development is so significant. Edwards by considering that the equilibrium real exchange rate is a variable which is being determined by the (high) fundamental factors studied the evaluation of equilibrium real exchange rate through determining the way of its relationship with the real economical factors.

In this method, extent of real exchange rate deviation is being defined by a logical relationship between its factors and by using the evaluated coefficients. In fact, in this method, the effect of structural changes in economy, external and foreign trade and exchange policies on the real exchange rate was considered.

The main issue in evaluating this model is determining the main factors of real exchange rate in an especial country which is under the effect of its factors and the structural conditions of that country. The misalignment of real exchange rate in this study is being calculated by using the reminders of a regression which indicates the changes of real exchange rate in Iran in the form of a series of fundamental factors.

This empirical definition toward misalignment of real exchange rate as the deviations of real exchange rate from its balanced value is consistent. In this definition, it is being assumed that the values of real exchange rate regression are a good evaluation of equilibrium real exchange rate[8]

5   RESULTS

In this paper, a defined model was presented in order to evaluate the misalignment of real exchange rate as the following:

LRER = (LIOIL,LGCGDP,LTARIFFS,LTOT,LCLOSE,)MODEL 1

Based on this model, the variables and sources for getting information are presented as the following:

TABLE 2

Sources	Definition	Variable
World Bank	Logarithm of real exchange rate is in Iran	LRER
Central Bank Of The Islamic Republic Of Iran	Logarithm of oil incomes	LIOIL
Central Bank Of The Islamic Republic Of Iran	Logarithm of government costs in the sections as services and purchasing the non-exchangeable goods was considered as the consumption of non-exchangeable goods by government department	LGCGDP
Central Bank Of The Islamic Republic Of Iran	Logarithm of import tax to the whole imports (of goods) and services was considered as the import tariffs.	LTARIFFS
Central Bank Of The Islamic Republic Of Iran	Logarithm of Trade Term is the result of export index to the import index.	LTOT
Central Bank Of The Islamic Republic Of Iran	Logarithm ofindex of depending on the degree of economic is defined as the result of exports and imports' sum of goods to the index of gross domestic production.	LCLOSE

By considering that the time interval in this study is long term period, therefore unit root test is being studied on all considered variables in this paper. The related tests show that all considered variables in these models were in the level of Non-stationary, and for this reason, Co-integration Test will be required. Then after evaluating the related models, unit root test was studied on the remainders from all models and in all of them (models), the remainders were in the level of stationary which shows that the estimated models in this study are the appropriate models.

Certainly, in this paper, stationary tests were considered for each of these models separately. It must be noted that in order to evaluate the models in this paper, Eview7 and Co-integrating regression (Dynamic Least Squares) were used One of the advantages of DOLS is that it considers the Endogeniety among variables although we cannot consider this feature in Engle-Granger[10] method which is an old model to DOLS and also there aredefects in Engle-Granger[11] method such as bias in the small samples and lack of ability in accomplishing the statistical hypothesis test as these defects were removed in the new method of DOLS which was presented in Eviews7 software.

In order to accomplish the co-integration test of variables, different tests can be used and in this paper, Hansen test was used. The results of these tests, model's modification, coefficient evaluation and analysis are presented as the following:

TABLE(3) Augmented Dickey-Fuller Test Equation for data level of time series

variable	I(0)	I(1)	Mackinnon Critical Values		
LRER	-1.49	-4.19	-3.64	-2.95	-2.61
LOIL	-0.12	-5.29	-3.63	-2.95	-2.61
LGCGDP	-0.23	-5.11	-3.63	-2.95	-2.61
LTARIFFS	-0.42	-5.36	-3.63	-2.95	-2.61
LTOT	-1.91	-3.52	-3.64	-2.95	-2.61
LCLOSE	0.29	-4.79	-2.63	-1.95	-1.61

Source: findings of researchers

Therefore, based on this test, all selected variables for the model were I(1). In order to achieve the coefficients of variables which lead into the deviation of real exchange rate, model 1 was evaluated andits results were presented in the following table:

TABLE 4

variable	Coefficient	Std.Error	t-Statistic
LIOIL	-2.02	0.22	-9.14
LGCGDP	8.68	1.04	8.28
LTARIFFS	2.68	0.28	9.43
LTOT	1.34	0.27	4.89
LCLOSE	2.48	0.48	5.07
C	53.66	4.42	12.13
R-Squared	0.96	DW	2.06

Source: findings of researchers

TABLE 5:CO-INTEGRATION TEST - HANSEN PARAMETER INSTABILITY

Null hypothesis: series are co integrated				
Lc Statistic	S Trends(m)	D Trends(k)	E Trends(p2)	Prob
0.16	5	0	0	0.2

Source: findings of researchers

Thus, this test confirms the co-integration among variables.

TABLE 6: STATIONARY TEST OF REMAINDERS IN MODEL 1

Variable	ADF	%1	%2	%5
SREER	-5.82	-3.67	-2.96	-2.62

Source: findings of researchers

Based on the results of this table, variable SREER (remainders) are stationary and I (0) and this issue confirms the co-integration of variables in the evaluated model.

The final evaluation of model (1) is as the following:

LRER = -2.02*LIOIL + 8.68*LGCGDP + 2.68*LTARIFFS + 1.34*LTOT + 2.48*LCLOSE + 53.66Equation 1

Based the evaluation results, the obtained coefficient for **oil incomes** variable is significant and equals -2.02. Therefore, by increasing the oil incomes, the energy savings will increase and leads into the reinforcement of national money and decrease of real exchange rate and finally intensifies the misalignment of real exchange rate; as a result, one of the main factors of this misalignment in Iran is the dependence of Iran's economy to the oil incomes. So, the best solution in order to prevent this event is decreasing the instability, providing stability in the oil incomes, separating the oil shocks from the exchange market and providing the exchange accounts by Iran's government.

Governmentcosts variable with the positive coefficient, 8.68, has a positive and significant effect on the real exchange rate in Iran. In other words, the consumption expenses of this government affect the real exchange rate.This effect depends on this issue; whether in the above mentioned expenses, the consumption of trade goods is more or the non trade goods? Edwards [7] explained this effect by assuming the first and second two periods. In the first period, an increase in the demand of services and goods might be seen which leads into increase of price in the non trade goods. As a result, the rate of equilibrium real exchange increases or the internal money will be reinforced. In any case, in the second period, the government may increase the taxes in order to pay its debts and this issue decreases the sizeable income and also decreases the whole demand.Decrease of non exchangeable goods' demand increases the real exchange rate and decreases the price of these goods. By considering that the expenses of government affect the real exchange rate among the other variables considerably, using the contractionary fiscal policies in some cases where negative misalignment was so overvalued and also using the expansionary fiscal policies in some cases where the positive misalignment was so undervalued, decrease the misalignment.

The rate of **import tariffs** with a positive coefficient, 2.68, indicates that permanent tariff on the imports increases the internal price of import goods and leads into the substitution and incomes effects during a determined time interval. Tariff decreases the demand for import goods and also results into the decrease of import levels or volumes. Also tariff increases the demand for non trade goods (due to substitution) and as a result of maintaining balance or equilibrium in that market, the price ofnon trade goods will increase.Then, under the possible conditions, the situation of a permanent tariff on the imports leads into a new balance or equilibrium in which the value of real exchange rate is low; means that this issue leads into the increase of an equilibrium real exchange rate and intensifies the misalignment of real exchange rate.

index of depending on the degree of economichas a positive, 2.48, and significant effect on the misalignment of real exchange rate; means that the closeness of economy prevent the economical dynamicity in Iran and new technologies into this country and also increases the real exchange rate and its misalignment.

The obtained coefficient for **term of trade** variable shows that this variable has a positive effect, 1.34, on the real exchange rate in Iran and the elimination of the terms of trade (increasing the import volume to the export), by considering the high inflation in Iran to the foreign inflation, decreases the price of foreign goods to the internal ones (making cheap), imposes an increasing pressure on the exchange demand which increases the real exchange rate and also increases the misalignment of real exchange rate.

Since the aim of this present paper is to study the effect of real exchange rate deviation through the equilibrium way onaccount of the balance of payments , after introducing and studying the criterions in order to calculate the index of real exchange rate deviation, the related model to this issue was presented. The introduced model by using Model of balance of payments accounts and in terms of the economical structure of Iran was designed as the following;

BOP=(LY LSC R SREER DUM)Model (2)

Based on this model, the variables and sources of information are presented as following.

TABLE 7

Source	Definition	Variable
Central Bank Of The Islamic Republic Of Iran	Account of the balance of payments current account and capital account is derived from the sum	BOP
Central Bank Of The Islamic Republic Of Iran	Price index logarithm of consumption goods to the fixed prices of 1997	LSC
Computing researcher	Real interest rate the central bank's calculations using data obtained researcher	R
Central Bank Of The Islamic Republic Of Iran	logarithm of gross domestic production of Iran to the fixed prices of 1997	LY
Computing researcher	Index of real exchange rate deviation was estimated in the previous section	SREER
	Since there is a possibility as the undefined effect changes the results, it is possible to inset a virtual variable which displays the effects of factors such as war, religion, security, etc that we cannot consider them in the model. Therefore, the values such as 0 and 1 in a case of existence and non-existence are being added, respectively.	DUM

The results of these tests, models' modification, coefficients' evaluation and analysis are presented in the following table.

TABLE(8)   Augmented Dickey-Fuller Test Equation for data level of time series

variable	I(0)	I(1)	Mackinn on critical values		
LSC	-0.34	-3.56	-3.64	-2.95	-2.61
R	-3.21	-5.45	-3.66	-2.96	-2.61
BOP	-1.87	-4.39	-3.68	-2.97	-2.62
LY	1.36	-4.09	-3.66	-2.96	-2.61
SREER	-5.82		-3.67	-2.96	-2.61

Source: findings of researchers

Based on the results, all above variables except SREER were non-stationary. Therefore all selected variables in order to inset them in this model except SREER which equals I(0) is from the first order and I(1).

Table (9)Evaluationresults for theaccount of the balance of payments model

variable	coefficient	Std.Error	t-Statistic
LY	43730	7714.98	5.66
LSC	-3970	1886.7	-2.10
R	-985.2	301.4	-3.26
SEER	-46345	18020	-2.57
C	-523811.4	92529	-5.66
DUM	8474	2032.34	4.16
R-Squared	0.95	DW	1.66

Sources: findings of researcher

TABLE(10) Co-integration Test - Hansen Parameter Instability

Null hypothesis: series are co integrated				
Lc Statistic	S Trends(m)	D Trends(k)	E Trends(p2)	Prob
0.063	4	0	0	0.2

Sources: findings of researcher

Therefore, this test confirms a long term relationship between variables.

In this paper (**appendix**), diagnosis of remainders in model (2) was studied. Based on the obtained results of these two tests in this model, the existence of Autocorrelation and heteroscedasticity is being rejected.The final evaluation of inflation model is presented as following:

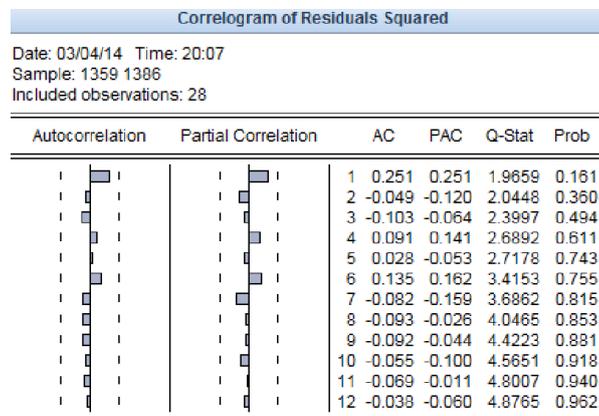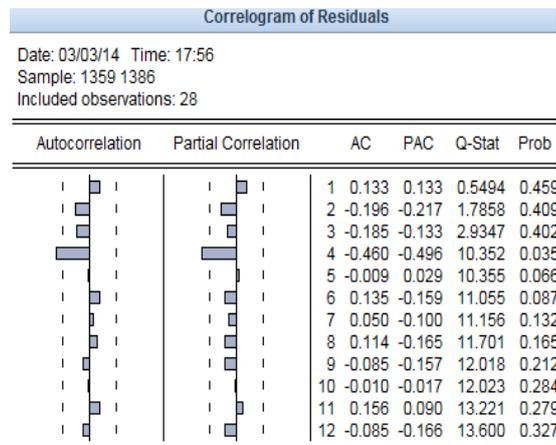**BOP = 43730.980*LY - 3970.651*LSC - 985.285*R - 46345.451*SREER - 523811.354 + 8474.162*DUM Equation 2**

In this evaluated model, it is observed that by increasing a misalignmentunit of real exchange rate, we see a deduction in the balance of payments (about 46345). In such case, the obtained coefficient is significant and its sign confirms the negative effect of this misalignment on the balance account of payments. This result is consistent with the experiences because misalignment of the real exchange rate from the balance value makes the environment of macro – economy more instable. This situation weakens the safety system of national economy against the internal and external shocks. This instability leads into capital's transfers and changes in the capital accounts in the balance account of payments. This is a two-side problem.   For this reason, the Iranians who live in the other countries and the foreign investors lose their tendencies in order to invest because the rate of exchange is a same price and its future is important for the people. In the other hand, the export faces the reduction of profits as well, the production of export goods face various problems. The exports which can be the engine of development save the country from the single oil products. In this case, the production of import alternative products as the reduction of economical dependency of our country is limited to it becomes valueless by producing the cheap import goods and the producers become bankrupt. In addition, the imports of our country will be presented in the auction and the balance of current account will be decreased. So, the non-equilibrium of real exchange rate leads into the deduction in the balance account of payments. The obtained coefficient for other variables is one which is expected and their interpretation is presented as follows: In the traditional theory of macro-economy, increase of income increases the imports and leads into deduction in the balance account of payments. But I Iran, this income increase and also the production are resulted from the increase of oil income which is occurred by the oil export and this issue results into the surplus in the balance account of payments. For this reason, the obtained coefficient for Y in this evaluation is the positive value, 43730 which indicates that: increase of income leads into the surplus in the balance account of payments. In the global macro economy, rate of interest is being determined as the rate of market but in Iran, the rate of interest is being determined based on an order. In the other hand, the rate of interest introduces capital inside our country when there is not uncertainty and also the economic stability exists in our country. Based on the aforementioned points in the preface, the relationship of the rate of interest with the balance account of payments in Iran is negative and by considering the previous evaluation and the negative coefficient (-985), these sayings will be confirmed. The obtained coefficient for LSC is expected and it is equal -3970. The increase of prices increased the price of internal goods and decreased the request of internal goods by the foreigners

and also decreased the exports as well, resulted into deduction in the balance account of payments. So, increase of prices leaded into the deduction in the balance account of payments as the obtained coefficientconfirms this viewpoint.

6 CONCLUSION

Controlling and regulating the real exchange rate and preventing its deviation from the balance path are one of the main problems of the developing countries. The economy of Iran due to taking the various policies of exchange which govern the different exchange system faced such problem. The policies which resulted into the bad control of real exchange rate and its deviation in the exchange system of Iran can stop the economic development, slow the rate of promotion/development, lack of balance in the balance account of paymentsand increase of inflation through mechanisms such as decrease of competitiveness of Iran in the global markets.The aim of this paper was to study the effect of non-equilibrium unit of real exchange rate on balance account of payments of Iran during the long term period (1976-2010). In this article, prior to evaluate the models, the considered variables were studied by the test of stationary and then, the index of real exchange rate deviation and the effect of this index on the balance account of payments as well, the pattern of payments balance were evaluated and the results of these evaluations showed that among the effective variables on the deviation of real exchange rate, the variable of the governments' costs had the highest significant effect on the real exchange rate and this variable can considerably affect the deviation of real exchange rate from it balance value. Since, the expenditures of the governments had the highest effect on the non-equilibrium among the other variables, so the use of Contractionary fiscal policy in some cases as the negative non-equilibrium is over-valued and also the use of Expansionary fiscal policy in some cases as the positive non-equilibrium is less-valued can decrease the non-equilibrium. The fitness results of payments balance pattern by the use of deviation index of real exchange rateshow that this index had the negative effect on the balance account of paymentsand resulted into deduction and lack of balance in these accounts. So, deviation of real exchange rate as an economical issue exists in Iran and also it has the bad effect on the performance of the macro variable of economy in particular thebalance account of payments.

APPENDIX

Correlogram of Residuals

Date: 03/03/14 Time: 17:56
Sample: 1359 1386
Included observations: 28

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.133	0.133	0.5494	0.459
		2	-0.196	-0.217	1.7858	0.409
		3	-0.185	-0.133	2.9347	0.402
		4	-0.460	-0.496	10.352	0.035
		5	-0.009	0.029	10.355	0.066
		6	0.135	-0.159	11.055	0.087
		7	0.050	-0.100	11.156	0.132
		8	0.114	-0.165	11.701	0.165
		9	-0.085	-0.157	12.018	0.212
		10	-0.010	-0.017	12.023	0.284
		11	0.156	0.090	13.221	0.279
		12	-0.085	-0.166	13.600	0.327

Correlogram of Residuals Squared

Date: 03/04/14 Time: 20:07
Sample: 1359 1386
Included observations: 28

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.251	0.251	1.9659	0.161
		2	-0.049	-0.120	2.0448	0.360
		3	-0.103	-0.064	2.3997	0.494
		4	0.091	0.141	2.6892	0.611
		5	0.028	-0.053	2.7178	0.743
		6	0.135	0.162	3.4153	0.755
		7	-0.082	-0.159	3.6862	0.815
		8	-0.093	-0.026	4.0465	0.853
		9	-0.092	-0.044	4.4223	0.881
		10	-0.055	-0.100	4.5651	0.918
		11	-0.069	-0.011	4.8007	0.940
		12	-0.038	-0.060	4.8765	0.962

REFERENCES

[1] Askari, Manoochehr. Determining the effective factors on the misalignment of real exchange rate and its effect on the economical growth of Iran. Seasonal journal of economy. 223. 2009. Iran.

[2] Atasoy, Deniz and Saxena, Sweta, C." Misaligned? Over value da? The untold Story of the Turkish Lira"., Journal of Economic Literature Classification,, Available at SSRN: http://ssrn. Com/ abstract=500663,(2004).

[3] Andrew Berg and Yanliang Miao, The Real Exchange Rate and Growth Revisited: The Washington Consensus Strikes back?, Research Department and African Department(International Monetary Fund),(2010)

[4] Cottani, Cavallo and khan, "Real Exchange Rate Behavior and Economic performance in LDCs", Economic Development and Cultural Change, Vol.39. (1990).

[5] Coudert, V. & Couharde, C. Currency Misalignments and Exchange Rate Regimes in Emerging and Developing Countries. CEPII Working Papers, No. 7. (2008).

[6] Domac, I. and Shabsigh, G., "Real Exchange Rate Behavior and Economic Growth Evidence from Egypt Jordan, Morocco and Tunisia.(1999)

[7] Edwards, S., (1988), "Exchange Rate Misalignment in Developing Countries", the John Hopkins University press.

[8] Edwards, Sebastian. "Real Exchange Rates in the Developing Countries: Concepts and Measurement"., NBER Working Paper, No. 2950, (April 1989).

[9] Edwards, S., (1989), " Real exchange rates, devaluation and adjustment: Exchange rate policy in developing countries, MIT Press",MIT Press, Cambridge, MA, 1989,the John Hopkins University press

[10] Engle, R.F. and Granger, C.W.(1987,Cointegration and Error correction: Representation, Estimation andTesting,Econometrica,vol.55.

[11] "Econometric Modelling with Cointegrated Variable", Special Issue, Oxford Bulletin of Economics and statisticsVol.48,No.3. (1976).

[12] Guerin J. and Lahreche Revil, (2004), "Exchange Rate Volatility and Growth", University of Amiens.

[13] Gala, P. & Lucinda, C. R. Exchange Rate Misalignment and Growth: Old and New Econometric Evidence. Revista Economia, 165-87. (2006).

[14] Hinkle, Lawrence E, and Montiel, Peter J., Exchange Rate Misalignment: Concepts and Measurement for Developing Countries, Oxford University Press, 1999.

[15] Halafi, Mohammad Reza. Deviation of real exchange rate and economical growth in Iran's economy. Seasonal journal of economy. 167. 2002.

[16] Nars Esfahani, R. and Yavari, K. (2003).The Real and Nominal Determinants of Inflation in Iran: VAR Approach. Quarterly Journal of Iranian Economics Research, 5(16):69-99. (in Persian).

[17] Razin, O. and Collins, S.M, "Real Exchange Rate Misalignment and Growth", NBER, Working Paper, No. 6174. (1997).

[18] Rodrik, Dani, 2008, "The Real Exchange Rate and Economic Growth," Brookings Papers on Economic Activity, 2, pp. 365–412.

[19] Sadeqi, Seyyed Kamal. Studying the effective factors on inflation by focusing on the size of government.(2005) Seasonal journal of economy modeling. no.: 1, spring 2010. Iran.

[20] WWW.CBI.IR

[21] WWW.DATA.WORLDBANK.ORG

Providing Solutions to Assess Effectiveness of Human Resource actions in Tehran Electrical Distribution Co.

Manouchehr Ansari[1] and Hazhar Azizi[2]

[1]MBA Department,
University of Tehran, Faculty of Management,
Tehran, Iran

[2]Human Resource Department,
University of Tehran, Faculty of Management,
Tehran, Iran

ABSTRACT: Based on the facts, we compared models to reach a comprehensive theatrical background to analyze effectiveness of HR actions. Our results confirmed that constructs such as empowerment, competency developing, and information sharing and procedural justice impact directly and indirectly on HR actions. Finding showed that when HR actions are performed effectively, commitment of employees increases, leading to productivity level.

KEYWORDS: HR actions, effectiveness assessment, empowerment, solution, Tehran electric distribution.

1 INTRODUCTION

As there is no definite method or tools to measure HR potential competencies and actions, assessing effectiveness of this subject might be a tough task, even impossible. Particularly, individuals who assess this actions may will be influenced under their mindset, discrimination, affect or sense, missing justice in the assessing process. However, it is believed that if we cannot measure HR actions by justice, is better to avoid it. Today, all organizations wheatear state or private, require an effective system of assessment for HR actions in order to achieve growth, sustain development and survive. Effective organizations not focus only on data analysis. They intent to utilize them to enhance organizational performance, realize the mission and planned strategies. It's worth pointing out that the major tool for of HR management, is to evaluate effectiveness of employee's actions, even though the aim of this assessment is to develop and improve HR activities, not to control their organizational actions. [1]

From two perspective, we can explain assessing of HR actions. There are two approaches: traditional and modern. According to traditional view, judgment, reminders for controlling measures are used for assessing which is based on directive style. This approach simply consider activities which conducted in the past. Modern approach focus on training, developing of HR capacity, improvement and development of individuals as well as progress of organization and its activities. In addition, pay attention to provide services, participation of stakeholders, motivate and sharing responsibility of HR in order to improve quality, optimize activities and enhance operations to identify strengths. The origin of this approach traces to contemporary, assessing a system by using modern methods and techniques. [2] Today, Human resource competency and knowledge, relations with customers and suppliers, product and service quality are defined as most valued capital for an organization, in comparing with physical asset [3]. Tehran electrical distribution company annually is suffered from lack of suffiency of effective assessment oh HR activities. Due to this challenges, this company faces with problem to reach its settled objectives. Regarding the importance of this subject, this research intents to explore solutions to assess effectiveness of Human resource actions in Tehran electrical distribution company to provide effective solutions to assess HR actions.

---

2   LITERATURE REVIEW

If in an organization, the level of assessment of actions simply involves individuals, the effectiveness of assessing is performed by different metrics. Organizations, individuals or organizational units that perform works, apparently are considered as only part of the whole system. However, this consideration should be comprehensive Regarding organization's overall strategies and its mission, are defined as a tool for establish a comprehensive system for management. This approach foe assessing actions would be a real, justice-driven and reliable [4]. This approach involves a consecutive series of activities and actions logically and objectively. In the Following, we intended to provide required steps in order to assess effectiveness of HR actions.

Hook & Foot postulate that evaluation of HR actions consists formalization process, providing feedback to HR actions in order to identify talents, developing them for the future. Werther and Davis (1998) believe that assessing HR actions is a process in which these activities are measured. [5]

Efforts to assessing of HR actions should consider a framework. Experts for enhance this effectiveness suggest following processes which is known as model for assessing effectiveness of HR actions:

1-   Developing indicators and elements and define measures for unit assessing.
2-   Weighting the criteria, in terms of their importance.
3-   Standardizing and determining the optimal conditions for each indicator.
4-   Declaring expectations and measures to whom might be assessed standard has already been set.
5-   Analysis data. [8]

A reliable assessment helps organizations to compare their performance, planning for future and settle strategies. Recent studies show that HR actions impact directly on organization's performance [9]. Then, it is important to focus on effectiveness of assessment in order to enhance organizational performance.

In this study, we consider a valid model for evaluation of HR actions in Tehran electrical distribution company. We consider Laver Model which explains items such as Empowerment, Developing competency, Information sharing and Procedural justice [10].

According to Laver model, to assess effectiveness of HR actions four items were highlighted:

Empowerment: is the process in order to increase of authority or the power of employees to make decision. Developing competency: involves planning such as job rotation, mentoring by which employees feel that, they are considered as competitive advantage for organization. Information sharing: describes the awareness of employees toward environment of organizations. Procedural justice: refers to notion that employees feel fairness in the processes of their compensation or reward [11].
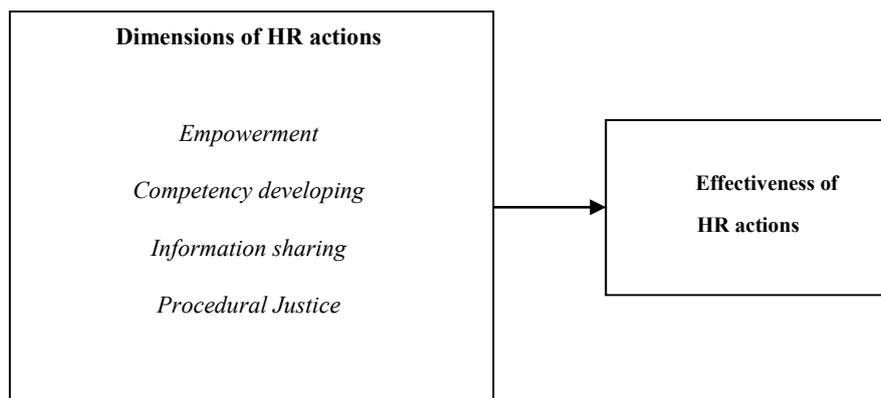

Fig. 1.   Research Conceptual Model

The proposed study of this paper considers the Lover model, consisting four hypotheses:

H1: Empowerment would affect the effectiveness of HR actions
H2: Developing competency would affect the effectiveness of HR action
H3: information sharing would affect the effectiveness of HR actions
H4: Justice would affect the effectiveness of HR actions

3 ANALYSIS

VALIDITY AND CREDIBILITY

Regarding use of valid questionnaire for assessing effectiveness of HR actions which from was selected based on Laver model, we selected scale items based on the model and experts suggestions to ensure content validity. As mentioned earlier, we computed the Cronbach's alpha for each items to assess scale reliability. All items were above the commonly accepted value of 0.7 in each case, supporting reliability of research questionnaire.

$$N= \frac{z^2 pqN}{Nd^2 + z^2 pq}$$

Where N is the population size, P=q=50%, z is CDF of normal distribution and d is the maximum deviation. The number of sample size is calculated as n=355. This study is based on survey-descriptive method which commonly is used for study

Social sciences [12]. The survey was performed using questionnaire. We distributed questionnaires among employees, supervisors and managers in Tehran electrical distribution co. Prior to analysis data, we assessed its validity and reliability.

4 TESTING HYPHOTETIS

For hypotheses testing, we use Software Package for Social Science. We analyzed questionnaires through SPSS software. These findings come up:

Empowerment influenced effectiveness of HR actions in Tehran electrical distribution co. As shown in Table 1, Pearson coefficient (r) for this relationship resulted in 0.67, which was found significant on p<0.0001, supporting hypotheses H1.

In hypothesis 2, we assume that developing competency would affect the effectiveness of HR action, Table 1 illustrates that Pearson coefficient (r) for this relationship resulted in 0.63. Thus, H2 is supported.

In hypothesis 3, we suppose that information sharing impacts on effectiveness of HR actions in this company, Table 1 shows that Pearson coefficient (r) for this relationship is 0.45, which is significant on p<0.0001, providing support for H3.

In addition, H4 is supported. Table 1 reveals that that procedural justice effects on effectiveness of HR actions, demonstrating that Pearson coefficient (r) for this relationship is 0.55, which is significant on p<0.000. According this findings, all supposed hypothesis were supported.

Table 1. Simple Correlation Coefficient of HR actions in Tehran electrical distribution co.

Predict Variable	Variable	r	Significant Interval	n
Empowerment	Effectiveness of HR action	0.67	0.0001	355
Developing HR Competency		0.63	0.0001	
Information sharing		0.45	0.0001	
Procedural Justice		0.55	0.0001	

5 CONCLUSION

Based on data analysis, the results indicate that Tehran electrical distribution co. needs to identify creative and innovative HR, in order to realize its objectives and reach to dynamic level and growth. Due to appropriate performing of effectiveness assessment for HR actions, this tool might be effective in order to control and identify determinants. Finally, this involves motivation, qualitative and quantitative performance for organization's human resource. Several criteria are considered for evaluation of HR actions such as individual performance, behavior factors and individual features. It's suggested that it is better to use measurable indices for assessment rather than judging or mindful criteria.

Consistent with previous results, our results confirmed that constructs such as empowerment, competency developing, and information sharing and procedural justice impact directly and indirectly on HR actions. Finding showed that when HR actions are performed effectively, commitment of employees increases, leading to productivity level. More specifically, results indicated that HR actions are defined as two determinant factors on organizational effectiveness. Findings revealed

that empowerment influenced strongly on effectiveness of HR actions. According to this study, HR managers should develop a system based on empowerment in order to extend it broadly. Through empowerment planning, increases performance, feelings of engagement, and intrinsic motivation of employees. In other words, when an organization encourages independence of employees and involve them

Based on the findings, following alternatives are recommended for increasing effectiveness of HR actions:

Testing the acceptability of HR actions in order to establish regularity and managerial policies. Finding optimal solution to meet problems which provides satisfaction of employees and managers. Examining the major guidelines related to HR management functions including recruiting, planning, reward and punishment, education and so on. Developing an alerting system to identify critical points. Measuring successive progress by analyzing the situation of relations to explore gaps in HR actions. Finally, it is argue that factors like high ability of employees, sufficient budget and facilities provide success in assessing of HR effectiveness.

REFERENCES

[1] Mirsepasi N. Strategic Human Resource Management & Work relation, 2nd edition, Mir Publication, (2008), Pp. 237-240
[2] Esmaeilpour R. Modeling of Process documentation in organizations, providing appropriate model for state organizations (Case study: Guilan state organizations), 8th Scientific- Research Conference in (2009), Guilan University
[3] Noe, R.A, Hollenbeck, J. R, Gerhurt, B & Wright, P.M. Human Resource Management: gaining Competitive advantage. New York: (2008). Mc GrawHill
[4] Kaplan. Norton, Strategic driven Organizations, (Translated by Bakhtiari), Industrial Management Organization, (2009) Tehran
[5] Stredwick J., An Introduction to Human Resource Management. (2005), Elsevier Ltd.
[6] Hui Law K. S., Chen Z. X, "A structural equation model of the effects of negative affectivity, leader-member exchange, and perceived job mobility on in-role and extra-role performance: A Chinese case", Organizational Behavior and Human Decision Processes, Vol.77, (1999) pp.3–21.
[7] Byars, L.I & Rue, L.W. Human Resource Management: 9 th Edition. (2008). New York: Mc GrawHill.
[8] Snell, S. A & Bohlander, G. W., Managing Human Resources. (2007) Thomson Publishing Company.
[9] Roepki R. Aligning the IT and human resource with business vision: the leadership initiative at 3m", MIS Quarterly, Vol.24, (2000), pp.32-54.
[10] Brown, J. Conducting an HR Audit: How HR Can Better Measure the Effectiveness of its Functions and Programs?, (2012). Director of Research.
[11] Bell S., Menguc B. The employee-organization relationship, organizational citizenship behaviors and superior service quality, Journal of Retailing, Vol. 78. (2002), pp. 46-131
[12] Khaki Gh. Research method, an approach to write dissertation, National Scientific Research Centeral Publication, (2001), Tehran
[13] Saraei H. Introduction to sample in researches, 6th edition, SAMT Pub, (2010), Tehran

Industrialization, Electricity Consumption and Co$_2$ Emissions in Iran

Fatemeh Irani Kermani, Mahboubeh Ghasemi, and Fatemeh Abbasi

Economics Dept. Faculty of Mamagememt and Economics,
Shahid Bahonar University,
Kerman, Iran

ABSTRACT: This paper investigates the short term and long term relation between Co$_2$ emissions, electricity consumption and industrialization in case of Iran over the period 1980-2011. To estimate this relationship The Granger Causality Test, Johansen cointegration test and Vector Error Correction Model are applied.

Granger Causality analysis indicates that in short-run there is a bilateral causal relationship between Co$_2$ emissions and electricity consumption, and a bilateral causal relationship between Co$_2$ emissions and industry value added. But Granger Causality analysis didn't show any causal relationship between the industry value added and electricity consumption variables. The effects of the electricity consumption and industrialization on Co$_2$ emissions is positive in long-term.

KEYWORDS: Industrialization, Electricity Consumption, Co2 Emissions, Iran.

INTRODUCTION

The industrialization is the result of consumer and capital goods production, and speed up investment trend to provide services and goods production. The developed countries experiences shows the necessity of industrialization for countries economic growth (Emami and Adibpour, 2011) (1).

Increasing manufacturing energy consumption and the level of energy consumption in the process of industrialization have an upward trend at the beginning and after reaching a certain level of development will have downward trend.

Such decreasing in energy consumption is due to substitution of energy with other inputs, technology improvement, changes in composition of higher quality energy sources (such as electricity) instead of lower quality ones and changes in production of goods (consumption goods to low consumption goods) (Hemmati, 2005) (2).

Among switch energies, electricity has the most consumption diversity. Electricity consumption caused industrial growth and development trough reduction of expenses in the industry investment; this issue caused power plants to become one of the most important aspects of economic development.

On the other hand the power plants fuels in their conversion process to energy emit pollutants such as carbon dioxide into the surrounding environment and impose a noticeable damage to agriculture, the environment and human health.

The purpose of the present paper is to study of the relationship between industrialization process, electricity consumption and carbon dioxide emissions in Iran. Thus, the remainder of this paper is structured as follows: background: explains literature review, the research methodology: the econometric specification and estimation methodology is outlined and discuss how various hypotheses are tested, results: provides a discussion of our empirical results and conclusion: will discusses major findings and concludes the paper.

BACKGROUND

Ghanbari and Khaksar Astaneh (2011) (3), have studied the relationship between electricity consumption, pollutant emission, and gross national production with a focus on high and low income countries. The results show a cointegration relationship between electricity consumption, pollution and gross national production. Also according to their results in long-run cannot considered the relationship between electricity consumption and gross national and this relationship difference, negative within the examined countries.

Mehrara et al (2011) (4), has been studied the relationship between economic growth and increasing electricity consumption in some of the selected Petroleum Exporting Countries using the Single-Equation model and Panel Data Model. The results show that the direction of causality between economic growth and increasing electricity consumption is bilateral in the long-run. But the direction in short-run is from increasing of electricity consumption to economic growth. Also the results show the selected Petroleum Exporting Countries are dependent to electricity energy. Thus, policies to reduce electricity demand by increasing electricity prices have adverse effect on the economy growth in these countries both in the short-run and long-run.

Golizade and Barati (2011) (5), discussed factors influencing household energy and electricity consumption with a focus on energy productivity. Studying the effects of four effective variables: household income, energy efficiency, switch energy and population growth show that income has the greatest effect on the household energy consumption growth. Then population growth and energy efficiency are two affecting factors which increase household energy consumption. Switch fuels and changes in the pattern of households' consumption, totally have a low but positive effect on increasing of energy consumption in the household sector.

Heydari et al (2011) (6), have examined the relationship between electricity consumption, electricity price and economic growth in Iran. Results from the Supply-Side Model, indicates negative unidirectional relationship running from economic growth to electricity consumption in long-term. Short-term results shows a positive bilateral relationship between electricity consumption and economic growth. The results from the demand-side model indicates that there is no relationship between the electricity consumption, its price and economic growth in long-run. Therefore, the increase in electricity consumption is not necessarily a reason of economic growth in countries.

Al-mulali et al (2014) (7), have studied the effect of electricity consumption from renewable and nonrenewable resources on economic growth in the 18 countries of Latin America. The results show that the electricity consumption of renewable electricity resources compare with nonrenewable resources have greater impact on economic growth.

Sadorsky (2012) (8), has studied the impact of information and communication technology (ICT) on electricity consumption in emerging economies. The results show that there is a significant positive relationship between electricity consumption and ICT; ICT is measured when is used to connect to the Internet, mobile phones or private PCs.

Ozturk & Acaravci (2011) (9), have studied the relationship between electricity consumption and economic growth of 11 countries in the Middle East and North Africa in short-run and long-run. Their research results show that there is long-run relationship between electricity consumption and economic growth.

Wolde-rufael (2014) (10), has examined the Granger causality between electricity consumption and economic growth for 15 transition economies. The results show the unidirectional causality run from the power consumption toward economic growth in Belarus and Bulgaria, and from economic growth toward electricity consumption in Czech Republic, Latvia, Lithuania and Russia. The bidirectional causality exists only in Ukraine; while in Albania, Macedonia, Moldova, Poland, Romania, Slovakia and Slovenia there is no causal relationship between electricity consumption and economic growth.

Hamdi (2014) (11), has studied the relationship between electricity consumption, foreign direct investment, and capital and economic growth in Bahrain. The results show that the electricity consumption, foreign direct investment and capital increase economic growth. Granger causality analysis shows the feedback effect between electricity consumption and economic growth, foreign direct investment and electricity consumption. Shahbaz et al (2014) (12) have examined the relationship between industrialization, electricity consumption and CO_2 emissions in Bangladesh and found that financial development increases pollution. Electricity consumption causes production of greenhouse gases. Trade openness has a positive impact on pollutant by energy. Also, the causality analysis shows that the electricity consumption is the reason of pollution, industrial growth and financial development.

RESEARCH METHODOLOGY

In order to achieve the objectives of the research and as Shahbaz et al (2014) used in their studies, the following model is used to estimate the relationship between variables.

$LCO_t = \alpha_0 + \alpha_1 LELC_t + LI_t + LOPEN_t + U_t$

Where: LCOt is emissions in million tons, LELCt is the total electricity consumption in kilowatt per hours, LIt is the industry value added and LOPENt is the degree of trade openness all variables. Are used in log form.

RESULTS

In this study, the Vector Auto Regression Model (VAR) is applied to analyses variables; VAR model is the most appropriate model to analyze the analytical pattern in a study. This model determines the long-run relationship between the variables and is able to explain the short-run relationship between variables. However VAR model relation is in line with short-run and long-run relationship between the variables. To use auto regressive vector model, it is needed to identify the variables and to evaluate if there is stationary or non-stationary. One of the most common tests used to test variables stationary is Augmented Dickey Fuller Unit Root Test (ADF). Based on the ADF test results shown in Tables 1 and 2, the null hypothesis that prove the existence of unit root is not rejected and all variables instead of electricity consumption that is stationary at level, will be stationary at the level of 95% first difference.

Table 1. ADF test results of the pattern variables stationary test

Series Name	ADF	Mackinon critical values		
		1%	5%	10%
LCO	1.21	-3.69	-2.98	-2.63
LI	0.84	-3.66	-2.96	-2.61
LELC	-3.08	-3.66	-2.96	-2.61
LOPEN	-2.25	-3.66	-2.96	-2.61

Table 2. ADF test results of pattern variables stationary test for the first difference

Series Name	ADF	Mackinon critical values		
		1%	5%	10%
LCO	-2.99	-3.71	-2.98	-2.62
LI	-4.97	-3.67	-2.96	-2.62
LELC	-3.36	-3.66	-2.96	-2.61
LOPEN	-5.75	-3.67	-2.98	-2.62

After reviewing the stationary of the variables, the optimal lag model should be determined. To determine the optimal lag model there are different criteria including: Akaike criteria, Hannan Quinn, Maximum Likelihood and Schwartz. In here Schwartz value is used to determine the optimal lag. Based on this criterion, the optimal lag length is one.

Johansen Cointegration test

After determining the optimal lag model, the long-term relationship between the model variables should be tested. In fact Cointegration test solves lack of non-stationary data problem on the series. In this study Johansen-Juselius cointegration test is used. EigenValue and trace-Value are examined in different condition of presence or absence of the constant or trend.

LCO = 0.17 LELC + 0.82 LI _ 0.46 LOPEI

Model (2) shows that the effect of electricity consumption on Co_2 emissions in long-term is positive, the impact of industrialization on CO_2 emissions is positive and the effect of trade openness degree on CO_2 emissions is negative.

Granger Causality Test and the short-run variables relationship

Granger causality test for CO_2 emissions and electricity consumption variables shows that there is a bilateral causal relationship between electricity consumption and CO_2 emissions. The Granger causality test results indicates a bilateral

relationship between CO$_2$ emissions and industry value added. But Granger causality test does not show any relationship between industry value added and electricity consumption. The results of the tests are presented in Table (3).

Table 3 - Granger Causality Test

Null Hypothesis	F- value	Probability	Results
LCO variable is not casual Granger LELC	3.46	0.04	The hypothesis does not confirmed
LELC variable is not casual Granger LCO	3.6	0.04	The hypothesis does not confirmed
LCO variable is not casual Granger LI	9.58	0.000	The hypothesis does not confirmed
LI variable is not casual Granger LCO	4.5	0.02	The hypothesis does not confirmed
LI variable is not casual Granger LELC	0.87	0.42	The hypothesis confirmed
LELC variable is not casual Granger LI	1.81	0.18	The hypothesis confirmed

According to the above mentioned issues and the fact that Granger causality test examines the relationship between variables in the short-run, it can be concluded changes in electricity consumption and industrialization have influence on CO$_2$ emissions.

Vector Error Correction Model

This model is used to relate short-run fluctuations of variables to long-run equilibrium. VECM model is applied in order to evaluate the short run properties of the cointegrated series.

Applying this method can be used to test if a variable have a negative short-run effect on dependent results, the situation will continue in long-run too. So the VECM model is estimated as following:

(3) $D(LCO) = - 0.019 - 0.67*(LCO(-1) - 0.17*LELC(-1) - 0.82*LI(-1) + 0.46*LOPEN(-1) + 8.62) + 0.74*D(LCO(-1)) + 0.28*D(LELC(-1)) + 0.103*D(LI(-1)) + 0.14*D(LOPEN(-1))$

$R2=0.44 \qquad F=3.83$

Adjusted coefficients in the above equation is equal to -0.67, that means in each period 0.67 amount of the imbalance in the previous period will solve. And the adjustment will0.67 happen in line with long-run and in the rate of 0.67.

CONCLUSION

In this paper the impact of Electricity Consumption and CO$_2$ Emissions on Industrialization in Iran has examined by using Granger causality and Vector Error Correction Model. Granger causality results show a unidirectional causal relation between CO$_2$ emissions and electricity consumption. Also Granger causality results for the CO$_2$ emissions and industry value added show that there is a casual bilateral relationship between CO$_2$ emissions and industry value added. But Granger causality test does not show any causal relationship between industry value added and electricity consumption. Also, based on the results of the Johansen test, the long-run impact of electricity consumption on CO$_2$ emissions is positive, industrialization on Co$_2$emissions is positive and trade openness degree on CO$_2$ emissions is negative.

REFERENCES

[1] K. Emami and M. Adibpour, "Industrial importing and industrial sector grow up in Iran", *Journal of Economic Modeling*, Vol. 11, pp. 145-160, 2010.

[2] Hemmati, A, (2004).

[3] A. Ghanbari, and S. Khaksar Astaneh, "The relationship between electricity consumption, pollutant emission, and gross national production; comparison of high and low income countries," *Journal of Economic Modeling Research*, Vol. 31, pp. 121-144, 2011.

[4] Mehrara, M. and R. Farmahini Farahani, and A. Hasanzadeh, "The study of the relationship between increasing electricity consumption and economic growth in the selected Petroleum Exporting Countries," *Journal of Economic Modeling*, Vol. 14, pp. 69-90, 2011.

[5] Golizadeh, A. and J. Barati, "Factors influencing household energy and electricity consumption with a focus on energy productivity," *Journal of Scientific Information Database* (SID), Vol. 7, pp. 145-167, 2011.

[6] Heydari, H. and N. Firoozjaei, and L. Saeidpour, "The studying of the relationship between electricity price and economic growth in Iran," Journal of Economic Modeling Research, Vol. 59, pp. 175-200, 2011.

[7]   Al-mulali, Uand H. Fereidouniand J.Y.M. lee, "Electricity consumption from renewable and non-renewable sources and economic growth: Evidence from Latin American countries, renewable and sustainable energy reviews," Vol. 30, pp. 290-298, 2014.

[8]   Sadorsky, p. "Information communication technology and electricity consumption in emerging economies, energy policy," Vol. 48, pp. 130-136, 2012.

[9]   Ozturk, I. and A. Acaravci, "The causal relationship between energy consumption and GDP in Albania, Bulgaria, Hungary and Romania: evidence from ARDL bound testing approach. Applied energy 87,"1938-1943, 2010.

[10] Wolde-rufael, Y. "Electricity consumption and economic growth in transition countries: A revisit using bootstrap panel Granger causality analysis," *Journal of Energy Economics*, Vol. 44, pp. 325-330, 2014.

[11] Hamdi, H. and R. Sbia, and R. Shabaz, "The nexus between electricity consumption and economic growth in Bahrain,"*Journal of Economic Modeling*, Vol. 38, pp. 227-237. 2014

[12] Shahbaz, M. and G.S. Uddin, and I.U. Rehman, and K. Iimran, "Industrialization, electricity consumption and Co_2 emissions in Bangladesh renewable and sustainable energy reviews," Vol. 31, pp. 575-586, 2014.

Prioritizing investment barriers in Pars Special Economic Energy Zone using the fuzzy hierarchy analytical approach (AHP)

Seyyed Yaghoob Hossainee[1] and Malihe Safari[2]

[1]Assistant Professor Department of management,
Persian Gulf University of Bushehr,
Bushehr, Bushehr, Iran

[2]MA in Executive management, Marketing and Export Trend,
Bushehr Science and Research, Islamic Azad University,
Bushehr, Bushehr, Iran

ABSTRACT: Pars Special Economic Energy Zone in Bushehr province in general and Pars Energy In particular are important areas in Iran having a young population and desirable labor force. Accessing Open Waters and being adjacent to the Persian Gulf countries, Bushehr has strategically unique and special circumstances. In fact, inability to predict future and work culture creates a structural problem in the oil and gas field of our country. The importance of the current study is to prioritize these limitations. This study aims to identify and prioritize the barriers of investments in Pars Special Economic Energy Zone, lead and attract local and foreign investment in order to enhance economic development, and eliminate inequalities while conducting regional and national social justice. Therefore, the investment barriers were identified based on literature review. Also, the viewpoints of 25 top managers in Pars Special Energy Zone were prioritized using Fuzzy Hierarchy Analysis. The results indicate that among identified factors, political factor is of the first and foremost importance. Among the indicators proposed in the conceptual model research, sub –criteria of Bank borrowing and liquidity increase with the weight of (05347/0), International sanctions against Iran with the weight of (05346/0) and inflation factor with the weight of (05321/0) were ranked first to third. And the result is exactly consistent with the current economic conditions. The importance and the effectiveness of the sub criteria on the business activities are obvious. You can follow and observe high risk of investment and the effect of nuclear activities on all national activities and decisions.

KEYWORDS: barriers to investment, fuzzy hierarchical analysis, special economic zone, prioritization.

1   INTRODUCTION

Capital is the main factor of production, economic growth, and development; hence, all countries are going to accumulate internal capital and as most developing countries lack sufficient capital, they have to attract it externally.

Investment is certainly different from capitalism in that capitalism is based on money and financial markets whereas capital is only a part of investment. Innovativeness, labor force, and technology are the other parts to be considered while investing (Salahi, 2008).

Today, we can claim that the position of every country in the world chess board is initially based on economic security, on the other hand investment growth. Thanks to the increase in world, cultural, social, political and economic security as well as demography (i.e. grounds appropriate for capital attraction) economic and political elites can reach part of the market among countries.

Prioritizing investment barriers on projects such as oil and gas on which our national economy is based has gained importance. Prioritizing investment barriers in Pars Special Economic Energy Zone (PSEEZ) is a subject responding sustainable development and the country's economic priorities from the investment perspective.

In its broader meaning, capital means economic goods that are potentially used in production of other goods or services. Studying and analyzing economic changes in the two past decades, different economic policies and inflation downturn, international sanctions, direct involvement of government in recent years and paying attention to the consequences of each era indicate un prioritizing barriers, economic- structural problems and the country's investment in oil and gas industries and hence causing economic instability in these two industries. Now this question arises that why we can't act better or at least the same as our Qatari partner in attracting external capital for PSEEZ.

There is no doubt that continuing the past trend cannot afford the necessities and priorities of the country's economy from the viewpoint of both internal and external investment. Investment is important when it comes to a close relation with national interests of investor and large multinational countries for they are widely located all over the world.

While there is an increase on investment in other countries, unfortunately Iran has faced a sever challenge on the part of investment. The reasons include: lack of strategic thoughts, not using previous research results, lack of coherent planning and management. So, the current research aims not only to recognize the investment barriers in PSEEZ, but also to prioritize them using Fuzzy Hierarchical Analysis Approach (AHP) and present a final model.

2 THEORETICAL REVIEW OF LITERATURE

2.1 CAPITAL AND ITS DEFINITIONS

According to international economy, transferring capital and investment in other countries is part of nations' economic relations and it is different from world trading. That's why researchers of this field study and evaluate cross countries capital flow on capital inflow theory to benefit their hypothesis and special definitions. It is worth noting that capital inflow doesn't just present capital flow, it also considers capital transferring flow, motives, reasons, and the effects of political liberties and restrictions about that.

This theory investigates interest-orientation and capital turn-over theory using capital flow theory. Balance of payment in a country is resulted when the amount of declared flows equals its relative payments. We summarized capital flow-based research as follow (Mahdavi, 2005):

Based on historical statistical, United states has done its oldest foreign investment research between 1850 - 1918. Capital flow trend between two world wars was along resulted in significant international investment of United States so that in 1919, its international investment reached to $6.5 billion and enhanced to $8.3 billion the following year which includes two third of the whole international investment. This figure will exceed $15.7 billion by 1930.

Capital flow had a significant increase after 1945. Considering rapid growth of investment and its diversity in the world, nowadays capital flow theory and its limited hypothesis don't qualitatively and quantitatively support capital flow in the world. These employers knew almost everything about their jobs and decided on everything. It continued until early 20th century. By the rapid economic growth in United States and the start of enterprises integration, the new approach of continental marketing production and vertical integration of firms needed a new management. Therefore, family enterprises which ware under exact monitoring of few people were replaced by enterprise management pyramid. Through it, capital gained power and working platform, coordination scope was knowingly extended, market-based labor division sector was limited, organic management system was established and a modern firm was constituted.

Organizations were developed soon. For example, the problem of mass production in United States was simply solved by the first decade of 20th century. By the late 19th century, scientists and engineers reached almost all inventions necessary for mass production of all basic consumption goods with less cost (Mahdavi, 2005).

Multinational countries gradually developed after worldwide II and started working all over the world. It is worth noting that large multinational companies were mainly established in Europe and America and started working worldwide. The majority of large multinational companies are centralized in America, Germany, and England respectively.

2.2 DEFINITION OF INVESTMENT

The investment in our country comparing with that of some countries in Middle East, especially countries of East Asia and the whole world has had a slow growth and has become vulnerable. Specifically, investment occurs in different ways

depending on social, cultural, political and economic conditions of the country. Economists have presented different points of view on investment classification.

Investment means the act of committing a current value, which is usually known, with the expectation of obtaining an additional value, which is usually unknown, in the future. In fact, ignoring today usage is done in the hope of using more in the future (M. Jahromi, 2009).

In a broader meaning, investment is an economic good which potentially produces another economic good such as cash, factory, machinery and its components, tools, patent, technical services, etc.

Indeed, capital is in three formats: physical capital including equipment and machineries, financial capital including securities and stocks, and human capital including technical knowledge and education. To develop and continue economic growth, different viewpoints emphasize on investment in different abovementioned grounds (Mahdavi, 2005).

3   STUDYING INVESTMENT BARRIERS IN IRAN

Most developing countries face shortage of investment sources when prospering economic conditions, job creating, and achieving economic sustainable development and growth. Reasons which limit saving sources interchangeable to productive investments include: export-based-exchange income deficiency, unfair transactional rate which usually harms exporters of goods and raw materials, mass population and hence high consumption. Countervailing economic backwardness and achieving sustainable development require investment in order to benefit relative advantages and potential economic capabilities. Capital, in globalization process is easily transferred. However, investors are trying to gain more benefits and reach a safe place to investment. Investment saturation in developed industrial countries caused the decline in the rate of return on investment in these countries and investors are always seeking to benefit opportunities with greater efficiency. If the investment security in developing countries and economies in transition are guaranteed and the necessary legal platform is provided, international investors are more willing to attend in these markets. This is also an opportunity for host countries to benefit from the relative advantages, economic growth, job creation and access to modern knowledge and technology to produce competitive products in the international arena. Therefore, accelerating the entry of foreign investments would bring mutual benefit for both the host countries and international investors

Barriers to investment in economic, political, and cultural, social and legal sector include:

3.1   ECONOMIC BARRIERS

The complexity of the business - economic system is so that multiple sectors must be considered and inefficiency of each of these sectors is certainly a major barrier to investment attraction. Some economic barriers to foreign investment attraction are as follow:

Lack of clear and consistent strategy in exchange and monetary policy ,constant changes and sectional decisions in the banking sector, uncertainty of the exchange and fluctuation of its rate, inflation, bank borrowing and liquid it yin crease, interest rate and its changes, problems of customs regulations, lack of financial institutions and efficient stock, problems resulting from the government's activities in the economy, uncertainty of privatization policy, problems of law enforcement practices, inefficiency of trade regulations, investment high risk, inequities in wealth distribution, over expanding public sector, inefficient trade policies, lack of physical infrastructures, ports weakness, lack of incentives, lack of adequate skilled manpower, and confined Iranian economy.

Inadequate economic infrastructure development is another factor threatening foreign investment. For the foreign investors work successfully in the country, appropriate economic infrastructures relative to their activities are required. Foreign companies cannot work without accessing these infrastructures. For instance, we can refer to infrastructure weakness of two systems of communications and transportation (Behkish, 2001). Exchange fluctuation is one of the main economic risks of foreign investment in the country. Recently, the government has performed monetary reforms in order to provide security in the national financial market. However, foreign investors are exposed to loss if exchanges especially dollar fluctuate a lot. This will happen when the dollar will soar.

Another barrier to investment is lack of or poor economic management which is not able to manage the changes timely and eliminate them. This type of management faces deficiency of knowledge, experience and competence and does not consider achieving assessed approaches as its own responsibility. They also suggest that foreign investors will make the competitive market unequal, create monopoly and hence the community goes toward unnecessary consumption. They also

argue that the foreign invest ors do not care about people of a country in which they have invested and instead, they just think about their profitability (www.sarmayeh.net).

3.2 POLITICAL BARRIERS

Despite its economic importance in accumulating capital, investment has several political consequences. Today, countries which try to attract and support foreign capital through applying a public policy are considered internationally different; because, foreign investment attraction requires political stability. Since appropriate political conditions for foreign investors are somehow prior to other conditions, it can be inferred that the main political barriers to foreign investment include: international sanctions against Iran, lack of internal consensus on how to attract foreign investment, political instability, relatively high political risk, security problems, international political positioning in relation to global issues such as Syria's issues and adverse foreign media publicity about Iran.

Iran is in a complex condition due to its governmental structure and relations with other countries; therefore, any changes concerning internal and foreign conditions can easily affect Iran's economic conditions and hence foreign investment. Ideal theoretical and ideological dominance of the government is considered as a high political risk factor in Iran. Iran's political tension relations with other countries have influenced the country's economic conditions and hence foreign investment. It is so important that any increase or decrease in the tension will clearly affect demands and foreign investment activities in the country.

Nuclear activities are considered the main crisis of foreign political affairs in Iran. If Iran is limitedly sanctioned by Security Council, this sanction can be in different areas affecting foreign investment in Iran both directly and indirectly (www.sarmayeh.net).

Iran has been long accused of interfering with South West Asian countries' affairs specially Syria's and hence preventing American supported countries to be established. In consistent with the above discussion we can refer to recent oral conflicts between Iran and America where both nations accused each other of doing subversive activities against each other's interests (in Iran and Syria). So, Iran has indirectly imposed some restrictions on his mutual business transactions and some business programs have been eliminated.

The last issue we consider here is respecting human rights by Iran. It occasionally causes tension in the relationships between Iran and western countries, especially Europe and Canada. These countries tend to condemn Iran by expressing its offences before international organizations and hence blurring Iran's international outlook (A. Shahid).

3.3 SOCIAL AND CULTURAL BARRIERS

Culture is the communication and human foundation of any society. Indeed, human social behaviors root back in the culture which is embedded in him. Social culture of any society is the main criterion defining how to communicate with other communities. Culture in its broadest sense is what we call communication and social interaction.

Belief and negative feelings towards investment and foreign capital has always induced a false impression. This feeling, especially in the Third World countries, is influenced by people who generally prefer state economy to free economy. The experience of growth and development of developed countries in the recent three decades show that this notion is not consistent with rational criteria and real applications. In the past three decades, the world has witnessed countries which have change to a power through investment continuation. These countries have accepted the market economic frameworks and gradually included themselves among developed countries and hence making themselves more and more away from economic backwardness and poverty. Cultural barriers to investment briefly include :Having negative feelings toward foreigners, foreign investors' suspicion about investment in Iran, poor communication and interaction with foreign investors, government-destructive propaganda, inappropriate publicity and lack of worldwide confidence-building, types of communication and social norms, lack of appropriate educational facilities such as bilingual schools, cultural restrictions, and the problems concerning social security (Rafa~ti , 2009).

4 RESEARCH BACKGROUND

Valiollah Karimi (1997) investigated the barriers to investment in Kish Free Zone (KFZ) in his study. In this study, by investment he meant investment by both domestic and foreign investors. Barriers to investment attraction mean any factor negative l y influencing the beginning and development of investment in KFZ (Karimi, 1997).

The results show that investment requires necessary ground and infrastructures and if they are not provided, investment would not happen. Therefore, lack of some factors effective in investment is considered as barriers to attract capital.

Behrang Samadi (2000) in his research *"Problem and barriers to foreign investment in Iranian infrastructural industries (oil industry)"* states that using foreign investment in Iranian infrastructural industries is on the lips of most economic-meeting members. He also emphasizes on foreign investment in Iran's oil industry. However, Iran's oil industry has not worked well attracting foreign investors and it seems there are some barriers to this end (samadi, 2000).

Soheil Poor haji (2001) has studied the effect of direct foreign investment on host country's macroeconomic variables (comparative study of selected countries: China, Chili, Iran). He has performed a comparative study (studying the effect of direct foreign investment in different countries) using historical data and econometrics approach. Poor Haji collected his data through library study and statistical sources. On the other side, he rarely investigated the effect of foreign investment on host country's economy as he considers the effect of policy more than that of the other variables (P. H.Hosseini, 2001).

Molouk Partovi Shafagh (2003) has studied approaches to attract foreign investment in Iran. Systematically investigating Iranian political and economic criteria and its worldwide interaction in recent decade, she identified Iran's reconstruction challenges and presented efficient approaches to eliminate barriers to investment attraction (P. Shafagh, 2008).

Mitra Nedayi (2005) has investigated the effect of direct foreign investment on technology transfer (comparative study). In her study, Nedayi used Correlation coefficient test and Engle-Granger Causality test. The results show that foreign investment deficiency and technological gap have made Iran unsuccessful in globalization process despite having abundant available sourcesand advantages. She has also compared the effect of investment on Iranian technology sector with other countries like Malaysia (Nedayi, 2005).

Hossein Dastar (2009) has worked on problems and barriers to attract foreign investment in Pars Special Economic-Energy Zone (PSEEZ). He has investigated and prioritized barriers to foreign investment in PSEEZ using T-student test, Chi-Square test and Friedman test. Then, he prioritized analyzed data and finally introduced political barriers as the main ones 9dastar, 2009).

Mehrnoosh Akbari (2010) studied economic security and its effect on investment in Iran. She has used analytical-historical method in order to investigate economic security and its effect on investment in Iran during the country's cultural, social and economic programs (Akbari, 2010). The results indicate a positive relation between investment growth and economic development and security.

Based on the discussed model it can be inferred that the more economic freedom, the more effect the direct foreign investment will have on gross domestic product, implying a direct relationship between presented variables.

Somayyeh Asadi (2010) has researched about investment's aptitude and relative advantages in East Azerbaijan. She has used an analytical approach and collected her data using library studying, data and statistical observations. Asadi ranked and prioritized each industrial activity using LQ criterion, RCA criterion and Numerical Taxonomy method with some efficient criteria. She then compared the province's industrial activity with other state industries.

The results indicate that machinery and metal equipment, food industries, textile industries, nonmetal mineral industries and chemical industries were of significant relative advantage in production and exportation comparing with the country (Asadi, 2010).

Sepide Samimi (2010) has investigated the effect of oil incomes on Iranian industrial structures using three criteria of added value, investment and employment. In her research, she used regression and library data collection. The results imply that oil income has dissimilated effects on various industrial activities (Samimi, 2010).

Tahmineh Rahmani (2010) carried out the research "*On the influence of joint venture contract on Iran's administrative laws"*using inferential-descriptive method and library data. The main consequence of the research is that despite financing strategy, borrowing foreign sources and applying direct investment in domestic private sector make no commitment to the government. This is economic efficiency of investment arising from wise selection which creates interest for partners (Rahmani, 2010).

Maryam S. Ehsani Tabatabai (2011) investigated the effect of organizational investors on investment policies of the firms. Correlation method and multivariable regression was used in this study. The result shows a positive relationship between organizational investors and investment policies (Tabatabai, 2011).

Mohsen Klich (2011) conducted the research *"Casual relationship between economic growth and foreign investment growth in provinces of Iran"* using library method. The required statistics were collected from Statistical Center of Iran,

Investment Organization, and Central bank Time Series. The researcher used Granger Causality test, Hsiao Causality test, and FPE standard. The results show that there is a casual and mutual relationship between economic growth and foreign investment growth in provinces of Iran (Klich, 2011).

Nima Nasrollahi Shahri (2010) has conducted the research *"The Petroleum Legal Framework of Iran"* using analytical-historical approach. The results reveal that attracting more capital in Iran's petroleum sector requires some changes in the current laws of oil industry. The researcher suggests that reforming international political attitude can complement the notion of applying energy sources (Nasrollahi Shahri, 2010).

Quan Li and Guoyong Liang (2012) investigated the political relations and Chinese outbound direct investment using survey-descriptive method. They believe Chinese firms tend to invest in countries with high political risks. That's why economists and Chinese elites consider the role of inter-state political relations and international political issues significantly important regarding outbound direct investment and foreign direct investment as well. The research consists of two tests: one at the firm level and the other at the dyadic level (Quan &Guoyong, 2012).

Dola Kamariah, Tahir Osman Mohd and Omid Reza Saadatian (2010) conducted a research on *"Identifying Challenges in Implementing Sustainable Practices in a Developing Nation"*. This paper employs survey, interview as well as observation to explore the perception of people on planning and sustainable development efforts and to identify the most important challenges at Pars Special Economic Energy Zone. The result shows that the major impediment against sustainability is the environment and the cultural barriers are the second (Kamariah, Osman and Saadatian, 2010).

5   RESEARCH METHODOLOGY

This study is survey-descriptive with a quantitative approach. Prioritizing investment barriers in PSEEZ which is studied in this research is one of the key and challenging issues in strategic planning. The final aim of the research is to identify and prioritize investment barriers in active agencies located in Asaluye Special Economic Zone. You can see the investment barriers in Figure 1.

5.1   FUZZY HIERARCHICAL ANALYSIS APPROACH

Fuzzy hierarchical analysis (AHP) process is a research technique supporting multifactor logical decisions. This technique is a prominent managerial tool for complicated decision-making problems. It is also used as a method for solving qualitative and quantitative problems (Lee, Kim, Kim and Oh, 2012).
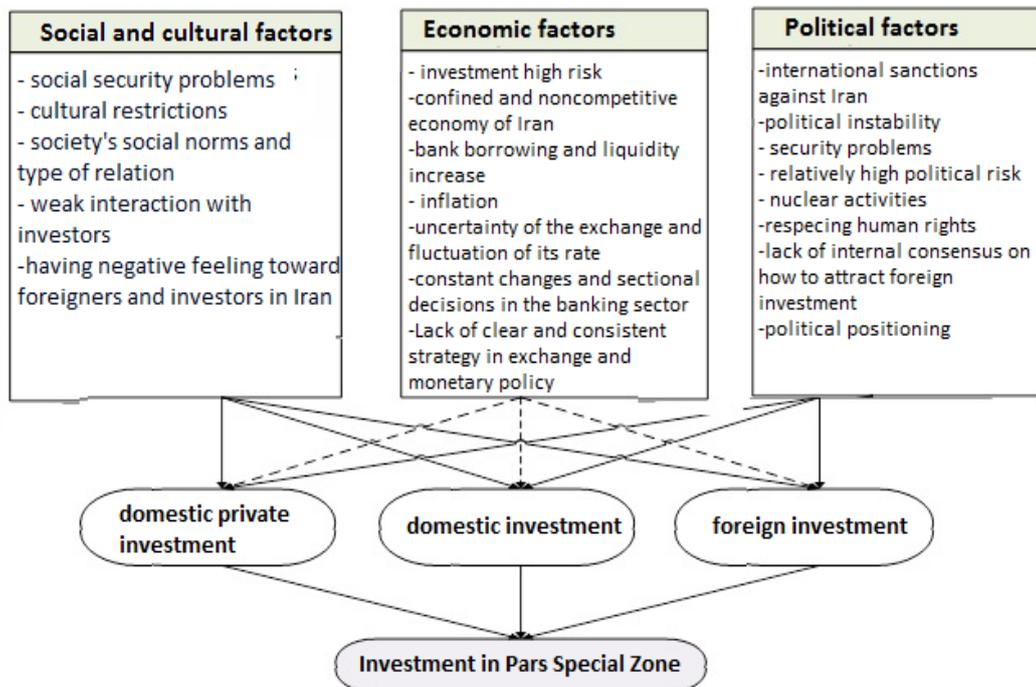

Fig. 1. Barriers to investment

Fuzzy notion in AHP approach is considered indirectly and without using fuzzy sets. In this method, in fact, we used linguistic expressions (shown in Table 2) in order to determine Pair wise Comparison Matrices. Therefore, by generalizing the above method, approaches are presented in which fuzzy numbers are used to determine the priority of each factor. Meanwhile we can refer to methods presented by Chang (Chang, 1992). Broader investigations concerning these techniques are seen in research by Kahraman et al. (Kahraman, Cebeci & Ruan, 2004). Here, fuzzy AHP is used as Chang's extent analysis method.

Table. 1. Membership function of linguistic variables determining criteria weights

Priority of column over raw				Priority of raw over column			
Linguistic variable	Equivalent fuzzy number			Linguistic variable	Equivalent fuzzy number		
Equally important	1	1	1	Equally important	1	1	1
Equally to Weakly important	2.67	2	1.33	Equally to Weakly important	0.75	0.5	0.37
Weakly important	3.67	3	2.33	Weakly important	0.43	0.33	0.27
Weakly to very important	4.67	4	3.33	Weakly to very important	0.30	0.25	0.21
very important	5.67	5	4.33	very important	0.23	0.20	0.18

5.2 STAGES OF FUZZY AHP

In this approach, for each raw of pair wise comparison matrix, SK which is a triangular fuzzy number is calculated as below (Azar and Faraji, 2008):

LetX={$x_1,x_2,x_3,…,x_n$}be an object set andU={$u_1,u_2,…,u_n$}as a goal set. Then, According to the method of Chang's extent analysis, each object is taken and the extent analysis for each goal,(g_i) is performed respectively. Therefore, m extent analysis values for each object can be obtained, with the following signs:

$$M_{g_i}^1, M_{g_i}^2, … M_{g_i}^m \qquad i=1, 2, 3 …n$$

$$\begin{bmatrix} M_{g_1}^1 & M_{g_1}^2 & … & M_{g_1}^n \\ M_{g_2}^1 & M_{g_2}^2 & … & M_{g_2}^m \\ . & . & … & .. \\ M_{g_n}^1 & M_{g_n}^2 & …. & M_{g_n}^m \end{bmatrix}$$

Where all $M_{g_i}^j$ are triangular fuzzy numbers presented as (l, m, u). The steps of extent analysis can be given as follow:

Step 1: Obtaining fuzzy synthetic extent for each object

Let $M_{g_i}^1, M_{g_i}^2, … M_{g_i}^m$ be the ith object extent analysis for m goals. Then, the extent synthetic analysis of m goals for ith object is defined as:

Let$M_{g_i}^1 = (l_{ij}, m_{ij}, u_{ij})$. Then, $\sum_{j=1}^m M_{g_i}^j$is defined by fuzzy addition operation of m extent analysis values as follow:

$$\sum_{j=1}^j M_{g_i}^j = (l_{i1},m_{i1},u_{i1}) + (l_{i2},m_{i2},u_{i2}) + \cdots + (l_{im},m_{im},u_{im}) = \left(\sum_{j=1}^m l_{ij}, \sum_{j=1}^m u_{ij} \right) = (l_i', m_i', u_i')$$

To obtain$\left[\sum_{i=1}^n \sum_{j=1}^m \sum_{g_i}^j.\right]^{-1}$ by fuzzy addition operation we will have:

$$\sum \sum M_{g_i}^j = \sum_{i=1}^n \left(\sum_{j=1}^m l_{ij}, \sum_{j=1}^m m_{ij}, \sum_{j=1}^m u_{ij} \right) = \left(\sum_{i=1}^n l_i', \sum_{i=1}^n m_i', \sum_{i=1}^n u_i' \right)$$

$$\left(\sum_{i=1}^n \sum_{j=1}^m M_{g_i}^J \right)^{-1} = \left(\frac{1}{\sum_{i=1}^n u_i'}, \frac{1}{\sum_{i=1}^n m_i'}, \frac{1}{\sum_{i=1}^n l_i'} \right)$$

$$S_i = \sum_{j=1}^m M_{g_i}^J * \left[\sum_{i=1}^n \sum_{j=1}^m M_{g_i}^J \right]^{-1}$$

And hence:

$$(l_i', m_i', u_i') * \left(\frac{1}{\sum_{i=1}^{n} u_i'}, \frac{1}{\sum_{i=1}^{n} m_i'}, \frac{1}{\sum_{i=1}^{n} l_i'} \right) = \left(\frac{l_i'}{\sum_{i=1}^{n} u_i'}, \frac{m_i'}{\sum_{i=1}^{n} m_i'}, \frac{u_i'}{\sum_{i=1}^{n} l_i'} \right) = (l_i, m_i, u_i)$$

$$(1) S_k = \sum_{j=1}^{n} M_{ij} \otimes \left[\sum_{i=1}^{m} \sum_{j=1}^{n} M_{ij} \right]^{-1}$$

Where k is the raw number and i and j represent items and criteria respectively.

Step 2: In this method, after computing S_ks, their greatness should be obtained with respect to each other. M_1 and M_2 are generally two triangular fuzzy numbers. M_1 and M_2 are defined as follow:

(2) $\qquad V(M_i \geq M_k) = 1 \quad \text{if} \ m_i \geq m_k$

Other wise

$$V(M_i < M_k) = hgt(M_i \cap M_k$$

and we have:

(3) $\qquad hgt = (M_i \cap M_k) = \frac{U_i - L_k}{(U_i - L_k) + (m_k - m_i)}$

Step 3: The degree of possibility for a triangular fuzzy number to be greater than k triangular fuzzy numbers can be defined by:

(4) $\qquad V(M_1 \geq M_2, \ldots, M_k) = V(M_1 \geq M_2) \text{and} \ldots \text{and} \ V(M_1 \geq M_k)$

Do as follow to obtain criteria weights in pair-wise comparison matrix:

(5) $\qquad w'(x_i) = \min\{V(S_i \geq S_k)\} \qquad k = 1,2,3, \ldots, n, k \neq i$

Step 4: Therefore, the weight vector is given by

(6) $\qquad w'(x_i) = [w'(x_1), w'(x_2), \ldots, w'(x_n)]^t$

This is the unnormalized coefficient vector .To obtain the normalized vector:

(7) $\qquad w(x_k) = \frac{w'(x_k)}{\sum_{k=1}^{n} w'(x_k)}$

These steps have been done for all pair-wise comparison tables in order to obtain normalized weights.

6 RESEARCH RESULTS

Figure 2 illustrates barriers to investment as a research operational model or research decision tree. At first the research native and implicit model, which is the result of previous valid sources and interviews with elites, are presented and then fuzzy AHP with an extent approach is implemented.

As we mentioned above, investment barriers in PSEEZ include: 1. social and cultural barriers; 2. Economic barriers; 3. Political barriers. All these three criteria have various sub-criteria which are illustrated as decision tree in the following graph:
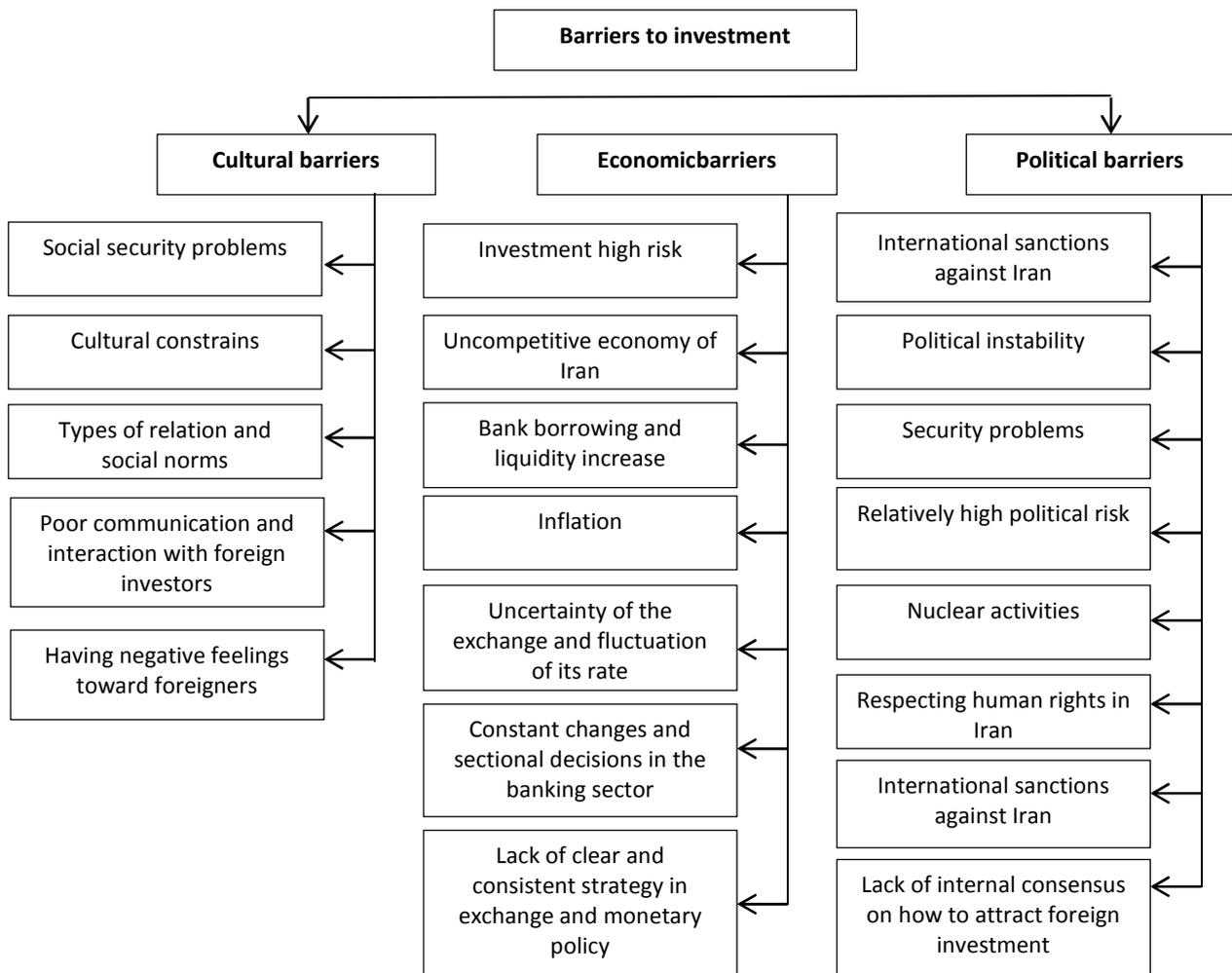
Fig 2 : Decision tree for prioritizing investment barriers

Before implementing fuzzy AHP with Chang extent approach, it is worth noting that in the present study, we used group decision-making process. The results are from 25 questioners filled by elites, managers and supervisors of ASEOZ in province Bushehr.

Here, we prioritize 8 sub-criteria of political barriers (international sanctions against Iran, security problems, political instability, relatively high political risk, nuclear activities, respecting human rights in Iran, lack of internal consensus on how to attract foreign investment, political positioning). To do so we first represented a fuzzy group decision making table concerning pair-wise comparison of 8 mentioned sub-criteria. To calculate the inconsistency rate of this matrix, we should first change fuzzy numbers into crisp numbers. You can see fuzzy AHP pair-wise comparison matrix in the following table. This matrix is the result of geometric mean of experts' opinions regarding prioritization of political barriers. In this table, for the values below the main diameter we used the reversed values for those above the diameter. All the steps toward obtaining the weight of each sub-criterion is illustrated in table 2.

Table 2: Pairwise comparison matrix for political barriers

	C1	C2	C3	C4
C1	(1,1,1)	(1.4461, 1.7241, 2.0178)	(1.7766, 2.2089, 2.6643)	1.1424, 1.4102, 1.6974)
C2	(0.4955, 0.5799, 0.6914)	(1,1,1)	(1.3191,1.6485, 2.0003)	(1.0852, 1.3005, 1.5162)
C3	(0.3753,0.4527, 0.5628)	(0.4999, 0.6065, 0.7580)	(1,1,1)	(0.4944, 0.5905, 0.7213)
C4	(0.5891, 0.709, 0.8753)	(0.6595, 0.7689, 0.9214)	(1.3863,1.6932, 2.0223)	(1,1,1)
C5	(0.6214, 0.7424,0.898)	(1.0067, 1.2312, 1.4848)	(1.8560,2.2658, 2.6980)	(1.232, 1.467, 1.7414)
C6	(0.5592,0.6561, 0.7868)	(0.6326, 0.7491, 0.9045)	(1.0584, 1.2866,1.5711)	(0.5093, 0.6047, 0.7366)
C7	(0.7784, 0.9363, 1.1182)	(0.7854, 0.9504, 1.1510)	(1.0199,1.2343, 1.4801)	(0.9269, 1.1619,1.4436)
C8	(1.1491,1.3922, 1.6799)	(1.1670, 1.4522, 1.776)	(1.3394, 1.6031, 1.9054)	(1.2935, 1.5722, 1.8905)
	C5	**C6**	**C7**	**C8**
C1	(1.1134, 1.3468,1.609)	(1.2708,1.5241, 1.7881)	(0.8942, 1.0679, 1.2846)	(0.5952, 0.7182, 0.8701)
C2	(0.6734, 0.8121,0.9933)	(1.1054, 1.3349, 1.5806)	(0.8687, 1.0521, 1.2731)	(0.563, 0.6885, 0.8568)
C3	(0.3706, 0.4413, 0.5387)	(0.6364, 0.7772,0.9447)	(0.6755, 0.8101, 0.9804)	(0.5248, 0.6237, 0.7465)
C4	(0.5742,0.6816, 0.8116	(1.3575,1.6535, 1.9634)	(0.6927, 0.8606, 1.0787)	(0.5289, 0.636, 0.773)
C5	(1,1,1)	(1.5534,1.8544, 2.1832)	(1.2512, 1.522, 1.837)	(0.8356, 1.0477, 1.2922)
C6	(0.458,0.5392, 0.6437)	(1,1,1)	(0.5458, 0.6629, 0.8051)	(0.5185, 0.6087, 0.7283)
C7	(0.5441, 0.6569, 0.7992)	(1.242, 1.5082, 1.8321	(1,1,1)	(0.6697, 0.8125, 0.9999)
C8	(0.7738, 0.9544, 1.1967)	(1.3729, 1.6426, 1.9283)	(1.000019, 1.2307, 1.4929)	(1,1,1)

Then, based on EA method, SK which is a triangular fuzzy number is computed for each row of matrix as follow:

$$\sum_{j=1}^{8} M_{g_1}^{j} = (1,1,1) + (1.4461,1.7241,2.01786) + (1.7766, 2.2089, 2.6643) + (1.1424, 1.4102, 1.6974)$$
$$+ (1.1134, 1.3468, 1.6090) + (1.2708, 1.5241, 1.7881) + (0.8942, 1.0679, 1.2846)$$
$$+ (0.5952, 0.7182, 0.8701) = (9.2390, 11.0006, 12.9318)$$

$$\sum_{j=1}^{8} M_{g_2}^{j} = (7.11, 8.4169, 9.912) \qquad \sum_{j=1}^{8} M_{g_3}^{j} = (4.5772, 5.3023, 6.2528)$$

$$\sum_{j=1}^{8} M_{g_4}^{j} = (6.788, 8.0030, 9.446) \qquad \sum_{j=1}^{8} M_{g_5}^{j} = (9.356, 11.130, 13.135)$$

$$\sum_{j=1}^{8} M_{g_6}^{j} = (5.282, 6.107, 7.176) \qquad \sum_{j=1}^{8} M_{g_7}^{j} = (6.966, 8.260, 9.824)$$

$$\sum_{j=1}^{8} M_{g_8}^{j} = (9.096, 10.8479, 12.869)$$

$$\sum_{i=1}^{8}\sum_{j=1}^{8} M_{g_i}^{j} = (58.417, 69.07, 81.549) \qquad \left(\sum_{i=1}^{8}\sum_{j=1}^{8} M_{g_i}^{j}\right)^{-1} = (0.0122, 0.0144, 0.0171)$$

S_1=(0.113294, 0.159267, 0.22137) $\qquad$ S_2=(0.087197, 0.12186, 0.16967)

S_3=(0.056128, 0.076767, 0.107038) $\qquad$ S_4=(0.083243, 0.115869, 0.1617)

S_5=(0.114736, 0.161152, 0.224862) $\qquad$ S_6=(0.064771, 0.088427, 0.122849)

S_7=(0.08543, 0.119602, 0.168178) $\qquad$ S_7=(0.11154, 0.157056, 0.220311)

Then, the greatness degree of each SK is computed with respect to others. The greatness value, $V(S_i \geq S_K)$ of each SK in presented below:

$$V(S_1 \geq S_2, \ldots, S_8) = Min(V(S_1 \geq S_2), \ldots, V(S_1 \geq S_8)) = 0.9175$$

$$V(S_3 \geq S_1, \ldots, S_8) = Min(V(S_3 \geq S_1), \ldots, V(S_3 \geq S_8)) = 1.011659$$

$$V(S_5 \geq S_1, \ldots, S_8) = Min(V(S_5 \geq S_1), \ldots, V(S_5 \geq S_8)) = 0.915615$$

$$V(S_7 \geq S_1, \ldots, S_8) = Min(V(S_7 \geq S_1), \ldots, V(S_7 \geq S_8)) = 0.957165$$

$$V(S_2 \geq S_1, \ldots, S_8) = Min(V(S_2 \geq S_1), \ldots, V(S_2 \geq S_8)) = 0.9549$$

$$V(S_4 \geq S_1, \ldots, S_8) = Min(V(S_4 \geq S_1), \ldots, V(S_4 \geq S_8)) = 0.96089$$

$$V(S_6 \geq S_1, \ldots, S_8) = Min(V(S_6 \geq S_1), \ldots, V(S_6 \geq S_8)) = 0.988341$$

$$V(S_8 \geq S_1, \ldots, S_7) = Min(V(S_8 \geq S_1), \ldots, V(S_8 \geq S_7)) = 0.919712$$

$$W' = (0.9175, 0.954, 1.0117, 0.9609, 0.9156, 0.9883, 0.9572, 0.9197)$$

$$W_N = (0.1203, 0.1252, 0.1327, 0.126, 0.1201, 0.1296, 0.1255, 0.1206)$$

The result of applying fuzzy AHP method is illustrated in table 3:

Table 3: Final prioritization of political barriers sub-criteria

Political barriers	*Abb*	*The degree of importance resulted from applying fuzzy AHP*	*Rank with respect to the degree of importance*
Lack of internal consensus on how to attract foreign investment	C_1	0.1203	7
Political instability	C_2	0.1252	5
International sanctions against Iran	C_3	0.1327	1
Political positioning	C_4	0.126	3
Respecting human rights in Iran	C_5	0.1201	8
Nuclear activities	C_6	0.1296	2
Relatively high political risk	C_7	0.1255	4
Security problems	C_8	0.1206	6
Consistency rate		0.0456	

To obtain consistency rate, we should first change fuzzy matrix into defuzzy or crisp matrix that is by formula mentioned in the last section we should change all fuzzy numbers into crisp numbers. Dufuzzied numbers related to political barriers sub-criteria are shown in table 4.

Table 4: Dufuzzied numbers related to political barriers sub-criteria

	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8
C_1	1.0000	2.1105	2.8085	1.7868	1.6869	1.8726	1.3425	0.9112
C_2	0.7196	1.0000	2.1101	1.5880	1.0396	1.6571	1.3343	0.8987
C_3	0.5887	0.7936	1.0000	0.7534	0.5623	0.9917	1.0253	0.7795
C_4	0.9153	0.9579	2.1247	1.0000	0.8474	2.0621	1.1347	0.8088
C_5	0.9384	1.5597	2.8346	1.8198	1.0000	2.2836	1.9281	1.3629
C_6	0.8192	0.9434	1.6473	0.7684	0.6708	1.0000	0.8442	0.7584
C_7	1.1709	1.2060	1.5517	1.5219	0.8368	1.9209	1.0000	1.0476
C_8	1.7610	1.8711	1.9933	1.9834	1.2569	2.0182	1.5699	1.0000
CI=0.0456								

As it is shown in table 4, consistency rate of political barriers is 0.0456 which is less than 0.1. Therefore, it can be inferred that the answers are of acceptable consistency.

Eight major sub-criteria related to political barriers which are represented here are considered the investment barriers in active enterprises of the oil and gas sectors; hence, they should be paid high attention. C3 (international sanctions against Iran), among other sub-criteria, with the approximate weight of 0.132 is in first importance rank. Then, C6 (nuclear activities) with the weight of 0.129 is in the second rank. As it goes, C5 (respecting human rights in Iran) with the weight of 0.1200 is in the last rank.

It should be noted that the main political criterion to which these 8 sub-criteria belong has the first priority to senior managers of ASEZ and hence special attention to these sub-criteria is of great importance.

We did the same for economic and cultural sub-criteria as we did for political ones. However, the results are not shown here according to the author. The final weights for economic barriers, however, are shown in table 5.

Table 5: ranking economic barriers

Economic barriers	Abb	The degree of importance resulted from applying fuzzy AHP	Rank with respect to the degree of importance
Inflation	B_1	0.1473	2
Uncompetitive economy of Iran	B_2	0.1391	7
Bank borrowing and liquidityincrease	B_3	0.14802	1
Investment high risk	B_4	0.14061	5
Uncertainty of the exchange and fluctuation of its rate	B_5	0.1418	4
Constant changes and sectional decisions in the banking sector	B_6	0.14058	6
Lack of clear and consistent strategy in exchange and monetary policy	B_7	0.1424	3
Consistency rate		**CI=0.0987**	

Among 7 economic sub-criteria, bank borrowing and liquidity increase (B3) with the weight of 0.148 was in the first importance rank. Then, inflation (B1) with the weight of 0.147 was in the second rank. Similarly, uncompetitive economy of Iran (B2) with the weight of 0.139 was in the last rank. Generally speaking, these 7 sub-criteria should be paid economic attention by politicians and senior managers of Pars oil and gas sector.

Table 6: Final ranking of cultural and social barriers

Social and cultural barriers	Abb	The degree of importance resulted from applying fuzzy AHP	Rank with respect to the degree of importance
Social security problems	A_1	0.216	1
Cultural constrains	A_2	0.201	3
Types of relation and social norms	A_3	0.205	2
Poor interaction with foreign investors	A_4	0.187	5
Having negative feelings toward foreigners	A_5	0.191	4
Consistency rate		CI=0.0798	

Table 6 shows sub-criteria weights of social and cultural barriers. The table consists 5 major sub-criteria of social and cultural factors which are barriers to investment in active enterprises of oil and gas sectors. Among these sub-criteria, factor of "social security problems" (A1) with the weight of 0.216 is in the first rank. Then, "types of relation and social norms" (A3) with the weight of 0.205 is in the second rank and similarly "having negative feelings toward foreigners" (A4) with the weight of 0.187 is in the last rank. Generally speaking, these 5 sub-criteria should be paid economic attention by politicians and senior managers of Pars oil and gas sector.Final ranking of three major barriers is illustrated in table 7.

Table 7: Ranking of major barriers

Major barriers	Abb	The degree of importance resulted from applying fuzzy AHP	Rank with respect to the degree of importance
Social and cultural barriers	K_1	0.2356	3
Economic barriers	K_2	0.3613	2
Political barriers	K_3	0.4029	1
Consistency rate		CI=0.0439	

Among these three investment barriers, political factor with the approximate weight of 0.4029 is in the first rank. Then, economic and social and cultural factors with the weights of 0.3613 and 0.2356 are in the second and last rank, respectively. In a broader view, politicians and senior managers of Pars oil and gas sectors should pay a special attention to these three factors.

WEIGHTING AND PRIORITIZING ALL ASPECTS OF RESEARCH CONCEPTUAL MODEL

After calculating the weights of all major criteria and their sub-criteria, it is possible to weight and prioritize all aspects of model. To obtain the final prioritization of sub-criteria, we multiplied the weight of each sub-criterion by the weight of its respective major criterion to reach the final weight of each sub-criterion. The following table shows the final weight of each sub-criterion.

Table 8: Prioritization of sub-criteria related to all investment barriers in active enterprises of oil and gas sectors

Major criteria	Criteria weight	rank	sub-criteria	Sub-criterion weight	Sub-criterion final weight	rank
Social and cultural factors	0.2356	3	Social security problems	0.216	0.05088	8
			Cultural constrains	0.201	0.04735	18
			Types of relation and social norms	0.205	0.04829	17
			Poor interaction with foreign investors	0.187	0.044057	19
			Having negative feelings toward foreigners	0.191	0.04499	20
Economic factors	0.3613	2	Inflation	0.1473	0.05321	3
			Uncompetitive economy of Iran	0.1391	0.05025	13
			Bank borrowing and liquidityincrease	0.14802	0.05347	1
			Investment high risk	0.14061	0.05278	4
			Uncertainty of the exchange and fluctuation of its rate	0.1418	0.05123	7
			Constant changes and sectional decisions in the banking sector	0.14058	0.05079	9
			Lack of clear and consistent strategy in exchange and monetary policy	0.1424	0.05144	6
Political factors	0.4029	1	Lack of internal consensus on how to attract foreign investment	0.1203	0.04884	14
			Political instability	0.1252	0.05044	12
			International sanctions against Iran	0.1327	0.05346	2
			Political positioning	0.126	0.05076	10
			Respecting human rights in Iran	0.1201	0.04838	16
			Nuclear activities	0.1296	0.05221	5
			Relatively high political risk	0.1255	0.05056	11
			Security problems	0.1206	0.04858	15

This prioritization makes a comprehensive view for politicians and senior managers of ASEZ. It is worth noting that "Bank borrowing and liquidityincrease"(B3) with the weight 0.05347, "International sanctions against Iran" (C3) with the weight 0.05346 and "Inflation" (B1) with the weight 0.05321 are in the first to third rank respectively. The result is exactly consistent with the current economic conditions of the country. Almost everybody knows about the importance and effectiveness of these sub-criteria. The other sub-criteria prioritization is shown in the following figure.
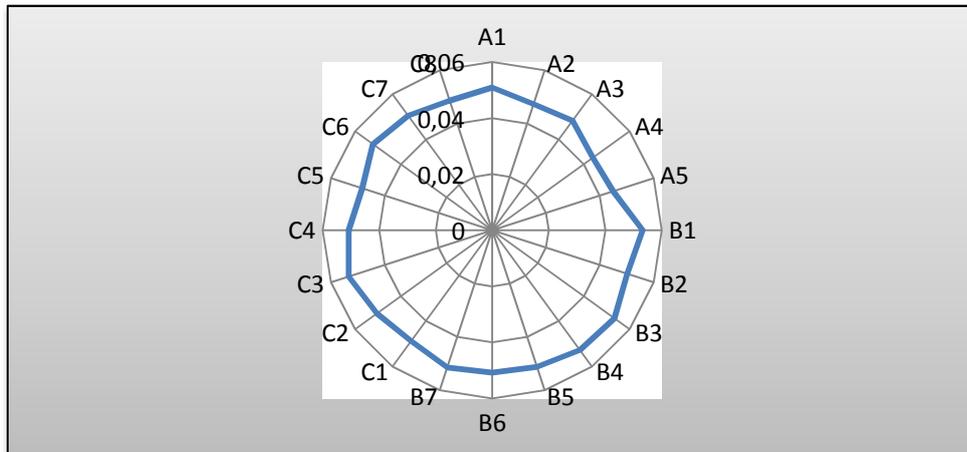

Fig 3: Final ranking of all investment-barriers sub-criteria

Weights and ranking of all major criteria and their related sub-criteriaare shown in figure 4. Hence, to meet the goals and eliminate barriers a strategic direction has been provided. Therefore, if politicians are going to eliminate the barriers, they should eliminate barriers with the greatest weight at first.
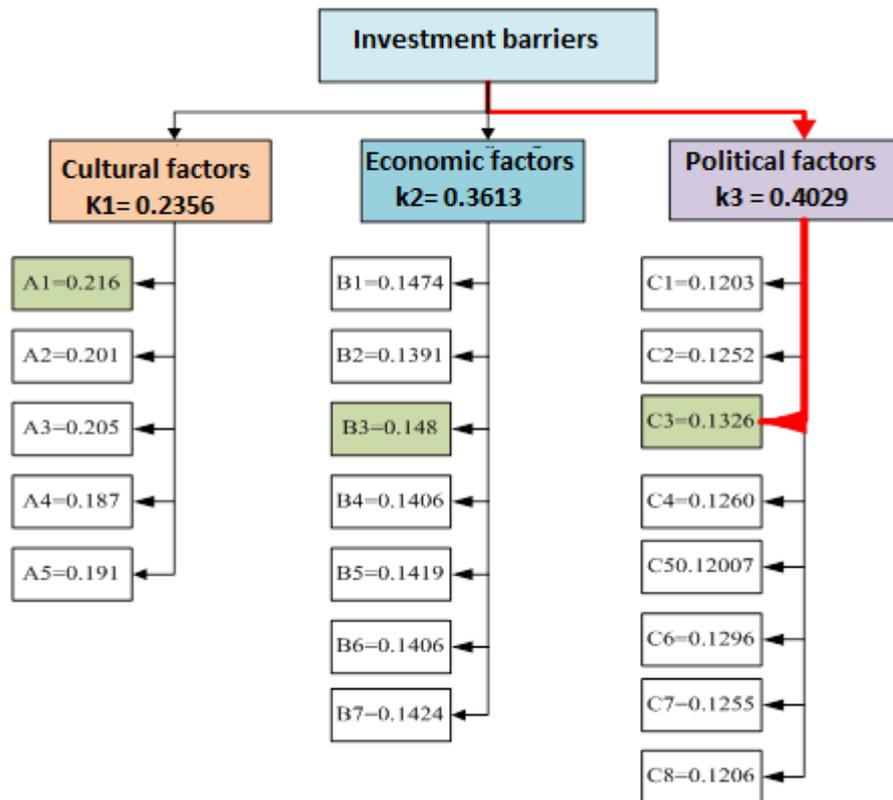

Fig 4: A strategic direction model for investment barriers

As the research results show, it is more important for foreign investors to check political risks due to globalization of economy and business. Investors try to invest confidently in other countries. Therefore, it is so important for policies, economic and political space to be reasonable. If the risk is considered too high for the investor, there would be no financial incentive toward capital attraction in that country. As a result, the role of political and economic structures of a country is effective in attracting or discouraging investment.

Iran due to the structure of its government and foreign relations with other countries is in a complex condition. Any change in domestic and foreign conditions can affect economic conditions and hence foreign investment. Political tension relations of Iran with other countries have influenced economic conditions and hence foreign investment. This is so important that any increase or decrease in the above tensions would have clear effects on foreign investment demands and activities. The results show that.

Based on the results,to eliminate the investment barriers politicians should pay special attention to major barriers in order to make the ground ready for better investment.

REFERENCES

[1] Asadi, S. (2010). Investigating investment's aptitude and relative advantages in East Azerbaijan. Tehran Azad University.
[2] Akbari, M. (2010). Economic security and its effect on investment in Iran. Tehran payamnoor University.
[3] Azar, A., & Farajim H.(2008).Fuzzy management. Ketabemehraban publication. Tehran.
[4] Behkish, M. (2001).Iran's economy toward globalization. Ney publication. Tehran.
[5] Chang, D. (1992). Extent Analysis and Synthetic Decision, Optimization Techniques and Applications. Vol. 1, World Scientific, Singapore.

[6]   Dastar, H. (2009). Problems and barriers to attract foreign investment in Pars Special Economic-Energy Zone. Garmsar Payamnoor University.

[7]   Kahraman, C., Cebeci, U., & Ruan, D. (2004). Multi attribute comparison of catering service companies using fazzy AHP: The case of Turkey. International Journal of production Economics, 87, 171-184.

[8]   Karimi, V. (1997). The barriers to investment in Kish Free Zone. M.A. Thesis. Tehran Univerity: Management faculty.

[9]   Klich, M. (2011). Causal relationship between economic growth and foreign investment growth in provinces of Iran.Babolazad University.

[10] Lee, S., Kim, W., Kim, Y. M., & Oh, K. J. (2012).Using AHP to determine intangible priority factors for technology transfer adoption. Expert Systems with Applications, 39, 6388–6395.

[11] Mahdavi , A. (2005). Economic growth and investment. Tehran. Jangal publication.

[12] Mousavi Jahromi, Y. (2009). Economic development and planning. Tehran. Payamnoor publication.

[13] Nasrollahi shahri, N. (2010). The Petroleum legal framework of Iran; History, Trends and The way forward china and Eurasia forum quarterly. 8(1).

[14] Nedayi, M. (2005).The effect of foreign investment on Technology transfer. Tehran Azad University.

[15] Partovi shafagh, M. (2008).Foreign investment in oil and gas upstream sector of the fourth development Plan.Investigating economic issues and problems, quarterly. 79 and 80: 5-13

[16] Pourhajihosseini, S. (2001).The effect of direct foreign investment on host country's macroeconomic variables. M.A thesis. Tehran. Azad University: central branch

[17] Quan, L., & Guayong, L. (2012). political relations and chinese out bound direct investment : evidence from firm and dyad – level tests ,conference on china global governance in Bloomington, Indiana.

[18] Rahmani, T. (2010).On the influence of joint venture contract on Iran's administrative laws. Tehran Azad University.

[19] Rafa~ti, M. (2009).Factors effective on direct foreign investment in Iran's industries. Bazargani publication. Tehran.

[20] Saadatian, o., Tahir Osman, m., & dolakamariahb. (2010). Identifying Challenges in Implementing Sustainable Practices in a Developing Nation. 3(2).

[21] Salahi, M. (2008).Investment security and guaranteeing economic growth. Aqaz quarterly. V.4

[22] Samadi, B. (2000). Problem and barriers to foreign investment in Iranian infrastructural industries (oil industry). M.A. thesis. Mazandaran Technology and Science University.

[23] Samimi, S. (2010).The effect of oil incomes on Iranian industrial structures using three criteria of added value, investment and employment. Mazandaran Technology and Science University.

[24] Tabatabai, M. (2011).The effect of organizational investors on firm investment. Tehran Azad University.

Effect of Compulsory Rotation of Auditing Institutes on Quality of Financial Reporting

Hamid Reza Nazemi, Narges Saemi Poor, and Abdol Jalil Emami Rad

Department of Accounting, Shahrood Branch, Islamic Azad University, Shahrood, Iran

ABSTRACT: This research has studied effect of compulsory rotation of auditing institutes on quality of financial reporting in the companies listed in Tehran Stock Exchange. Main goal of the research was to answer this question that if there was significant relationship between compulsory rotation of auditing institutes and quality of financial reporting. To study quality of financial reporting, variables of distinction between declared and diagnostic tax, accounting estimations, deviation from laws, accounting mistakes and accounting procedures have been used as dependent variables.

Statistical population including two sample groups with 50 companies as test group and 50 companies as control group was studied for 4 years during 2009-2012. The required data of the research includes difference discovery acceptance ratio before and after compulsory rotation of auditing institutes. Results of our research showed that rotation of auditing institutes had significant relationship with declared and diagnostic tax distinction and accounting mistakes and increased differences discovery acceptance ratio. But such relationship was not found between rotation of auditing institutes and accounting estimates discovery, deviation from laws and accounting procedures.

KEYWORDS: rotation of auditing institutes, yearly adjustment, quality of financial reporting.

1   INTRODUCTION

The presence of transparent and reliable financial information is one of the main factors of evaluation of the present situation and performance of a company in its activities and also making decision about trade of its securities.

The companies which have lower competitive power try to show them more successful than they are by altering financial information. When growth of company becomes slow or takes undesirable trend, manager tries to show the situation proper by exaggerating sale and other growth criteria [1]

In this regard, reliable and high quality information is the information which has been prepared under supervision of a professional and independent group. The evident example of independent professional groups is auditing institute which studies and supervises on structure of internal control of the reporting unit and its end product i.e. financial statements and makes comment on this case. The previous studies show that auditing report and quality of financial statements are important sign of soundness and performance of company. For this reason, institutional investors try to use high quality auditing services [2]

2   RESEARCH OBJECTIVES

In this research, attempt has been made to study effect of applying quality of auditing as one of the practical strategies for solving problem of auditor's independence and more reliability of auditing report and financial reports of the companies listed in Tehran Stock Exchange. Therefore, performance of this research is important because policies affecting financial reporting has bene explained by the internal and external factors and will cause the investors and stockholders to evaluate capital market more accurately and make more accurate investment decisions. In this research, we study effect of compulsory rotation of auditing institutes on quality of financial reporting.

3 THEORETICAL FUNDAMENTALS

World financial crisis and the destructive outcomes which it has left on international economy led the auditors to perform new duties. Since the first decade of the new millennium and following Enron scandal and dissolution of very large auditing institute of Arthur Anderson to great financial crisis 2008 and financial scandals following it, new conditions were created in activity environment of auditors and the auditors are generally expected to perform some duties. On the other hand, disagreement between auditors and employers has increased with increasing number and complexity of financial and auditing reporting laws. In this regard, we face three issues of change in procedure, change in estimation and correction of mistake in financial reporting. Accounting mistakes may be automatically corrected at the same period and at most in the next period. these mistakes can be discovered because they are transient and short-term but some of the mistakes which affect balance sheet or loss and profit may have long-term effect and lead to presentation or correction of the previous figures in some syllabi due to their effect or importance (in terms of price)(Technical Committee of Auditing Organization). In Iran, almost all yearly adjustments relate to correction of mistakes. Therefore, the presence of yearly adjustments with simple language means that there has been important mistake in financial statements of the past years and if shareholders look at financial statements more carefully, the yearly adjustments contain a negative message about validity of the financial statements [3] ,[4].

3.1 AUDITING QUALITY

It is evident that real independence of auditor and quality of auditing institutes' work which are regarded as key factors for preparation of auditing reports have attracted their attention considering position and role of auditing institutes in decision of users [5]. A common definition of auditing quality has been given by De Angelo. He has defined auditing quality as evaluation of market based on the fact that the auditor:

1- Discovers important alterations in financial statements or accounting system of the employer.
2- Reports the discovered important alteration.

The probability that auditor discovers the impotent alterations depends on competency of auditor and the probability that the auditor reports the discovered important alterations depends on independence of auditor [6].

There are no comprehensive definitions of quality and quantity of auditing which includes all types of auditing and accounting, therefore, some criteria such as size of auditing institutes, nominal age of institutes' merchants, dependency and independency of auditing, auditing committee and auditing committee have been considered as auditing quality indices. In this research, component of compulsory rotation of auditing institutes has been considered as auditing quality index.

Users of the financial statements use information inserted in auditing reports as measurement criterion in management performance of the economic enterprise and also a criterion for determining share price of companies. Therefore, validity and reliability of this information as evidence of quality of validity and reliability of financial statements is very important for the present and future investors, creditors and other users of financial statements. In other words, independent auditors play effective role in promotion of financial reporting quality by adjusting aggressive earning management methods [7] . In addition, they have special position in corporate governance structure in developing markets and they play sensitive role in promotion of financial reporting quality [8].

3.2 COMPULSORY ROTATION OF AUDITOR

In Iran, there was no formulated and formal rotation process of auditing institutes in the past years due to limitation of auditing activity by some large institutes such as auditing institute of National industries Organization and Program and Budget Organization, auditing institute of Foundation of the Oppressed and Disabled and Shahed auditing institute based on legal provisions and only some auditing groups responsible for performance of some special works were rotated at discretion of the managers of the institute. After merging the above institutes and establishing Auditing Organization, the auditing groups responsible for performing work in time periods with mean of 3 years are rotated due to variety of the employers and their high number and for more control and study. This displacement may abdicate accounting responsibility of a company from a manager and delegate it to another manager inside auditing organization. Rotation process is done only among different groups inside auditing organization and is not included in auditing institutes rotation law concurrently and synonymously with other countries. Tehran Stock Exchange Organization enacted manual of trustworthy auditing institutes of Stock Exchange Organization which required regular rotation of auditing institutes in four-year periods on 30 July 2007 [9].

4 HISTORY

Nashwa (2004) tried to prove that long-term relation can increase probability of auditing failures. Failure of 90 American companies was divided into three parts of judicial claims, bankruptcy and sanction by Stock Exchange Commission between 1996 and 2001. Results of his/her study show that most failures occur during the early auditing years. In recent years, risk of relationship between auditor and employer has increased. At the end, the researcher concludes that results of his studies doesn't confirm this hypothesis that rotation of the auditing institutes improves auditing quality.

Michael Atraj et al. (2010) concluded that the companies which have fraud-free restatement provided lower balance sheet volume than the companies which had restatement of financial statements resulting from deception and mistake.

Hirkery et al.(2013) in their research studied relationship between restatement of figures in financial statements and quality of financial reporting in 381 American companies between 2001 and 2007. Results of their research showed that quality of financial reporting has decreased with increasing the restated figures in financial statements.

According to Dan li (2010), auditors have loyalty feeling in long auditing and this questions competency of auditors for a high quality and effective auditing. He also conducted a research on relationship between auditor-employer and conservative reporting and concluded that this relationship is positive in large companies and the companies which are controlled and monitored by the auditor but this relationship is negative for the companies which are not monitored by auditors.

Mojtahed Zadeh and Aghaei(2004) in a research studied factors affecting independent auditing quality from the viewpoint of independent auditors and users. The statistical population included users of auditing services including managers, investment companies and managers of credit section of banks and independent auditing group. Results showed that there was no significant difference between attitudes in most cases.

5 RESEARCH HYPOTHESES

Main objective of the present research is to study effect of rotation of auditing institutes on financial reporting quality. To reach this objective, 5 hypotheses have been uses as follows:

Hypothesis 1: There is significant relationship between compulsory rotation of auditing institutes and declared and diagnostic tax distinction.
Hypothesis 2: There is significant relationship between compulsory rotation of auditing institutes and auditing estimations.
Hypothesis 3: There is significant relationship between compulsory rotation of auditing institutes and deviation from laws.
Hypothesis 4: There is significant relationship between compulsory rotation of auditing institutes and accounting mistakes.
Hypothesis 5: There is significant relationship between compulsory rotation of auditing institutes and accounting procedures.

6 RESEARCH METHOD

The research project is quasiexperimental and uses Ex post facto approach. On the other hand, the present research is one of the descriptive-correlative researches. The used method was conducted with paired mean comparison test with SPSS software to study significance of effect of compulsory rotation of the auditing institutes on dependent variables. The statistical population of the research included companies listed in Tehran Stock Exchange. Quality of information and east access to information of financial statements and other information (attached notes) are of the most important reasons for selection of a statistical population which are adjusted considering the following limitations:

1- They should not be included in investment and Financial Intermediation companies, insurances and banks. Investment, financial and intermediation companies because they have different financial statements from other companies are excluded from the selective sample.
2- End of their financial year is 20 March.
3- Their shares have been traded in time period.
4- They should be active in the stock exchange during the studied time period that is they have not been excluded from the stock exchange.
5- Full information of the company and notes along with financial statements are accessible.

In this research, two sample groups (control and test) were used for testing the research hypotheses. The test group includes the companies in which auditing institute has changed during the research period and the control group includes the companies in which auditing institute has been fixed during the research period and has not changed. Attempt has been

made to select companies of the control group similarly to companies of the test group. For this purpose, companies of the control group should be similar to companies of the test group in terms of industry type and financial year. Goal of determining the control group and test group is to neutralize effect of other factors and validate results of the research.

By applying the above hypotheses, 50 companies were selected for the test group and 50 companies were selected for the control group.

7 THE RESEARCH VARIABLES

The independent variable in this research is compulsory rotation of the auditing institutes and dependent variables which have been used for studying quality of financial reporting includes declared and diagnostic tax distinction, accounting estimates, deviation from laws, accounting mistakes and accounting procedures.

8 ANALYZING AND TESTING HYPOTHESES

8.1 DESCRIPTIVE STATISTICS

Table 1: Statistical description of test group data

Standard deviation	Variance	Mean	Success ratio	Time range	Type of deviation
0.4011	0.161	0.5907	33.1	Before chnzge	Declared and diagnostic tax distinction
0.2745	0.075	0.8318	46.61	After change	
0.2559	0.066	0.9047	50.66	Before change	Accounting estimates
0.1775	0.032	0.9300	52.1	After change	
0.2902	0.084	0.8660	48.51	Before change	Deviation from laws
0.2811	0.079	0.8898	49.84	After change	
0.2499	0.062	0.9117	51.06	Before change	Accounting mistakes
0.07300	0.005	0.9851	55.16	After change	
0.3191	0.102	0.7797	43.66	Before change	Accounting procedures
0.2888	0.083	0.8348	46.75	After change	

Table 2: Statistical description of control group data

Standard deviation	Variance	Mean	Success ratio	Time range	Type of deviation
0.3291	0.108	0.7946	44.51	Before change	Declared and diagnostic tax distinction
0.3288	0.108	0.8407	47.1	After change	
0.1483	0.022	0.9732	54.5	Before change	Accounting estimates
0.1588	0.025	0.9538	53.43	After change	
0.2024	0.041	0.9449	52.92	Before change	Deviation from laws
0.2059	0.042	0.9196	51.51	After change	
0.2523	0.064	0.8683	48.61	Before change	Accounting mistakes
0.2238	0.050	0.9171	51.37	After change	
0.2176	0.047	0.9204	51.55	Before change	Accounting procedures
0.2294	0.053	0.8903	49.87	After change	

The research hypotheses are statistically mentioned as follows:

H_0: $\mu_d = 0$

H_1: $\mu_d \neq 0$

8.2 INFERENTIAL STATISTICS

Testing the first hypothesis: There is significant relationship between compulsory rotation of auditing institutes and declared and diagnostic tax distinction.

Table 3- Results of testing paired mean comparison of the first hypothesis for the test and control groups

Confidence interval of 95%		Significance level	Degree of freedom	t statistic	Number of companies	Paired variables	Group
Upper limit	Lower limit						
0.3697	0.1123	0.000	55	3.754	50	Mean success ratio of the declared and diagnostic tax distinction discovery before and after change	Test
0.1322	0.1013-	0.288	55	1.073	50	Mean success ratio of the declared and diagnostic tax distinction discovery before and after change period	Control

Considering that the obtained significance level is below 0.05 for the test group, hypothesis H_0 regarding equality of mean success ratio of the declared and diagnostic tax distinction of two populations is rejected in confidence level of 95% and it can be concluded that mean success ratios of the declared and diagnostic tax distinction of two populations are not equal and it means that compulsory rotation of auditing institutes of the test group has been effective on success ratio of distinction discovery by the auditing institutes. Considering that the upper limit (0.3697) and lower limit (0.1123) are positive, it can be concluded that mean success ratio after compulsory rotation of auditing institutes is higher than mean success ratios before it, therefore, it can be said that compulsory rotation of auditing institutes increased success ratio of the auditing institutes in the declared and diagnostic tax distinction, therefore, the first hypothesis of the research is accepted.

Considering that the obtained significance level is above 0.05 for the control group, hypothesis H_0 regarding equality of mean success ratios of the declared and diagnostic tax distinction of two populations is not rejected in confidence level of 95% and it can be concluded that there is no significant difference between mean success ratios of the declared and diagnostic tax distinction before and after compulsory rotation of the auditor. Confidence level of 95% for mean differences in a positive and negative intervals also confirms this claim. This result more strongly proves effect of compulsory rotation of auditing institutes on success ratio of declared and diagnostic tax distinction because the control group was selected similarly to the test group in terms of industry type, size and financial year with this difference that the auditing institutes of the control group had no rotation during the study term.

Testing the second hypothesis: There is significant relationship between compulsory rotation of auditing institutes and accounting estimates.

Table 4- Results of testing paired mean comparison of the second hypothesis for the test and control groups

Confidence interval of 95%		Significance level	Degree of freedom	t statistic	Number of companies	Paired variables	Group
Upper limit	Lower limit						
0.1093	-0.0587	0.549	55	0.603	50	Mean success ratio of the accounting estimates discovery before and after rotation of auditor	Test
0.0403	-0.0790	0.519	55	-0.649	50	Mean success ratio of the accounting estimates discovery before and after rotation period of auditor	Control

Table 4 shows that the obtained significance level is above 0.05 for the test and control groups, hypothesis H_0 regarding equality of mean success ratios of the accounting estimates discovery in two groups is not rejected. Therefore, it can be concluded that there is no significant difference between success ratios of the accounting estimates discovery before and

after compulsory rotation of the auditing institutes. As expected, there is also significant difference between success ratios of the accounting estimates discovery before and after compulsory rotation period for them. Confidence level of 95% for mean differences between two tests and control groups in a positive and negative interval also confirms this claim. Therefore, it can be said that there is no significant relationship between compulsary rotation of the auditing institutes and the accounting estimates discovery and this change has no significant effect on success ratios of the accounting estimates discovery. Therefore, the second research hypothesis is not accepted.

Testing the third hypothesis: There is no significant relationship between compulsary rotation of auditing institutes and deviation from laws.

Table 5- Results of testing paired mean comparison of the third hypothesis for the test and control groups

Confidence interval of 95%		Significance level	Degree of freedom	t statistic	Number of companies	Paired variables	Group
Upper limit	Lower limit						
0.1191	-0.0715	0.619	55	0.501	50	Mean success ratio of deviation from laws before and after rotation period	Test
0.0380	-0.0886	0.427	55	-0.8	50	Mean success ratio of deviation from laws before and after rotation period	Control

Table 5 shows that the obtained significance level is above 0.05 for the test and control groups that is hypothesis H_0 regarding equality of success ratio of deviation from laws in two groups is not rejected. Therefore, it can be concluded that there is no significant difference between success ratios of deviation from laws before and after compulsory rotation of the auditing institutes. As expected, there is no significant difference between success ratios of deviation from laws before and after compulsory rotation before and after compulsory rotation period for them. Confidence level of 95% for mean differences between two test and control groups in a positive and negative interval also confirms this claim. Therefore, it can be said that there is no significant relationship between compulsory rotation of the auditing institutes and deviation from laws and this change has no significant effect on success ratios of deviation from laws. Therefore, the third research hypothesis is not accepted.

Testing the fourth hypothesis: There is significant relationship between compulsory rotation of auditing institutes and accounting mistakes discovery.

Table 6- Results of testing paired mean comparison of the fourth hypothesis for the test and control groups

Confidence interval of 95%		Significance level	Degree of freedom	t statistic	Number of companies	Paired variables	Group
Upper limit	Lower limit						
0.1191	0.0038	0.039	55	2.115	50	Mean success ratio of accounting mistakes discovery before and after change	Test
0.1156	0.0179 -	0.149	55	1.465	50	Mean success ratio of accounting mistakes discovery before and after change period	Control

Considering that the obtained significance level is below 0.05 for the test group, hypothesis H_0 regarding equality of mean success ratio of accounting mistakes discovery before and after rotation of the auditing institutes is rejected in confidence level of 95% and it can be concluded that mean success ratios of the discovered alterations of two populations are not equal

and it means that compulsory rotation of auditing institutes of the test group has been effective on success ratio of accounting mistakes discovery by the auditing institutes. Considering that the upper limit (0.1429) and lower limit (0.0038) are positive, it can be concluded that mean success ratios after compulsary rotation of auditing institutes is higher than mean success ratios before it, therefore, it can be said that compulsary rotation of auditing institutes increased success ratio of the auditing institutes in mistakes discovery, therefore, the fourth hypothesis of the research is accepted. The significance level of the control group which is higher than 0.05 indicates no significant change in success ratio in similar time periods for the control group.

Testing the fifth hypothesis: There is significant relationship between compulsory rotation of auditing institutes and accounting procedures discovery.

Table 7- Results of testing paired mean comparison of the fifth hypothesis for the test and control groups

Confidence interval of 95%		Significance level	Degree of freedom	t statistic	Number of companies	Paired variables	Group
Upper limit	Lower limit						
0.1644	-0.0543	0.318	55	1.008	50	Mean success ratio of accounting procedures discovery before and after change	Test
0.0491	-0.1092	0.450	55	-0.761	50	Mean success ratio of accounting procedures discovery before and after change period	Control

Table 7 shows that the obtained significance level is above 0.05 for the test and control groups that is hypothesis H_0 regarding equality of mean success ratios of accounting procedures discovery in two groups is not rejected. Therefore, it can be concluded that there is no significant difference between success ratios of accounting procedures discovery before and after compulsory rotation of the auditing institutes. As expected, there is no significant difference between success ratios of accounting procedures discovery before and after compulsory rotation period for them. Confidence level of 95% for mean differences between two test and control groups in a positive and negative interval also confirms this claim.

Therefore, it can be said that there is no significant relationship between compulsory rotation of the auditing institutes and accounting procedures discovery and this change has no significant effect on success ratios of accounting procedures discovery. Therefore, the fifth research hypothesis is not accepted.

9   CONCLUSION

Results of the research show that rotation of auditing institutes had significant relationship with declared and diagnostic tax distinction and accounting mistakes so that rotation of auditing institutes significantly increased success ratio of declared and diagnostic tax distinction and success ratio of the accounting mistakes discovery compared with the period before compulsory rotation of the auditing institutes and this shows that rotation of the auditing institutes increases auditing quality considering declared and diagnostic tax distinction and accounting mistakes.   On the other hand, significant relationship was not found between rotation of auditing institutes and accounting estimates discovery, deviation from laws and accounting procedures.

In general, considering the obtained results, the auditing institutes are suggested to change periodically in companies to keep independence of the auditing institutes. Many legislators believe that long-term relations of auditor and employer reduce supervisory power of auditor and auditing quality, therefore, reduction of duration of the auditor and employer relation increases independency of auditor and increase in independency of auditing institutes can increase auditing quality.

REFERENCES

[1]   D. L. Moore, "Forecasting earnings management: Evidence from   GAO restatement data", *Doctoral Dissertation*, Touro University International,2007

[2]   J. Azibi , H.Tondeur , M. Rajhi , "Auditor choice and institutional investor characteristics after the Enron scandal in the French context", Crises etnouvellesproblématiques de la Valeur, Nice: France,2010

[3]   M.A. Aghaei , H. Zalaghi. H . Etemadi , E.A .Anvari Rostami, "Effect of restatement of financial statements on quality of the accruals". Accounting Experimental Researches. Second year. No. 7, Pp. 119 -147. 2013

[4]   GH. R. Kordestani , A. Azad , M. Kazemi, "Experimental test of Importance of yearly adjustments in capital market". Accounting researches. No. 8. 2010

 [5]   U. Hasas Yeganeh and V. Jafari , "Effect of rotation of auditing institutes on quality of auditing report of the companies listed in Tehran Stock Exchange". Stock Exchange Periodical. No. 89, third year. Pp. 25-42. 2010

[6]   L.E. De Angelo, "Auditor Size and Audit Quality". Journal of Accounting and Economic. Vol3.no3. pp.1.1981

[7]   A. Esmaeil Zadeh Mogheri, M. Z. Jalili and A. Abbas Abadi , "Studying effect of corporate governance on earning quality in Tehran Stock Exchange". Management Accounting Journal. Third year. No. 7. 2010

[8]   U. Hasas Yeganeh and R.Baghoomian , "Corporate governance and quality of financial reporting". 2005

[9]   Technical Committee of Auditing Organization. Principles and Rules of accounting and auditing, Accounting Standards. Auditing Organization. Publication No. 160.2007

[10] G. Nashwa , "Auditor Rotation and the Quality of Audit". The CPA Journal, pp.22-26.2004

[11] E. michael & et."how do restatements begin? Evidence of earnings management preceding restated financial reports" journal of business finance & accounting.2010

[12] M. Hirschey, KR. Smith, and M. Wilson.(2013). "The Effect of Restatement Detection Speed on Reporting Credibility ". Working paper. *Texas Christian University - Department of Accounting*.2013

[13] D. li, "Does auditor tenure affect accounting conservatism? " Further evidence. J .Accounting. Public policy29, 226-241,2010

[14] V. Mojtahed Zadeh and P. Aghaei , "Factors affecting quality of independent auditing from the viewpoint of independent auditors and users". Accounting and Auditing Studies Periodical. No. 38. P. 53.2004

The Efficiency of Novel Technologies in the Government's Fiscal Discipline

Younes Abasi[1], Younes Mohammadi[2], and Younes Parvareh[3]

[1]Department of Accounting,
Payam-e-Noor University,
Kermanshah, Kermanshah, Iran

[2]Department of Accounting,
Economic Affairs and Finance Organization,
Kermanshah, Kermanshah, Iran

[3]Department of Accounting,
Islamic Azad University, Gilan-e-Gharb branch,
Gilan-e- Gharb, Iran

ABSTRACT: Monitoring and control over budgeting is inevitable in the management process of the country. An efficient control system, especially an intra-organization system can remarkably contribute to the implementation of social justice and economic development of the country. On the other hand, since budget is the vital channel and center of planning for every government and because all activities will not be carried out without financial resources, monitoring how the resources are spent and adjusting the costs with regulations are major factors in this control system. The Supreme Audit Court has taken an important measure in the development of the monitoring system and immediate audit of the state's financial information by launching an Electronic Monitoring System (EMC). This information system provides such conditions as creating unified procedures, using the capabilities of computer technology, increasing speed and accuracy, immediate access to comprehensive data, providing smart counseling, reducing the bulk of documents and appendixes, etc. in six domains of infrastructure, software databases, information security, formulation of working regulations, training and culture building, and provides the auditors with the ability to collect and analyze the required key data for strategic and operational decisions. This electronic monitoring system creates less ambiguity in the input data and can play an active role in continuous monitoring.

KEYWORDS: fiscal discipline, electronic monitoring, government auditing, electronic monitoring system (EMC).

INTRODUCTION

Professor Yuji Ijiri believes that in the decision-based theoretical framework, auditing is aimed to provide useful information for economic decisions. More information is favorable in case it is cost-effective, and confidential information is desired if it is efficient. In accountability-based theoretical framework, the objective of accounting is creating an appropriate system of information flow between the accountor and accountee, which is based on a mutual relationship.

In recent years, much evidence has been found about the increasing knowledge among the governmental agencies in terms of theneedforhigher fiscal discipline(economic discipline). Moreover, it has been accepted that the managerial structure of public resources along with itstrends, including the accounting system used in the public sector is not appropriate for implementation of the government's programs to make more efficient use of public resources.

Corresponding Author: Younes Abasi

The common governmental accounting system in Iran is compatible with the framework of conventional governmental accounting which is designed to account for the administrative control of the approved credits. In this system, the governmental agencies responsible for the costs have presented reports about their communication responsibilities to show whether the funds have been spent according to theauthorization issued by the legislature. It has currently been documented that the information presented by this accounting and financial management system is not sufficient for the planning purposes and managerial decisions and does not provide the managers with accountability of their performance and system, although it may remove the concerns of conventional accountability. The current budgeting and accounting system is not able to effectively monitor and evaluate the governmental programs. The information presented by governmental accounting system is basic and insufficient and cannot be analyzed to achieve the objectives of efficiency (Khashandeh Ro, 1995). Thus, the current accounting system is not capable to provide the required information to the managers in order to measure and calculate the final cost of the services and comodities of public sector, in addition to other requirements.

Information technology is a key element in elimination of temporal and spatial constraints, having better and quicker access to information, being updated, etc. On the other hand, information technology has changed the method of doing things and has converted the paper-based system to electronic system, which is termed electronic exchange of information (Elahi, 1999). Information technology is the use of computer and remote communications to gather, process, save and publish the audio, visual, textual and numerical information (Tansey, 2003). The most important features of information technology include high speed in data processing, remarkable accuracy, rapid access to data, being up-to-date, possible exchange of electronic data, high quality and low cost (Etemadi, 2006).

The expansion of operations, complexities of transactions and electronic transactions have made electronic documents a better replacement for paper documents. Consequently, the auditing procedures have also changed dramatically. Thus, it is necessary for auditors to get familiar with information technology and the impact it has on the accounting systems and electronic accounting processes, because information technology is the optimum tool to promote the quality of auditing files and auditors' performance. On the other hand, this technology assists auditors to acquire better auditing evidence about financial statements to support their views (Rahimian, 1998).

Moreover, since most of the current texts have concentrated on the automation of auditing, less attention has been given to one of the major advantages of technology in auditing, reducing the amount of auditing in the workplace and delivering the work to the team members via electronic monitoring system, while continuous auditing has expanded the auditing by adopting continuous and demand-based methods. Electronic monitoring system eliminates the requirement of place for auditors and allows them to share the responsibilities among the members of the on-site and off-site auditing group.

The view that the auditors must be objectively present to perform auditing is not accepted anymore. To solve this problem, many responsibilities of the auditing delegates can be fulfilled by virtual groups via electronic monitoring system. Therefore, the Supreme Audit Court has put implementation of electronic monitoring system as its agenda for better fiscal discipline in the country, so that the electronic monitoring system can be a new paradigm in novel investigations and analytical auditing of the Supreme AuditCourt.
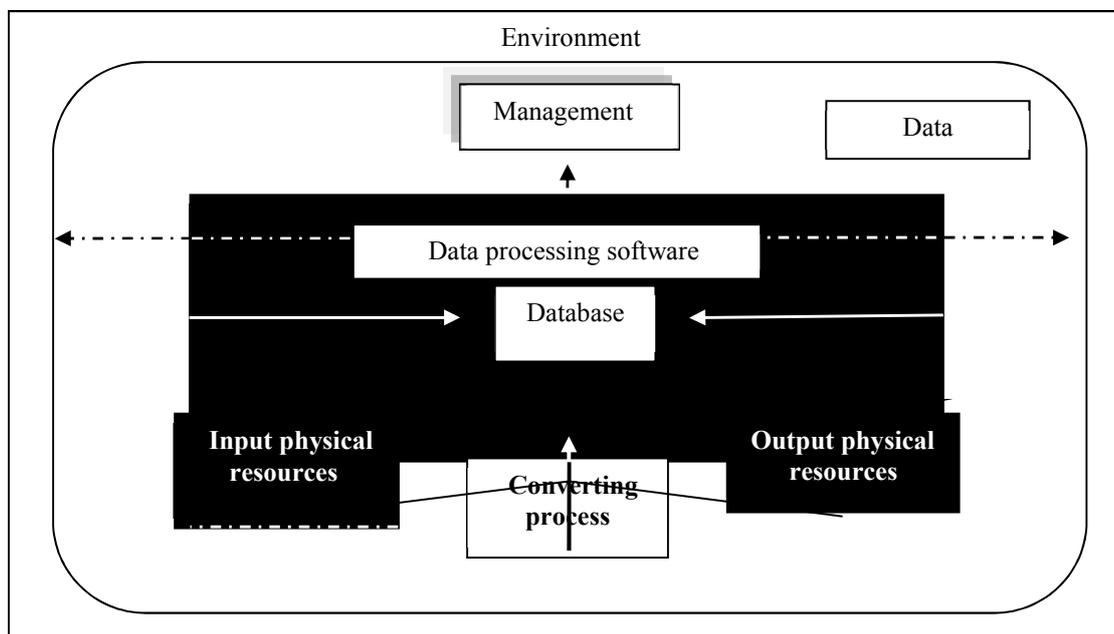
THE ROLE OF ELECTRONIC MONITORING SYSTEM (EMS) IN AUDITING AND PREPARATION OF ANALYTICAL REPORTS

The first information systems created in 1950s were mostly operational and included simple automated bookkeeping activities. Later in 1970s, management classification systems were created and in 1980s, strategic and senior management information systems appeared (RezaeiNejad, 1999). The aim of automation of administrative affaires is to increase efficiency. Also, managers can have more communication with each other and solve organizational problems, because better communication leads to better and quicker decisions (Raymond, 1994). The automation of administrative affaires is intendedfor the mechanization of all formal and informal systems which basically leads to exchange of information among the personnel of the organization and formation of oral and written ommunications.

Many accounting and economic theoreticians believe that information is a key element in the efficiency of resources' allocation and economic development of countries. Accounting information affects the economic performance of various businesses as follows:

1. It provides the investors and executives with the possibility of identifying the appropriate investment opportunities.
2. The dominating role of the financial information appears through the behavioral discipline of the executives in the efficient implementation of assets, promotion of selecting the projects and decreasing the possibility of misusing the investors' wealth.
3. It reduces the risk of making a wrong choice and being criticized.

Therefore, the dominating role of accounting information is using the reported information for monitoring purposes that provides conditions to improve and enhance the firm governance (Yeganeh, Ghomi&Vali, 2006). Hence, a model of information system is required to collect and process the data and provide them to the managers. The data processing software converts the data to information for the management of the business,and for individuals and organizations.

Accordingly, the Supreme Audit Court created an electronic monitoring system, one of the biggest information technology-based revolutions in the country, as the monitoring arm of the parliament to monitor the affairs and to take care of the national treasury as well as to have rapid, correct and on-time access to the required information for the users and updating the auditing. Thereby, over 3700 active financial points in all organizations under the controlof the Supreme AuditCourt, including national and provincial organizations are connected to this system in order to provide the opportunity for faster and precise monitoring in the country through creating a comprehensive financial database and facilitating the preparation of analytical reports. This system can deliver a large volume of information about the performance of executive agencies from various internal or external resources of the institution under investigation to the auditcourt, which is eventually classified, organized, processed and analyzed.

By acquiring clear and reliable descriptive-analytical information about the performance of the executive institutions, the auditors of the Supreme Audit Court can make well-founded and fair judgments with high validity and reliability by implementation of evaluation and performance analysis models. The timely, comprehensive and effective investigations will be implemented regardingthe activities, transactions and financial decisions of the executive organizations, and the degree of safety and reliability of financial and executive measures will be enhanced in the country and the possibility of error, misuse, fraud, corruption and crime will be declined in the processes related to the cost of public resources.

Moreover, through this system one of the largest databases in the public sector will be created in the domain of spending the liquidity resources, and the possibility of immediate investigations of the performance and financial activities of the executive agencies as well as various monitoring and auditing will be providedfor the first time. It will also be given to the beneficiaries of the plan as a utility to accelerate all ongoing operations of the organizations.

OBJECTIVES

The most important objectives of electronic monitoring system are as follows:

1. Creating uniform procedures, preventing personal tastes and clarifying monitoring
2. Increasing speed, accuracy, precision and comprehensibility in audit monitoring.
3. Accelerating the investigations of financial budgetary crimes.
4. Acquiring a favorable state in transactions and auditing connections between governmental organizations and firms and Supreme Audit Court,as well as development and integrity of databases and basic information.

5. Applying strong monitoring techniques along with adapting to the political and social changes.
6. Creating an appropriate and safe ground to exchange information with minimum error and to prevent disclosure of information.
7. Facilitating the analysis and inference of the financial performance of the ministries and publicenterprises.
8. Giving the required smart counseling to the organizations to prevent infringement of funds.
9. Updating the regulations and instructions to monitor the financial and budgeting performance of ministries and public enterprises.
10. Providing the possibility of reducing the change in the exchange of information.
11. Developing a comprehensive and systematic monitoring system.
12. Reducing the size of documents and the attached reports.

CONCEPTUAL MODEL OF ELECTRONIC MONITORING SYSTEM (EMS)

This plan is executed in six major domains, including infrastructural domains;software;databases; information security; formulation of rules,management; culture building,trainingand change management.
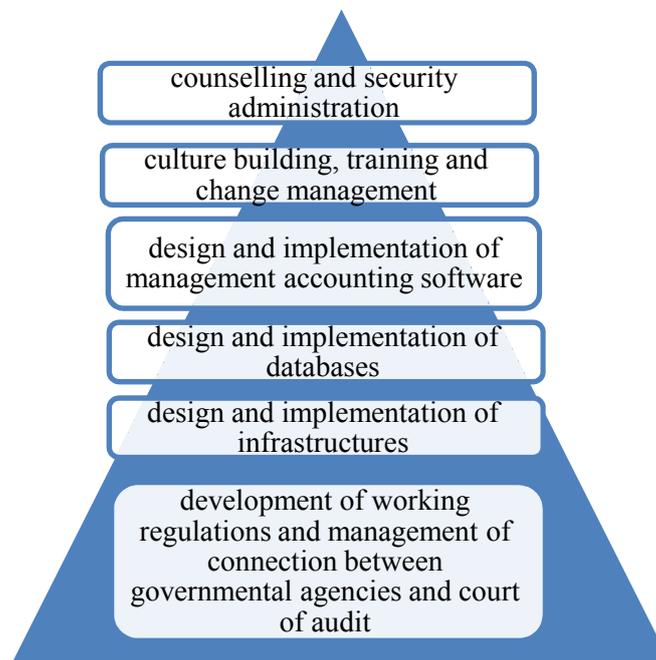
Table 1. Conceptual model of electronic monitoring system

AUDITING THE ELECTRONIC MONITORING

Electronic monitoring system can be defined as a process through which the auditors of the supreme audit court evaluate the validity of the financial data and internal controls using the information and communication technology together with data analysis.The auditors can present their reports, collect electronic evidence and communicate with the audited entity without physical presence. On the other hand, electronic monitoring system is a systematic and regular process that makes the auditors of the Supreme Audit Court able to, using a chain of auditing reports, simultaneously and virtually investigate the issue that is under the responsibility of the managers of the unit under investigation shortly after the incidence related to the given issue. It can also be defined as a systematic process that is identified and reported regularly by the transactions' auditing (by smart software) based on the prescribed tested standards, breaking the norms and deviations (exceptions) from these standards.

This kind of auditing makes the auditors able to collect and analyze the key data better than the past for strategic and operational decisions. It also provides the auditors with a more efficient tool to monitor, audit and announce the reports of transactions or unusual models. Application of an automatic tool is an efficient method to extract and analyze data from the systems of audited entities in order to test the internal controls, transactions and content. That is why one of the main

motives of the Supreme Audit Court to enter electronic monitoring system is promoting the quality of auditing, managing the time, increasing the auditing coverage and reducing the final cost (Arab Mazar, 2005). However, the proposal of electronic monitoring system by the Supreme Audit Court brings about the incidence of several issues as well, the issues that are usually the consequence of possible misuses and the efficiency of this auditing technique.

The questions that may be raised include: how much can auditing be expanded by information and communication technology? How do auditors form the virtual groups?, and Are the personnel prevented from perpetrating fraud if they know auditing is carried out through electronic monitoring system? Extreme preventive effects are expected to occur by implementation of remote auditing along with continuous assurance. Auditing through electronic monitoring system provides the auditors of the Supreme Audit Court with the possibility to monitor the transactions and to communicate regularly with the entrepreneurs to follow official auditing activities and provide reports. Hence, when continuous auditing systems report the control weak points, fraud or potential mistake to auditors, the auditors can remotely assist the management solve these problems.

The efficiency of auditing can be increased by reducing the latency (delay). Latency occurs in all working processes; work provision, audit planning, internal controls' evaluation, internal controls' tests and content test undergo the latency within and between processes during auditing. Moreover, it occurs when the auditors work with the managers to raise and solve the problems. Latency and delay in these processes can waste the resources, especially the human resources of auditors that could be used in other place (Waren, 2005).

ADVANTAGES OF ELECTRONIC MONITORING SYSTEM

By implementation of electronic monitoring system, the financial systems of ministries and public agencies will be directly available to the auditors of the Supreme Audit Court via optic fiber, and they will be able to have instant access to the financial systems and observe and analyze the financial statements and reports with the latest changes and present their analytic auditing and reports in a very short time. Thus, electronic monitoring system will be used to perform various auditing processes, especially running content tests and analytical investigation, detailed tests conducted on a representative sample and detailed tests of balances and basic operations. Also, this project can play an important role in preparation of audit plan, formulation of internal controls, preparation and presentation of reports and statements, and management of auditing affairs.

Certainly, implementation of electronic monitoring system in analyses and investigations will have the following advantages:

- Registration of the information of different operational programs to prepare annual audit report and budget preparation.
- Modulation of various audit reports of groups in the form of a general report.
- Possible registration of audit worksheets and investigation instructions.
- Possible presentation of audit reports for firms and ministries separately.
- Possible presentation of combined reports of the information recorded in the audit process.
- Possible presentation of various reports.
- Facilitation and acceleration of investigations and assessments.
- Facilitation of access to financial documents.

AUDITING ACTIVITIES OF SUPREME COURT OF AUDIT VIA ELECTRONIC MONITORING SYSTEM

Table 2 shows how different activities of auditors of Supreme Audit Court can be carried out on-site or through electronic monitoring system. However, the auditors of Supreme Audit Court need to determine which method is appropriate given their conditions. Since auditing through electronic monitoring system requires virtual groups, evaluation and formulation of audit procedures help auditors to submit the responsibilities to the members of virtual audit group and determine the technology and procedure of the required auditing for them, so that the auditors of Supreme Audit Court can play an active role in the regular monitoring via electronic monitoring system in order to inform the auditors of a deficiency and negligence (Muhammadi, 2012).

Table 2. Comparison of auditing activities of Supreme Court of Audit via on-site auditing and electronic monitoring system

Auditing activities	On-site auditing techniques	Auditing via electronic monitoring system
Auditing logistics	The auditors of the supreme audit court hold on-site sessions and have formal meetings with managers and auditors.	The auditors of the supreme audit court use email and telephone for auditing and meet the managers and auditors via online conferences and follow their emails.
Auditing planning	The auditing delegates hold physical meetings to determine auditing objectives and to share responsibilities.	The virtual auditing delegates attend online conferences and discuss the auditing details. The responsibilities are automatically specified in electronic worksheet system.
Internal controls	The auditors of the supreme auditcourt evaluate the evidence and paper and digital documents through interview and assess the internal controls.	The auditors of the supreme audit court communicate with the system of the unit under investigation via videoconference interview and perform the analytical tests through the terminal. They also analyze the audit reports.
Content testing	The auditors of the supreme auditcourt test the model transactions on-site and try to find the irregularities and violations.	The auditors of the supreme auditcourt include the model transactions through electronic monitoring system and examine them to find irregularities and violations. The automated systems continuously test all the samples and prepare a list of exceptions for auditor to follow.
Auditing and reporting decisions	The auditors hold meetings with the moderators of the process to follow the issues.	It is similar, but via online conferences.

CONCLUSION

Since monitoring plays a pivotal role in changing the structure and reforming the government, existence of an efficient financial and audit system is indicative of an organized structure. Thus, the governments carry out their monitoring via different procedures.

The findings of this study indicate that electronic monitoring system (EMS) causes less ambiguity in the input data, increases the impact of information on decision-making, adjusts the time of information presentation with the information needs of the managers, keeps the value of information over the time and in general, enhances the promptness of information. Furthermore, the results show that the financial reports and auditing are performed much faster by electronic monitoring system than the conventional method.

The implementation of this system can play a major role in the continuous control and a large volume of the performance data of the executive agencies are collected, summarized, classified, organized, processed, analyzed and interpreted in a shortest time possible, which consequently contributes to the economic development of the country.

REFERENCES

[1] Abbasi, Y. 2008. Internet-based accounting and its effect on financial reporting and decision-making, MA thesis, Islamic zad University, Borujerd branch.
[2] American Institute of Certified Public Accountants (AICPA), 1997. Audit Practice Release, Audit Implications of Electronic Document Management, NewYork.
[3] American Institute of Certified Public Accountants (AICPA), 1997. Audit Practice Release, The Information Technology Age: Evidential Matter in the Electronic Environment, New York.
[4] Arab MazarYazdi, M. PouryaNasa, A. 2005. Continuous accounting, Quarterly of Hesabdar-e-Rasmi, 7.
[5] Babajani, J. 2000. The role of accountability in the theoretical framework of governmental accounting, Bimonthly of Hesabras, 7.
[6] Bookholth,J,L. 1999. Accounting Information System: Transaction, Processing and Controls, p.71.

[7] Elahi S. Azar, A. 1999. Smart information systems of management: fuzzy-neural approach, Scientific and Research Quarterly of Modares, 1.

[8] Etemadi, H. Elahi, S. HosseinAghaei, K. 2006. Effcet of information technology on qualitative characteristics of accounting information, accounting investigations and auditing, 13, 43.

[9] Mahdavi, Gh. 2000.Accountability and governmental accounting in Iran, Bimonthly of Hesabras.

[10] Muhammdi, J. Bayat, A. Muhammadi, K. 2012. Advanced accounting, Sanei publications.

[11] Rahimian, N. 1998.The role of information technology in auditing, Monthly of Hesabdar, 13, 131.

[12] Tansey D.T., Darnotn,G. Wateridge, J.Business Information, Technology and Society, Routledge, Lodin and NewYork, First wd, 2003.

[13] Warren J.R., Joseph, D. 2005. Continuous Auditing: Implication of the Current Technological, Regulatory and Corporate Environment, Unpublished.

The Effect of Ethics on Auditor's Judgment in Ethical Dilemma Conditions: Evidence from Iranian Auditors

Seyedhossein Naslmosavi[1], Saudah Sofian[2], Maisarah Mohamed Saat[2], and Agha Jahanzeb[2]

[1]Department of Accounting, Qaemshahr Branch, Islamic Azad University, Qaemshahr, Iran

[2]Department of Accounting and Finance, Faculty of Management, Universiti Teknologi Malaysia,
Skudai Johor, Malaysia

ABSTRACT: In spite of the strengthening regulation of ethical conduct and numerous studies in relation with auditors, some factors can affect them in ethical dilemma situation. This study attempted to find the most important terms in dealing with auditor's judgment. The researches on the past studies documented that the most scandals on auditing irregularities was happened because of auditors' unethical behaviors. In addition, previous studies are showed that the understanding of ethical code of conduct and also audit standards is related to make decision by auditors. Consequently, ethics was founded as one important significant factor in process of auditor's judgment on financial statements. The main objective of this research is to investigate the effects of ethics and the code of conduct on auditor's judgments on material misstatements into financial statements. Data are collected from 321 mangers, partners and authoritative auditors among Iranian audit firms. The results of SEM indicate amazing ranking of ethics and code of conduct among Iranian auditors and they significantly affect judgment of these respondents.

KEYWORDS: Ethics, Ethical Behavior, Auditor's Judgment, Auditor's opinion

1   INTRODUCTION

Accounting and auditing are complex and technical processes while ethical issues can be considered relatively simple. It can be argued that the difficult part of ethics is not aware of duties, but its enticing action and others right. We know that the features of truthfulness, honesty, accuracy and fidelity, but we do not know how and under what conditions these features can be achieved. If the really problem is that and we want to promote ethics in auditing, we must inevitably attract qualified people to the profession as well as to educate them and do not make them vulnerable to the temptation over their resistant. In addition, we need the sum of the minimum standards of professional conduct and ethical standards that establish procedures for complaints and disciplinary action against any behavior that characterize conservative error such as professional bodies of Australia CPA and the Institute of Chartered Accountants to be followed. These two institutions jointly have published regulations for the members.

According to [1, p.31], "Ethics are the fundamental logical inferences regarding the correctness or incorrectness of certain conduct and behavior". The ability to make ethical judgments is defined by Saat [2, p. 19] as "a process where a person is able to reason out why a particular action is taken". [3] in their review on the historical development of ethical codes stated that for in professions such as accounting and medicine, respecting a code of ethics has a long history.[4, 5, 6] suggested that all members of a profession should attempt to improve ethical conduct and education that would support ethical judgments. According to [7], integrated business and the existence of international investors, auditors rely on international roles to present their opinion on a company. Therefore, The International Federation of Accountants (IFAC) is a body that works on international guidelines for professional conduct and ethics. Auditors from different countries refer to their Code of Ethics for Professional Accountants to express their independent judgments based on the ethics, honesty and ethical conduct.

With this introduction this paper aims is to check the role of ethics, professional code of conduct on Iranian auditors' opinion when they are faced with ethical dilemma conditions.

2   BACKGROUND OF STUDY

Valentine and [8] examined the link between ethical values and the patience of professionals towards social multiplicity. They took a sample of 143 professionals, from business and law and used an ANCOVA tool to analyze the relationship. The results exhibited that auditors who have affiliation with companies with ethical values, were more tolerant of social multiplicity. Firms that wish to develop awareness regarding professional ethics to give them a competitive advantage over other forms should develop ethical values and standards for their employees.

In a similar area and using similar instruments, [9] examined the impact of Gunaxi on ethical decision- making processes among Chinese CPAs in Hong Kong. In contrast with previous studies, they found a negative relationship between CMD and ethical judgment in conflict situations. They also revealed that there was a negative relationship between an auditor's ethical judgment and the existence of Guanxi; and the ethical reasoning determines the impact of Guanxi on an auditor's judgment.

The AICPA Code of Professional Conduct and the Ethical Exemplification is investigated by [10]. This study applies the theory of exemplification of impression management in a study of accounting by recognizing and calculating differences in both public and auditor perceptions of ideal behaviors. The auditors were parted into two groups, one of which accounted their perceptions of a usual auditor (A-O) while the other group accounted self-perceptions (A-S). There were two distinct groups of public, which presented their perceptions of a typical auditor and were parted on the basis of their accounting sophistication levels. Public group that is more sophisticated was consisted of bank loan officers (LO) whereas the public group that is less sophisticated comprised of investment club members (IC).

On the basis of 30 behaviors enclosed in the AICPA Code of Professional Conduct comparisons were crafted, which supplied as the foundation for the research tool. Profile analysis, an unusual form of MANOVA technique, was utilized to evaluate the results. A-S perceptions proved to be the highest of the four levels of treatment and were considerably higher (i.e., more correct) in comparison to the perceptions of both LO and A-O groups. The user group (LO) that is more sophisticated offered the lowest perceptions of the four levels of treatment. Intended for as a minimum of four of the six measures, in comparison to both the A-O and IC treatments, the LO treatment group observed the typical auditor to be less perfect. No differences were found in perceptions between the IC and A-O group. It is revealed by further analysis that auditors overestimated the extent to which the public is depended on financial statements. Nevertheless, a convincingly high reliance level on financial statements is reported by both public groups when making decisions.

 [11] explored ethical decision-making processes in the United States and Egypt. In this study, they investigated the relationship between ethical decision-making and national culture in a business context. They examined individualism versus collectivism and power distances as defined by Hofstede, to look at how a national culture is concerned with ethical behavior. They concluded that U.S participants were individualists and low in strength and distance when it came to ethical decision-making. The ethical behaviors of both Egyptians and Americans relied on utilitarianism, justice and relativism and when the behavioral intentions of peers were examined, American substituted egoism for justice. The background of study on ethics presented that a theory may support the idea of authors on the effect of ethics on auditor's judgment. This theory is Cognitive Moral Development Theory which it is explained in following part.

3   COGNITIVE MORAL DEVELOPMENT THEORY

The theoretical foundation of this study (in moral and ethics part) is partially based on moral development theory suggested by [12]. Most of past studies on moral and ethics among auditors have applied this theory as a supporting theory.

4   HYPOTHESES ON ETHICS

Similar to other professions, auditors have a Professional Code of Conduct which was arranged by AICPA. Ethical conduct is a part of auditor's work, auditors should make their ethical decisions upon these rules, for example, in their interviews with audit partners, [13], suggested that "Auditors have to balance professional ethics with the economic practicalities of operating a viable business". Thus

H_1: There is a significant effect of **Ethics** on auditor's judgment in ethical dilemma conditions.
H_{1a}: There is significant effect of **Honesty** on auditor's judgment in ethical dilemma conditions
H_{2a}: There is significant effect of **Realism** on auditor's judgment in ethical dilemma conditions.

H_{3a}: There is significant effect of **Competent and Caring Professionals** on auditor's judgment in ethical dilemma conditions.

H_{4a}: There is significant effect of **Privacy** on auditor's judgment in ethical dilemma conditions.

H_{5a}: There is significant effect of **Manners and Professionalism** on auditor's judgment in ethical dilemma conditions.

5 DATA COLLECTION

The current research applied quantitative approach and date were collected through the questionnaire among 321 Iranian audit firm managers, partners and authoritative auditors. The questionnaire comprised three parts. The questionnaire in this study in order to examine the opinion of auditors; the main point was ethical dilemma which is applied in this research.

5.1 QUESTIONNAIRE

[14, 15, [16] recommended the use of an audit conflict concerning an accounting transaction revelation that would have a material upshot on financial statements of the client. Thus, this study adopted a case-study form this situation to test the independence of auditor under pressure of power of client management. The conflict is presented in the questionnaire about materiality of certain unrecorded liabilities determined by the auditors of the firm. These liabilities comprised mainly of expenditures incurred in the preceding year which were neither recorded nor paid until the following year. Respondents were asked to imagine that they were the hypothetical firm's auditors where client management differed with the auditor that the amount was said to be material and fundamental, with 12.5% materiality.

As one of the important aims in this study was to examine the effect of ethics on auditor's judgment, the second part of questionnaire was CPA's Characteristic Questionnaire. [10] stated that the AICPA Code of Professional Conduct attempted to improve the reliability of auditor. Brown believed that these codes constructed exemplary conduct standards for professional accountants. Thus, they developed the CPA's Characteristic Questionnaire (CPACQ) based on this code of professional conduct. The CPACQ included 29 questions for measuring perception regarding each of the six characteristics explained in the Principles of the AICPA Code of Professional Conduct. The instructions stress that this instrument pertains to the auditors' performance of their professional duties.

For summarizing and also creating a general frame from code of ethics, this study has categorized and rankedCPACQ'sethical code of conducts on the based on International Federation of Accountants (IFAC) fundamentals principals Code of Conduct. The principals of professional conduct with reference to authoritative accounting associations contain of honesty, realism, competent and caring professionals, privacy, and manners and professionalism.

6 CODE OF ETHICS PREFERENCES AMONG IRANIAN AUDITORS

Theoretical principles help us to decide in which no explicit rule of law are based on theoretical principles. In this part the Friedman test applied and this test was used when the data were at least ordinal with the order could be arranged into a two-way classification. This test helped to rank the variables in the study [14]. This study also applied the Friedman test to find the most important code of ethics among Iranian auditors. The important fundamental principal codes of conduct are discussed in following paragraph.

Honesty: it means that the professional accountant must be true and righteous in professional relationships and transactions. Openness and fairness are the honesty requirement. Therefore the terms of acts with integrity (X11) intellectually honest (X10) and trustworthy (X2) in CPACQ is categorized to answer honesty. Realism is anotherfundamentalsprincipal Code of Conduct which is described in next paragraph.

Realism: it means that the professional accountants must considers only the fact in business and their professional judgment, and do not allow prejudice, Siding, conflict of interest or influence of others' words of judgment affect his work. Consequently, three questions in CPACQ are included to examine the respondents' opinion about realism (serves the public interest (X29), delivers competent services(X23) and free from conflict of interest(X19)). In addition of honesty and realism, auditors should care on their professionals and competence as a part of fundamentals principal Code of Conduct.

Competent and caring professionals: According to this principle, the professional accountant should pay for services that it is capable to provide and uses other cooperation or consultation in the necessary cases to perform their work. Professional accounting should develop his knowledge and skills in their new techniques and the rules at which level of the work to ensure the employer to use the efficient professional service. Professional accounting should be serviced based on their professional competence and technical standards relating to professional conduct. Therefore, competent and caring

professionals was examined through some questions likePerforms to best of ability (X12), adheres to ethical standards (X13), consistent professional behavior(X14) , dedicated to excellence (X16), proficient (Demonstrates Mastery) (X18) , objective (X24), always exercise due care (X27), cooperates with other auditors (X28), does not always provide quality Services (X20) and Knowledgeable into CPACQ (X4).The maintaining of privacy is another important fundamentals principal Code of Conduct.

Privacy: is another fundamental principle of professional ethics. i.e., the professional accountant should protect the provided information of the acquired confidential and professional service or their employer to safeguard the confidentiality and does not disclosure of such information without the explicit permission of the employer, just in the case of taking legal or professional right or duty that require disclosing the information. Professional accountant shall not exploit acquired confidential information in the course of personal interests or interests of third parties. Then two questions in CPACQ included adequately supervise services (X5) and maintain client confidentiality(X22) answered the opinion of auditors on significance of privacy. In addition of privacy, auditors' professional behavior in dealing with ethical dilemma is important.

Manners and professionalism: In other words, the professional accountant should respect in dealing with others during his tenure with the courtesy, obeys the rules and procedures and avoid the practice discredit his profession. The nature of services that accountants and auditors has been done, require a high level of moral conduct. Stock holders, investors, creditors, and other users of financial statements rely on the annual financial statements of firms mainly to make a decision. They rely on the auditors that have provided and confirmed the reports to obtain real and fair look from company. The Ethics lessons can help accountants and auditors to overcome the moral contradictions and do the right choice to take action of protecting the public interest. The group of accountants who offer their services to the public must be independent, especially in trusting services, i.e., the services that increases the reliability of the others to financial information. Sometimes independence false interpreted as sense of not employing. But independence in accounting profession means that the person without the affection of others judging, making decision and ordering. Thealways exhibit proper conduct (X25), genuinely interested in public service (X21), does not always act responsibly(X20), not always impartial (X17), renders prompt service (X9), adheres to code of conduct (X8), independent in thought(X3), and exercises moral judgments(X7) are the items of this components of ethics.The IFAC emphasizes the autonomy and independence of accountants from the employers.

7 DATA ANALYSIS

In this study, in order to making comment on the relationship between ethics and its dimensions and auditors' judgments, SPSS and The path analysis method in AMOS was applied to examine the role of ethics' dimensions on auditors' judgments. In order to analyse of data, different alternatives were applied. The KMO was first test to check the suitability of sample size for factor analysis. The result of KMO illustrated in Table 1.

Table 1.The Results of KMO

Dimensions	Items	KMO
Honesty	Integrity	0.761
	Intellectually honest	
	Trustworthy	
Realism	Serves the public	0.713
	Interest	
	Delivers competent	
	Services	
	Free from conflict of interest	
Competent and Caring Professionals	Ability	0.891
	Adheres to ethical standards	
	Consistent professional behavior	
	Dedicated to excellence	
	Proficient (Demonstrates Mastery),	
	Objective	
	Olways exercise due care	
	Cooperates with other auditors	
	Does not always provide quality Services	
	Knowledgeable into CPACQ	
Privacy	Adequately supervise	0.877
	Services and maintain	
	Client confidentiality	
Manners and Professionalism	Always exhibit proper conduct (x25)	0.738
	Genuinely interested in public service (x21)	
	Does not always act responsibly(x20),	
	Not always impartial (x17),	
	Renders prompt service (x9)	
	Adheres to code of conduct (x8)	
	Independent in thought(x3)	
	Exercises moral judgments(x7)	

The results revealed that since the estimated significance level Of KMO was more than 0.7, then the sample size and the number of questions were suitable for factor analysis.

8 THE HYPOTHESES TESTS' RESULTS

The main hypothesis of this study was the effect of ethics on auditor's opinion in ethical dilemma conditions. This hypothesis and also the sub hypotheses has examined and analysed through the SEM in following parts.

To investigate the causal relationships between variables, great efforts have been employed in recent decades. One of the promising methods in the field is structural equation model or multivariate analysis of the observed and latent variables. Regardless to the countless name and content, this term refers to a series of models, including confirmatory factor analysis, Classical Simultaneous Equation Models, Path Analysis (Hoyle, 1995). The sparks of entering this debate began by the issue of multiple criteria.

Structural equation modeling is a comprehensive statistical approach to testing hypotheses of the relationships between variables (Hoyle, 1995). This approach tests the theoretical models reliability in specific communities by using un-experiment data. This study was applied path analysis method in structural equation modeling to examine the role of ethics on the independent auditor's judgments. This phase of the structural equation model is just like standardized regression coefficients (β Standard). The only step in this process of test was the evaluation models and model parameters coefficients.

H₁: There is a significant effect of **Ethics** on auditor's judgment in ethical dilemma conditions.

H_{1a}: There is significant effect of **Honesty** on auditor's judgment in ethical dilemma conditions

H_{1b}: There is significant effect of **Realism** on auditor's judgment in ethical dilemma conditions.

H_{1c}: There is significant effect of **Competent and Caring Professionals** on auditor's judgment in ethical dilemma conditions.

H_{1d}: There is significant effect of **Privacy** on auditor's judgment in ethical dilemma conditions.

H_{1e}: There is significant effect of **Manners and professionalism** on auditor's judgment in ethical dilemma conditions.
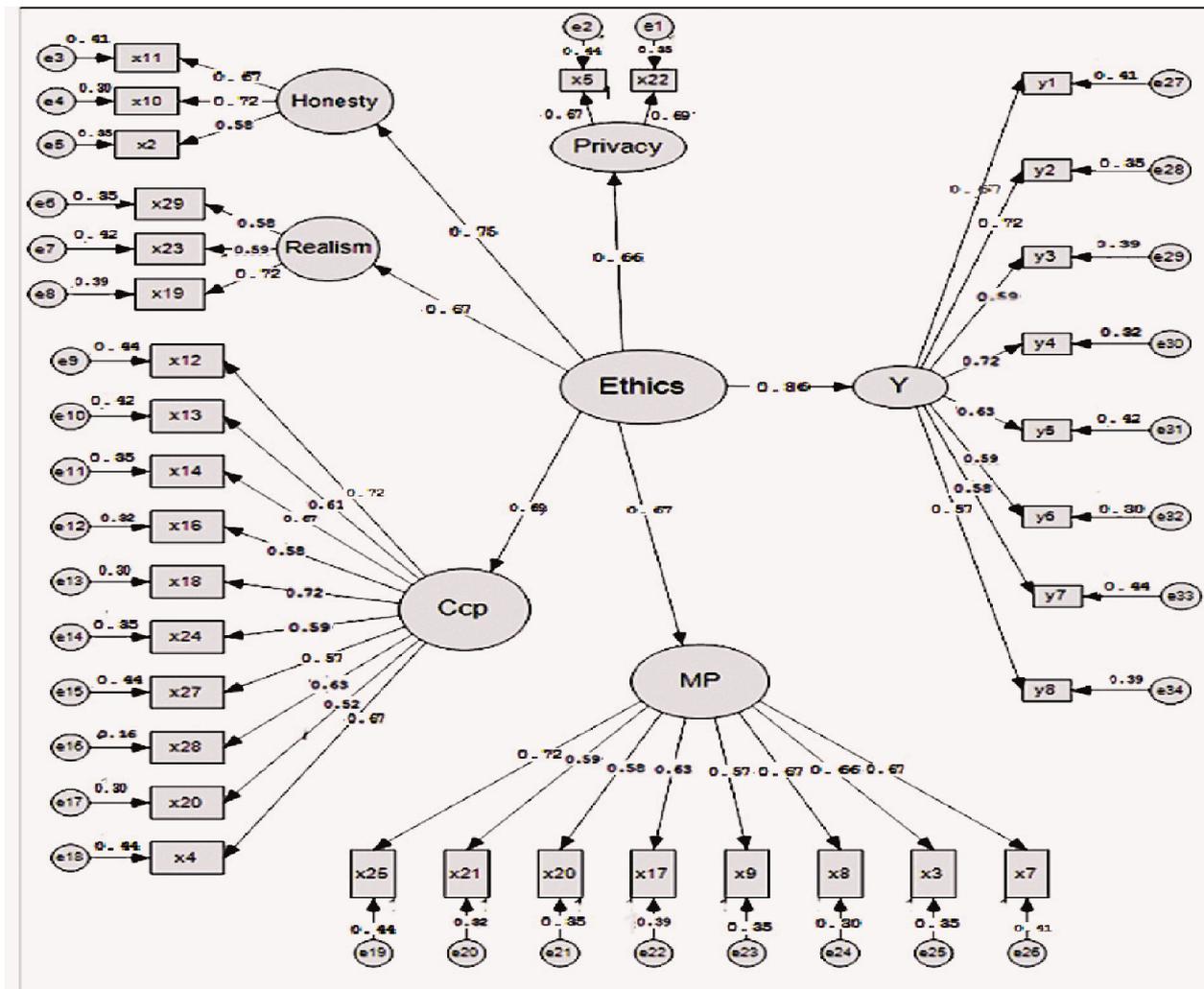
The df is freedom index which should be more than zero. Most important parameters are Root Mean Square Error Approximation (RMSEA), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Residuals (RMSR). The optimum conditions for these tests are as follows:

Table 2: The Result of Structural Model

Index	Result	Index	Result
CFI	1.00	NFI	0.99
x^2/df	1.11	P-Value	0.23
RMSEA	0.048	Goodness of Fit Index (GFI)	0.99
Adjusted Goodness of Fit Index (AGFI)	0.94		

It can be seen, the χ^2 / df is 1.11 and the Goodness of Fit Index (GFI) is equal to 0.99 and the Adjusted Goodness of Fit Index (AGFI) is 0.94. The results of the model indicated that the ethics can affect auditor's judgments. The chi-square and RMSEA values were low while the GFI and AGFI values were above 90%. The result of standard estimating analysis showed that the Root Mean Square Error of Approximation (RAMSEA) was less than 10% (RMSEA=0.048) and the Goodness of Fit Index was more than 0.9 (GFI=0.94), which indicates the model is good fit (Hoyle,1995).

The results of model showed that the ethics affected auditors' judgments. The findings of analysis presented in table 3.

Table 3 The Findings of First Hypothesis

Path Rate	Significant Level	Results of Analyses
0.86	P<0.0001	The first hypothesis accepted

Cultivating from Table 3, the result revealed that the significant level was less than (p<0.05), signifying that the predictor variable can be considered to influence auditors' judgments. Indeed ethics affected auditors' judgments with 0.86. This means that 0.86% of the variability of dependent variable (auditor opinions) was explained and predicted by the model's dependent variables. It is interpreted that attention to ethics among auditors are expected to improve their opinions on financial statements. Therefore, this supports hypothesis H_1. The findings of sub hypotheses also indicated in following table.

Table 4. The Findings of Sub Hypotheses

Path Rate		Significant Level	Results of Analyses
0.75	0.86	P<0.0001	H_{1a} accepted
0.67	0.86	P<0.0001	H_{1b} accepted
0.69	0.86	P<0.0001	H_{1c} accepted
0.66	0.86	P<0.0001	H_{1d} accepted
0.67	0.86	P<0.0001	H_{1e} accepted

Considering with above table 4, the results showed that the term of "Honesty"(H1a) with 0.645 was first important code among auditors and other terms like "Competent and Caring Professionals"(H1b)with 0.593and "Realism"(H1c) with 0.576had seconde and thrid rank respectively.Furthermore the fourth and fifth rank was related to the Privacy (H1d)with 0.567 and Manners and professionalism(H1e)with 0.576.All these terms are under competent and caring professionals and it signifies that most important principle among Iranian auditors.

9 DISCUSSION AND FINDINGS

There are some rules in any profession that individuals should abide. Similar to other professions, auditors have a professional code of conduct constructed by AICPA. Iranian auditors also have professional code of conduct which is stated by Audit Organization in accompany with IACPA.One of the main responsibilities of IACPA is to introduce ethical standards for professional accountants. For this purpose, the Iranian Code of Ethics for Professional Accountants was established in 2003. The Code states that the fundamental principles should be observed by professional accountants in order to achieve the objectives of the accounting profession. Ethical conduct is a part of Iranian auditor's work and they should make their decisions based upon these rules.

This study revealed that there is a significant effect of ethics on auditor's judgment. This finding implies that ethics or code of professional conducts has important role in auditor's opinion. Despite the importance of ethics in the field of audit as well as numerous articles on this subject, the inadequate training of auditors and accountants and the lack of morality within the profession cannot be justified [18]. The current approach is to assume that there is a sufficient expertise and common moral sensitivities with proper patterns of pioneers' behaviour that can provide ethical behaviour in this profession.

The results of this study support to the results presented by [19, 8, 7, 20] which indicates that ethics and code of professional conducts are related to auditors' decision-making when they encounter ethical dilemma. [10] in their study also indicated that professional code of conduct is important for professional auditors and they have a reasonably high level of reliance on financial statements when making decisions. The results also showed that the cognitive moral development theory is related to ethics and auditor's judgment in ethical dilemma conditions.

10 CONCLUSIONS

The ethical dilemma pressure is usually caused by mental or actual threat to the future financial relationships between auditors and auditees. This marks a clear conflict of interest in the context of the relationship between the auditor and his auditee, in financial perspective the auditor is related to the auditee [15,21]. Professional auditors must resist to these pressures if they think that the reports they have presented are authentic and fair, but the issue again is that they require a legitimate way to earn their living and maintain audit clients expectations. The robust approach to this moral problem is the duty features, i.e. the view that moral duty and loyalty should not make others underestimate auditors. Moral principles are obligations that must be considered independently from the results of their operations.

Furthermore, finding of the study points out that audit firms must have their own internal disciplinary measures and they must pay attention to the legitimate expectations of the society. It seems that the auditors should have a legal approach or ethical choices related to their professional standards. As a result, when the discipline and rules are set by audit firms, the performance of the auditors will be monitored through their peer-reviews.

11 CONTRIBUTION OF THIS RESEARCH

This research, for instance, introduces ethics as related factor to audit profession, because the attention towards ethics by auditors will help financial statements' users to trust the content of financial reports. As government has responsibilities to make audit standards, the findings of this research are useful for Iranian government to set the rules and policies to enhance the auditing practices in Iranian audit firms.

The findings of this study revealed that professional ethical conduct is very important for auditors to give clear report on the based on audit standards. In other words, code of ethics or code of conduct plays an important role in the daily routine of an auditor. It is hoped that government can understand the importance of ethical rules among auditors.

REFERENCES

[1]   Russell, J. P. (1999). *The qulity Audit Handbook principles, Implementation and Use*. Milwaukee: ASQ Qulity press.
[2]   Saat, M. M. (2010). *An Investigation of the Effects of a Moral Education Program on the Ethical Development of Malaysian Future Accountants* Phd, Curtin University of Technology Sidney.
[3]   Backof, J. and Martin, C. (1991). Historical perspectives: development of the codes of ethics in the legal, medical and accounting professions. *Journal of Business and Ethics*, 10, 99-10.
[4]   Gunz, S. and McCutcheon, J. (1998). Are academics committed to accounting ethics education? *Journal of Business and Ethics*, 17, 1145-1154.
[5]   Li, B. (2000). Ethics teaching in medical schools' *Special Supplement,Hastings Center Report*, 30(4), 830-832.
[6]   Martinez, S. A. (2002). Reforming medical ethics education. *The Journal of law, Medicine & ethics*, 30(3), 452-454.
[7]   Warming-Rasmussen, B. and Windsor, C. A. (2003). Danish evidence of auditors' level of moral reasoning and predisposition to provide fair judgements. *Journal Business and Ethics*, 47, 77-87.
[8]   Valentine, S. and Fleischman, G. (2002). Ethics Codes and Professionals' Tolerance of Societal Diversity. *Journal of Business Ethics*, 40, 301-312.
[9]   Au, A. K. M. and Wong, D. S. N. (2000). The Impact of Guanexi on the ethical deision-making process of Auditors an examploratory study on Chinese CPAs in Hong Kong. *Journal Business and Ethics*, 28, 87-93.
[10] Brown, P. A., Stocks, M. H. and Wilder, W. M. (2007). Ethical Exemplification and the AICPA Code of Professional Conduct: An Empirical Investigation of Auditor and Public Perceptions. . *Journal of Business Ethics* 71, 39-71.
[11] Beekun, R. I., Hamdy, R., Westernman, J. W. and Elnaby, H. R. H. (2008). An exploration of ethical decision-making processes in the United States and Egypt *Journal Business and Ethics*, 82, 587-605.
[12] Kohlberg, L. (1976). *Moral Stages and Moralization: The Cognitive-developmental Approach. In Moral Development and Behavior: Theory, Research, and Social Issues*. New York: Holt Rinehart & Winston.
[13] Sweeney, J. T. and Roberts, R. W. (1997). Gognitive Moral Development And Auditor Independence. *Accounting Organization and Society*, 22, 337-352.
[14] Cushing, B. E. (1990). Discussion of Auditor Independence Judgments: a Cognitive Development Model and Empirical Evidence. *Contemprorary Accounting Research*, 20(2), 14-23.
[15] Windsor, C. A. and Ashkanasy, N. M. (1995). The effect of client managment bargaining power, moral reasoning development, and belife in a just world on auditor independence. *Accounting Organization and society*, 20, 701-720.

[16] Windsor, C. A. and Warming-Rasmussen, B. (2009). The rise of regulatory capitalism and the decline of auditor independence: A critical and experimental examination of auditors' conflicts of interests. *Critical Perspectives on Accounting* 20, 267-288.

[17] Hoyle, N. (1995). *Structural Equations Modeling: Concepts, Issues and Applications*. USA: SAGE Publication, Inc.

[18] Alimadad, M. (2009). Accountants and Ethics. *Certified Accountant*, 7, 27-37.

[19] Tsui, J. S. L. and Gul, F. A. (1996). Auditors, behaviour in an audit conflict situation:A research note the role of locus of control and ethical reasoning. *Accounting Organization and Society*, 21(1), 41-51.

[20] Buchan, H. F. (2005). Ethical Decision Making in the public Accounting Profession: An Extension of Ajzen's Theory of Planned Behavior. *Journal of Business Ethics*, 61, 165-181.

[21] Caramanis, C. and Spathis, C. (2006). Auditee and audit firm characteristics as determinants of audit qualifications,evidence from Athens stock exchange. *Managerial Auditing Journal*, 21(9), 905-920.

Survey the Effects of credits granted by specialized banks on economic growth: Case study of Iran from 1997 to 2012

Mohsen Beirami[1], Raziyeh Noormohammadi[2], and Hojjat Shokri[3]

[1]Department of economics,
Faculty of social science, Razi University,
Kermanshah, Iran

[2]Department of economics,
Faculty of economics, Islamic Azad University,
Arak, Iran

[3]Department of accounting,
Faculty of economics, Islamic Azad University,
Qom, Iran

ABSTRACT: Economic growth along with inflation and unemployment are the main topics discussed in macroeconomics. Achieving a suitable economic growth rate and permanent development are among the most important duties and goals of managers, economists, policy makers and etc. Observing that banks are capable of attracting people's small or great savings which are generally still by absorbing types of deposit also, are capable of using these aggregated resources in productive economic sections and accelerating economic growth process therefore, investigating the relation of banks' endowed credits with economic growth has a particular importance. The present study investigates and evaluates the effect of endowed credits of specialized banks and economic growth in Iran using the data of time series, work force mass, endowed credit mass of specialized banks and, real gross domestic product (GDP) mass during 1997 to 2012. Specification model used for analyzing data in this study is Auto Regressive Distributed Lag (ARDL) method as GDP is a function of endowed credit mass of banks as the substitute of capital and work force in Iran. Results of this study show that endowed credits of specialized banks in Iran has the potential of affecting economic growth in long term and short term but its relation with economic growth in long term is more effective and strong. Results of experimental tests show that these variables satisfy the economic prerequisite also; all of the variables in long term and short term are statistically meaningful and the considered pattern for investigating the relationship between the variables is also constant and convergent.

KEYWORDS: endowed credits, specialized banks, economic growth, Auto Regressive Distributed Lag (ARDL) method.

1 INTRODUCTION

In a monetary economy, individuals are able to hold their income surplus in different ways such as cash, bonds, stocks, and gold. Institutions and individuals who wish to invest can use others' savings. Investors can also pay a part of their earnings to savers. Such a system is beneficial both to investors as they can develop their activities and to savers as they can assign a part of earnings to themselves. Currently, financial markets and institutions are required to develop a mechanism to transfer funds from savors to borrowers. In other words, financial markets must facilitate the cash movement from entities with surplus to entities with deficit. Financial intermediaries (mainly banks in Iran) provide the means of payment between individuals and the economy and make the transfer of funds possible. Such firms perform the task of financial intermediation to fill the gap between the lenders and borrowers by creating markets for two types of securities, one for borrowers (such as

---

deposits in financial institutions) and the other for lenders [7]. According to economic theories, capital accumulation is one of the effective factors on the growth of national economy. Accordingly, the financial market is one of the processes used for capital formation and it plays a significant role in collecting the existing saving resources in the national economy and directing them towards productive economic generator consumptions. By mobilizing capital sources and optimal allocation of them, banks provide the ground for economic prosperity. In fact, by collecting existing minor and scattered capitals and the use of stagnant savings for the purpose of improving production and funding financial institutions and the government, banks contribute significantly to employment growth, controlling liquidity and inflation through maintaining the balance inside the country, the equitable distribution of wealth through the development of public ownership, and consequently the gdp growth. In addition, banks and financial and credit institutions provide entities and corporations with benefits such as increased domestic and international credibility which links them to global markets, reduced liquidity risks, increased competitiveness, improved public trust, and the use of the public participation in the development of industries and infrastructures which ultimately will lead to further economic growth by enhancing the investment capacity of firms in manufacturing and service operations [2].

In fact, banks with the help of their credit and financial policies are able to pave the ground for economic growth and development or conversely for the economic downturn and recession in the country. They are also able to accelerate the economic development and growth by granting business, industrial, and production credits and loans. Besides, by granting credits; banks can encourage and develop exports, increase domestic production and agricultural and industrial development, improve domestic and foreign trade, and facilitate transportation to help the import of goods and services and encourage people to contribute to saving, and capital formation and accumulation in the country. The role played by banks in raising small funds, pooling the people's savings and using them in the production and consumption is very important to the extent that the successful implementation of such policies can contribute considerably to economic growth and development. In contrast, the lack of lending by banks or the use of loans in an inappropriate way may lead to stagnation and stunted economic growth and development [19].

LITERATURE REVIEW

Today in most developed countries, financial markets and instruments are greatly expanding and they play a major role in economic growth and development so that the diffusion of electronic money and deepening of stock markets and the spread of communications between financial markets and unions in different countries have increased the significance of financial markets and institutions. Besides, the process of a financial liberalization has been introduced in many developing countries with the aim of achieving economic growth and development. These countries are trying to turn away from the traditional systems of financial markets and move towards broader and more influential financial markets by creating competitive markets and financial institutions, privatizing public enterprises and banks, boosting the stock market and securities, eliminating unnecessary and cumbersome regulations and unwanted bureaucracy in mobilizing people's savings and resources, and clarifying information flows. Similarly, given the particular economic structure of Iran in which oil revenues account for a major share of the country's income and since the financial market in Iran is a bank-centered market and a major part of it is owned and run by the government, increasing emphasis is being put on the role of financial liberalization in mobilizing public savings and optimal allocation of resources. Therefore, an analysis of the previous position of the banking system and its role in the economic development as well as the exploration of the existing obstacles and shortcomings can play an important role in finding appropriate solutions to achieve progress and development which is the main motive behind conducting the present study. Although, it seems that that specialized banks play an effective role in the economic growth, empirical evidence indicates that such relationship can be positive or negative, as well as neutral. Some researchers have explored this relationship in a number of countries and some have examined it in a given country. Besides, methodologies used by these scholars have not been the same. Using econometric techniques, the present study aims to explore the impact of credits granted by specialized banks and also the effects of other influential factors such as labor on the economic growth. The main hypothesis developed in this study to explore the effectiveness of credits granted by specialized banks on the economic growth, stated: "Credits granted by specialized banks have a positive significant impact on the economic growth".

Most experimental studies indicated that banking loans and facilities have a positive effect on production and employment. For instance, Saeedi (2009) in a study on "The role of duty and non-duty facilities of specialized banks in the economic growth" examined the effectiveness of credits provided by specialized banks on the economic growth in Golestan Province from 1997 to 2006 using the mixed data technique. The results indicated that non-duty facilities of specialized banks are more effective than duty facilities in this regard. Besides, it was noted that generally banking facilities have the potential to increase investments and accelerate the economic growth in the region under study.

Levine and Beck (2002) in their study on the relationship between stock markets, banks, and economic growth, evaluated the impact of exogenous factors of banking development on economic growth using GMM method. The results of the study confirmed that banking development and increased credit volume have a positive significant impact on economic growth. Burgess and Panda conducted a study in India investigated the effectiveness of the increase in the branches of the banking system on the rural development. Their results indicated that this increase may result in production and employment restructuring and reducing poverty and inequality[5].

2 MATERIALS AND METHODS

A qualitative research methodology was used in this study. Besides, the present study is a descriptive study of a cause and effect type. Concerning the research questions and testing research hypotheses, it is a statistical research. However, it is an econometric study as it is based on an economic perspective. In addition, the scope of the study deals with the Iranian economy from 1997 to 2012.

Most studies have used the production function to explore the impact of the banking system on the economic growth [5]. Consequently, the present study employed the general form of the production function that focused on labor and capital to investigate the extent to which and the way credits granted by specialized banks affect the economic growth in Iran. Although the production process requires a wide variety of factors, models used to investigate the impact of macroeconomic factors on the production are simplified as much as possible so that the production is seen as a function of labor and capital and is defined as a process which creates a value added[3]. Some features of the productions are summarized as follows:

$$y = f(l, k) \tag{1}$$

$$\frac{\partial y}{\partial l} > 0 \quad , \quad \frac{\partial y}{\partial k} > 0$$

As shown in the above equation, production is a progressive function of the inputs of production such as labor and capital [9]. Another striking feature of production is the distinction between short and long terms. In the short term, factors of production are somewhat considered as fixed. However, all factors of production are variable in the long term. In addition, one of the important features of production is that efficiency is explored by scale. In other words, it is of interest to know if factors of production are multiplied by λ, how the production volume will change. Efficiency is defined by scale in three ways: Progressive efficiency to scale, constant efficiency to scale, and decreasing efficiency to scale[1]. In Model 1, the production system is shown by a set of causal relationships among the variables. The econometric model selected for the above theoretical model may be linear or nonlinear. The linearity of the model means that the model is linear with respect to parameters and this is significant for the confirmation of mathematical and statistical theories as well as for the calculation of the parametric values. The initial models are convertible to linear models using algorithms or the Taylor series [20].

In the present study, the production function was used as a structural equation to assess the impact of credits granted by specialized banks on the economic growth. Given that credits granted by specialized banks are a part of the capital stock, credits of specialized banks were used as a proxy for the capital formation in this study. Based on the previous studies and the conditions stipulated for the calculation of the elasticity by the structural analysis, the conceptual model of the study is expressed as follows:

$$\log(y) = \beta_0 + \beta_1 \log(L) + \beta_2 \log(K) \tag{2}$$

The above model is a determined model. In order to obtain an econometric model with the potential of performing empirical analysis using realities available in the collected data, a stochastic term is added to the model. The stochastic term in Model (3) possesses some special properties that are representative of some of possible variables affecting the dependent variable, which are not listed on an algebraic model:

$$\log(y) = \beta_0 + \beta_1 \log(L) + \beta_2 \log(K) + \varepsilon \tag{3}$$

In the above model, log (y) presents GDP as a proxy for economic growth . In addition, given that the econometric model of the study is a log-log model, the estimated parameter i.e. elasticity shows the economic growth relative to labor and credits granted by specialized banks. Therefore, the sign and the value of banking credits will be useful to test the main research hypothesis.

The following abbreviations were used in the model under study: *LY* is the logarithm of the real GDP in Iran, *LL* represents the labor population in Iran, and *LK* stands for credits granted by the specialized banks in Iran.

3   RESULTS

To estimate equation (3) using the common econometric techniques, it is important to note that the use of traditional and conventional econometric methods to estimate the model coefficients through time series data is based on the assumption that the model parameters are stationary [1]. A time series process is stationary when its mean and variance remain constant over time. If the time series variables used to calculate the model coefficients are stationary, the efficient of determination may be high and make the research make incorrect inferences about the relationship between variables while there may be actually no significant relationship between them. In such cases, the regressions performed in are real but they are spurious[8]. Moreover, when the model variables are not stationary, the other critical values of conventional statistics such as t and F are not applicable [11]. Therefore, in stationary conditions, the research variables were examined using the Augmented Dickey Fuller Test as shown in Table 1:

Table1 . Results ADF test for the variables included in the model at significance level of 5%

Variables	Intercept Without Trend			Intercept and Trend			No Intercept and No Trend		
	Critical Value	ADF Value	Stationary/Non-Stationary	Critical Value	ADF Value	Stationary/Non-Stationary	Critical Value	ADF Value	Stationary/Non-Stationary
LGDP	-3.081	-1.6372	Non-Stationary	- 3.759	0.6387	Non-Stationary	-1.966	4.7455	Non-Stationary
LL	-3.081	-2.5416	Non-Stationary	3.759	-0.6518	Non-Stationary	-1.966	3.5768	Non-Stationary
LK	-3.081	-0 .874	Non-Stationary	-3.791	-4.7984	Stationary	-	-	-
DLGDP	-3.098	-1.1169	Non-Stationary	-3.791	-1.4964	Non-Stationary	-1.968	-1.1111	Non-Stationary
D (LGDP, 2)	-3.119	-3.1038	Non-Stationary	-3.933	-5.6820	Stationary	-1.970	-3.1817	Stationary
D (LL)	-3.098	-2.5255	Non-Stationary	-3.791	-2.9736	Non-Stationary	-1.970	-1.1104	Non-Stationary
D (LL, 2)	-3.119	-5.7601	Stationary	-3.828	-5.49342	Stationary	-1.9709	-6.02436	Stationary

A general conclusion of the Augmented Dickey Fuller Test concerning that the variables in question is that the logarithm of credits granted by specialized banks is stationary while the logarithm of GDP and the logarithm of labor are non-stationary and they do not become stationary even with a difference is not viable, so the second-order difference of the above variables was used. The results of the Augmented Dickey Fuller Test show the above variables become stationary by two differences. Therefore, it can be suggested that since the research variables are not of the same order, the use of cointegration techniques is very useful. Numerous models have been proposed to test cointegration. One of the most common of them is the Dickey Fuller (DF) or the Augmented Dickey Fuller (ADF) on u_t terms estimated by the cointegration regression which is known as the Engle-Granger (EG) or the Augmented Engle-Granger (AEG). Other models are Johansen Model and Johansen-Juselius Model[13]. As these models have a low explanatory power and a number of other disadvantages, Autoregressive-Distributed Lag (ARDL) Model have been used more frequently in the recent years to test cointegration.

Banerjee and Inder , using Monte Carlo simulation, found that the estimation bias may be substantial in small samples. Therefore, a model estimated that has the short-term dynamism so that the model coefficients are estimated more accurately [11]. The Autoregressive-Distributed Lag (ARDL) and the Error Correction Model (ECM) have this advantage. Therefore, ARDL was used in this study as it tries in addition to the short-term estimation of the model dynamisms, to determine the relationship between the model parameters.

The most important advantage of ARDL is its flexibility which means to obtain consistent estimates of the long-term coefficients regardless of whether the variables are I(0) or I(n). In other words, the model can be used when the variables are of different integration order [13]. Pesaran and Shin demonstrated that if the convergence vector is obtained through the least squares method based on the ARDL whose lags are specified accurately, the estimator has the minimum normal distribution. In addition, it show less bias and is more efficient for small samples. One of the other advantages of this model is that it contains a sufficient number of lags for the data generation process in the framework of a general-to-specific modeling [15].

Besides, the model can estimate simultaneously the short and long-term patterns within the model and eliminates the problems associated with autocorrelation and the exclusion of variables. Therefore, the estimates obtained by the ARDL are unbiased and efficient as the model avoids problems such as autocorrelation and endogeneity [16]. The use of the ordinary least squares (OLS) on small-sized samples produce unbiased estimates of the long-term relationships within the sample as this technique does not consider the short-term dynamic reactions between variables under study. The general form of ARDL (p, q1, q2, …, qk) can be expressed as follows:

$$\varphi(L, P)Y_t = \sum_{i=1}^{k} \beta_i(L, q_i)X_{it} + \delta W_t + \mu_t \tag{4}$$

Where, i equals 1, 2, 3, ..., and k; Q(L,P) is equal to $1 - \phi 1L - \phi 2L2 - ... - \phi pLp$; $\beta i(L,qi)$ is $\beta i0 + \beta i1L + ... + \beta iqiLqi$.

Beside, in the above equation, L shows the subscript for the operator of the first-order time lag, $LY = Y_{t-1}$ shows the dependent variable, X_{it} shows the vector of explanatory variables, qi (i = 1, ..., k) is the number of the optimal lags for each explanatory variable, P is the number of the optimal lags for the dependent variable, and Wt shows the vector for deterministic (non-stochastic) variables such as intercept, seasonal factors, time trends or exogenous variables with fixed lags[17].

3.1   SHORT-TERM DYNAMIC MODEL

To estimate the short-term model, the maximum number of lags considered for the variables to estimate the model fit equals to one (m = 1). In addition, the number of the explanatory variables included in the main model to explain the causes of economic growth equals two (k = 2). Therefore, Microfit Software was used to determine the structural model fit. Accordingly, a total number of $(1 +1)^{2+1} = 8$ regressions were estimated. Finally, based on the Schwarz- Bizin Standard, the best model was fitted in the form of ARDL (1,0,0). Table 2 shows the total estimates for the short-term model:

Table 2. Results of estimating ARDL (1,0,0) model

Variables	Coefficient	Std. Error	t-Statistic	Prob
Constant	1.7436	1.0985	1.5873	0.144
LY(-1)	0.45125	0.12766	3.5348	0.005
LL	0.45784	0.10718	4.2716	0.002
LK	0.07711	0.02453	3.1431	0.010
R-squared	0.99734	Akaike info criterion		37.6813
R-Bar-Squared	0.99654	Schwarz criterion		36.4032
S.E. of regression	0.01458	h-Durbin-Watson stat		-1.16[.243]

$$LY_t = 1.7436 + 0.4512 * LY_{t-1} + .04578 * LL_t + 0.0771 * LK_t \tag{5}$$

The value of the coefficient of the log of credits granted by specialized banks in the structural equation (5) equals 0.077 which is significant at the significance level of 5%. It should be noted that this coefficient is based on theoretical expectations of economics. As a result, the credits granted to different economic sectors can direct production activities towards improvement, competition, and development of such activities, ultimately resulting in creating value added in different economic sectors and accelerating the economic growth.

3.2   DIAGNOSIS TESTS AND HOW TO INTERPRET THEM

The diagnosis tests includes tests used to analyze serial correlations between stochastic terms, testing the functional forms of the model, normality of stochastic terms, and testing heterogeneity of stochastic terms. Such tests are especially significant for the econometric estimates of equations as the rejection of the null hypothesis in each test indicates the violation of one of the assumptions provided by the classic regression. When these assumptions are rejected, the obtained results are no longer reliable.

Table 3. Results of model diagnosis tests

Values	Diagnosis tests			
	Serial correlation	Functional form	Normality	Heterogeneity
F-value	1.8498	.01289	-	3.4211
Critical value	[.207]	[.912]	-	[.089]
LM value	2.3868	.02002	.7337	3.1058
Critical value	[.122]	[.887]	[.693]	[.07]

The results of the diagnosis tests in the above model indicate that:

- There is no serial correlation between stochastic terms.
- The functional form of the model has been chosen appropriately.
- Stochastic terms are normally distributed.
- Stochastic terms variances are homogenous.

4 DISCUSSIONS

4.1 LONG-TERM EQUILIBRIUM RELATIONSHIPS

After estimating the short-term model, the same short-term coefficients were used to test the presence of the long-term relationships. Accordingly, the consistency of the long-term coefficient of the t-test and the Banerjee statistics were tested. The absolute value of the Banerjee statistics is equal to 4.3, which is higher than the absolute critical value in the Banerjee, Dolado and Master's Table (-3.27). Therefore, the null hypothesis indicating the non-existence of the long-term relationships is rejected. In other words, there are long-term relationships between the variables included in the model under study.

4.2 LONG-TERM MODEL ESTIMATE

The model long-term coefficients were estimated using ARDL. As the results of the model estimation through ARDL indicated, it is not possible to determine the long-term effects of the variables on the economic growth using the model short-term estimates as the lagged values of the dependent variable affect the economic growth. The results of estimating the long-term model coefficients for the ARDL (1,0,0) model based on the Schwarz- Bizin Standard are shown in Table 4:

Table 4. Results of estimating the long-term model using ARDL

Variables	Coefficient	Std. Error	t-Statistic	Prob
Constant	3.1774	1.5637	2.0320	0.070
LL	0.8343	0.0180	4.6126	0.001
LK	0.1405	0.0185	7.5590	0.000

$$LY_t = 3.1774 + 0.834 * LL_t + 0.140 * LK_t \tag{6}$$

The results of estimating the long relationships between the research variables indicate that the coefficients of the explanatory variables in the model are statistically significant. Besides, the coefficient of the volume of credits granted by specialized banks in the equation equals 0.077 which is positive, indicating that the credits granted by specialized banks to the different economic sectors would provide the grounds for the growth of the Iranian economy in the long run. In addition, given that the structural model of the study is a log-log model, the estimated coefficients in the long-term model show the long-term elasticity. As such, the long-term elasticity of the economic growth relative to the credits granted by specialized banks in Iran is equal to 0.14. The elasticity of the economic growth relative to the banking credits suggests that an increase of about 14% in the credits granted by specialized banks will result in a 1% rise in the economic growth in the long term. It should be noted that according to economic theories the value of the long-term elasticity must be greater than the short-term elasticity. In this study, the long-term elasticity of the economic growth relative to the long-term elasticity is higher than its short-term elasticity and this is consistent with economic theories. In addition, the long-term elasticity of the economic growth relative to labor is 0.83, indicating that an increase of about 1% in the labor will result in a 0.8% increase in the economic growth in the long term. The long-term elasticity of the economic growth relative to labor is also higher than its long-term elasticity.

4.3 ERROR CORRECTION TEST FOR THE SELECTED MODEL USING ARDL

The estimation of equilibrium relationship in the long and short terms is only one of the objectives of the empirical modeling[17]. Generally, lengthy adjustments over environmental changes must also be formulated. The error correction model seems more appropriate for such an analysis as it demonstrate short-term changes. The results of the error correction model for the short-term dynamic model are presented in the following table. In addition, the error correction model concerning the equilibrium relationship determined by ARDL indicated that the coefficient of determination (the error correction model) is -0.54. Since the sign of ECM (-1) in the error correction model is negative, it shows that the above model
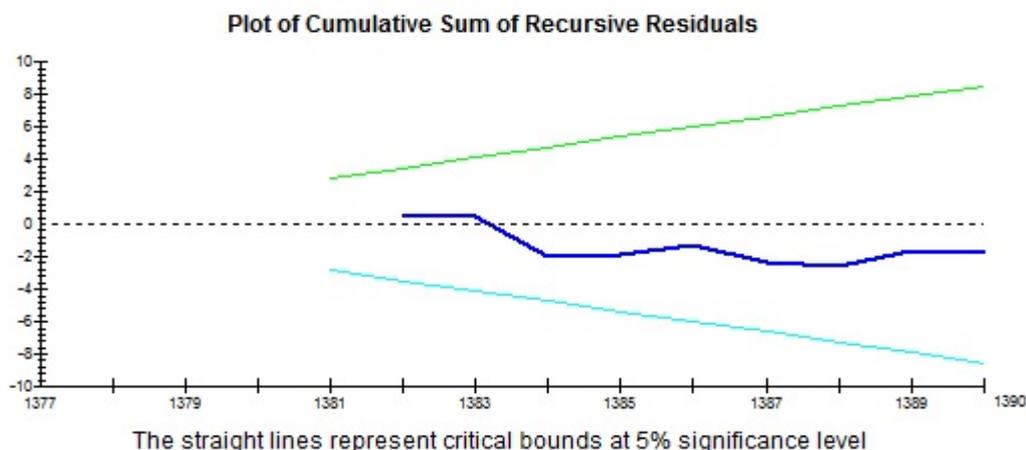
is convergent to the long-term equilibrium value. In addition, if a shock is applied to the data and disrupts its equilibrium, this disequilibrium will be adjusted in almost two periods. Therefore, it can be suggested that the model has a relatively high adjustment rate.

Table 5. Results of error correction model estimation

Variables	Coefficient	Std. Error	t-Statistic
dConstant	1.7436	1.0985	1.5873[.144]
dLL	0.4578	0.1071	4.2716[.002]
dLK	0.0771	0.0245	3.1431[.010]
ecm(-1)	-0.5487	0.1276	-4.298[.002]

4.4   THE CONSISTENCY OF THE DYNAMIC FITTED MODEL

According to ARDL, the consistency of the estimated model coefficients and the residual terms can be examined using the graphical CUSUM test. The results of the test are shown graphically. The results of the CUSUM test for the consistency of the estimated ARDL (1,0,0) are shown in Figure 1:

Plot of Cumulative Sum of Recursive Residuals

The straight lines represent critical bounds at 5% significance level

Fig. 1.   Results of CUSUM test for the Dynamic Model

As can be seen in the above graph, the CUSUM curve is located at the area between two critical lines at the level of 5%. This shows that the short-term model consistency.

5   CONCLUSION

Based on the findings of the present study, the main research hypothesis concerning the effectiveness of credits granted by specialized banks on the economic growth is confirmed. Accordingly, there is a positive relationship between credits granted by specialized banks and the economic growth. However, given the nature of ARDL models, it is possible to explore the effectiveness of credits granted by specialized banks on the economic growth in both short and long terms. Accordingly, our findings suggested that the credits granted by specialized banks had a positive significant impact on the growth of the Iranian economy in both short and long terms. In addition, it was noted that the effectiveness of credits granted by specialized banks on the economic growth is higher in the long term than in the short term as the variable coefficient of credits is greater for the long term. Based on these findings, the following recommendations are offered:

1- Given the direct impact of credits granted by specialized banks on the economic growth, managers, policy-makers, and planners are recommended to use banking credits optimally as a significant policy tool to accelerate the economic growth and to control its fluctuations.

2- In addition, as the long-term elasticity of the economic growth relative to credits granted by the specialized banks is almost two times greater than the corresponding short-term elasticity, policy-makers are advised to pay attention more to the long-term horizon when using banking credits to accelerate the economic growth.

REFERENCES

[1] Andren T: *Econometrics*, ISBN 978-87-7681-235-5,2007.

[2] Bakhtiari, S. and Pasban, F "The role of banking credits in developing job opportunities," *Journal of Agricultural Economy,* pp 12- 46, 2004*.*

[3] Branson, W. H: *Macroeconomic theories and policies.* Translated by A. Shakeri. Tehran: Ney Publisher,2007..

[4] Bruce. E. Hansen*: Econometrics*, University of Wisconsin,2010.

[5] Burges r and Rohini P: Do Rural Banks Matter?Evidence From the Indian Social Banking Experiment, Working Paper,2002.

[6] Engle, R.F. and C.W.J. Granger :*Cointegration and error correction: representation, estimation and testing, econometrics*, 55, 251-76,1987.

[7] Faraji, Y: *Money, currency, and banking*, Business Printing and Publication Company Affiliated to the Institute of Business Studies and Research (4th edit),1998.

[8] Gajerati, D :*Fundamentals of econometrics* (2nd edit). Translated by H Abrishami. Tehran University Press,2008.

[9] Hull, V: *A new approach to the middle microeconomics*, Translated by J. Pormoghim. Tehran: Ney Publisher,2001

[10] King , R and Levine, R: *Financial Intermediation and Economic Development, in financial intermediation in the construction of Europe*, Colin Mayer and Xaviervives. London, Centre for Economic Policy Research, pp. 156–89,1993.

[11] Noferesti, M: *Unit root and cointegration in econometrics*, Tehran: Parsa Publications, 2008.

[12] Pesaran, M.H. and B. Pesaran: *Working with Microfit 4.0: An introduction to econometrics*; Oxford University Press, Oxford,1997.

[13] Pesaran, M.H. and B. pesaran: *Microfit 4.0 and interactive econometrics software package*, oxford university press, oxford, pp.304, 1997.

[14] Pesaran, M.H. and Y.Shin,: AN autoregressive distributed lag modeling approach to cointegration analysis; in (Ed) S.storm, The Econometrics and economic theory in the 20 century, Chapter II, Cambridge University Press, Cambridge,1998.

[15] Shrestha, Min B. and Chowdhury, K: *ARDL Modelling Approach to Testing the Financial Liberalisation Hypothesis*, Economics Working Papers wp05-15, School of Economics, University of Wollongong, NSW, Australia,2005.

[16] Siddiqi: Demand for money in Bangladesh: a cointegration analysis,"Applied Economics European journal of economics, finance and administrative science, issue 27. Market Journal, Special Edition, Volume Nine, Pp 1 – 86, pp.1977-1984.

[17] Tashkini, A and Abbasinejad: *Applied econometrics (Advanced level),* Publications of Science Light (2nd edit),2013.

[18] Tashkini, A: *Applied econometrics using Microfit*. Tehran: Dibagaran Publications, 2005.

[19] Saeedi, P "The impact of (duty and non-duty) facilities of specialized banks on the economic growth," *Journal of Industrial Management*. Islamic Azad University of Yasuj, 2009.

[20] William H. Greene, 2002.Econometrics Analysis, Upper Saddle River, New Jersey 07458.

Intellectual Capital and investment opportunity set in Advanced Technology Companies in Malaysia

Hamideza Jafaridehkordi[1-2], Ruzita Abdul Rahim[2], and Parastou Aminiandehkordi[2]

[1]Islamic Azad University, Shahrekord Branch, Shahrekord, Iran

[2]National University of Malaysia, UKM Bangi, Selangor, Malaysia

ABSTRACT: The purpose of this study is to empirically examine the role of intellectual capital in creating investment opportunity set (IOS) in an advanced technology setting using a sample of 138 Malaysian listed manufacturing companies during the 2006-2011 period. Value Added Intellectual Coefficient (VAIC™) is adopted as the measure of intellectual capital efficiency while factor analysis is used to construct an index of investment opportunity set (IOS) from three price-based growth variables. The preliminary analysis finds VAIC™ and its individual components are significantly higher in advanced than in low technology companies. The fixed effect panel regressions provide statistical evidence that the influences of VAIC and its components on IOS are stronger in advanced than in low technology companies. The positive effect of intellectual capital on IOS implies that companies can benefit immensely from spending on their human capital because this investment adds value to their companies.

KEYWORDS: Intellectual Capital, investment opportunity set, Technology based Companies.

1 INTRODUCTION

Investment opportunities are vital to the sustainability of firms and ultimately, the nation's economic growth and development [9]. This issue is paramount for a developing economy, such as Malaysia particularly because it is aiming for a developed country status by 2020. With only 6 years remaining, its main development indicators (GDP, income level and education) are still lagging behind those of developed markets in Asia [17].

Malaysia has embarked on various plans including the 2002 Economy Master Plan and New Economic Model to accelerate the transformation progress. Nucleus to these plans is intellectual capital (IC) as the country is relying on knowledge-based economy as its transformation and sustenance vehicle. The advantage of knowledge economy stems on its emphasis on IC while simultaneously recognizes the importance of the traditional physical and natural factors of production such as raw materials, labor, capital and entrepreneurship.

The emphasis on intellectual capital recognizes its ability to create investment opportunities set (IOS). IOS is one of the two components of firm value which represents the value of growth options or future potential investment [9]. It is a competitive advantage which is created from discretionary expenditures and firm-specific factors such as physical and human capital in place as well as industry-specific and macroeconomic factors [8]. It composes intellectual capital (IC) which is conceptualized as "the sum of all knowledge a company is able to use in the process of conducting business to create value for the firm" [4, pp:3]. IC can be further dissected into human capital (HC) which is "the combined knowledge, skill, innovativeness, ability of the company's individual employees to meet the task at hand, company's values, culture, and philosophy" and structural capital (SC) which comprises "the hardware, software, databases, organizational structure, patents, trademarks, and everything else of organizational capability that support those employees' productivity; in the other words, everything that gets left behind at the office when employees go home" [4, pp: 3].

Studies such as that by [7] and [3] have shown that investment in intellectual capital especially in R&D is much higher in advanced than in low technology companies. The reason being, advanced technology companies [3] need to consistently upgrade and update their employees' knowledge and skills, to ensure they keep up with the new technology such that their creativity and innovativeness can be proactively transformed into new products and/or services [14]. [5] argue that investment in intellectual capital is a critical success factor to improve the employees' innovation. This study bridge the gap in the literature by examining whether the impact of intellectual capital is stronger in advanced than in low technology companies.

The remaining discussion of this paper will proceed as follows. The next section includes a brief review of the relevant literature. It is followed by sections on the research methodology, reports and discussion of results, conclusions, and implications of the study.

2 LITERATURE REVIEW

Resource-based theory posits that strategic resources of company are capable of generating competitive advantage [1] which can prevail in the forms of superior long-term performance, higher profits relative to competitors, increased sales or market share, and investment opportunities. Intellectual capital fits the description of strategic assets because it is valuable, rare, poorly imitable and lacking tactically alike substitute [1, 15]. Real and financial assets of similar quality and quantity will normally produce similar outputs, but intellectual capital especially the human component of similar quality and quantity can generate different outputs because knowledge and skills can be enhanced through value-added R&D activities that promote creativity and innovativeness. Thus, from the perspective of resource-based theory, predicting IC-IOS linkage is very much within the feasible parameters.

In a study which investigates the role of IC in a sample of U.S. multinational firms, [13] forwards an argument based on the resource-based and stakeholder views and the evidence which is supportive. He uses trademarks and patents to measure IC. Similar positive and significant effect of IC on accounting performance is also documented in voluminous studies [16,2] that use VAIC™ for measuring IC and involve various countries including Malaysia [15,6].

Unlike previous studies which focus on the general effect of IC on firm's performance, this study follows [10] in proposing that intellectual capital plays more important role in companies operating in new economic environment. Specifically, this study proposes that IC is more critical in companies of advanced technologies which include those whose core businesses are aerospace and defense, pharmaceutical and biotechnology. [3] find advanced technology companies invest in intellectual capital much more than those in low technology companies. Advanced technology companies require large investment in IC or specifically R&D [3] because their employees need to be consistently updated with the state-of-the-art technology to enable them to transform their creativity and innovativeness into new products and services. Drawing from this argument, this study hypothesizes that intellectual capital is more effective in creating investment opportunities in advanced than in low technology companies. Low technology companies are those doing traditional businesses such as in beverages, food producers, forestry and paper, and leisure goods.

3 RESEARCH METHODOLOGY

This study selects its sample from manufacturing companies that are listed in Bursa Malaysia from 2006 to 2011. In addition to the importance of IC in technology based industries, manufacturing sector is selected given the impressive contribution of about 25% of this sector to the nation's GDP. Its gross output value has increased from MYR(Malaysian Ringgit) 655 billion in 2005 to MYR837 billion in 2010.

In screening out the sample, companies are excluded if they report negative values of ICE and earnings or if they have missing data. The selection criteria produce a final sample of 138 companies which generate a balanced panel data of 828 year-company observations. These companies are then screened out based on their businesses as listed in Table 1 to create two sub-samples which finally consist of 35 advanced and 33 low technology companies.

Table 1. Classification of Business Activities under Advanced and Low Technology Groups.

Advanced Technology Companies	Low Technology Companies
Aerospace and Defense	Beverages
Electricity	Food Producers
Industrial Engineering	Forestry and Paper
Media	Leisure Goods
Mobile Telecommunications	Personal Goods
Pharmaceuticals and Biotechnology	Tobacco
Technology Hardware and Equipment	
Number companies = 35	Number companies = 33

Source: [7].

Data are sourced from DataStream and companies' annual reports. Panel data methodology is adopted due to its superiority in determining and computing effects that cannot be easily discovered in cross-section and time series data.

To measure investment opportunities, we use factor analysis to create a price-based composite index from a set of variables; ratio of market to book value of assets (MBVA), ratio of market to book of equity (MBVE), and ratio of gross plant, property and equipment to market value of assets (PPEMVA). The factor analysis is validated with KMO test which supports the adequacy of the sample size for a factor analysis (KMO > 0.5) and Bartlett's test of sphericity which supports the suitability of the data for factor analysis. The factor analysis confirms there is only one Eigenvalue > 1.0, suggesting only 1 common factor exists. Table 1 also reports the descriptive statistics for the IOS components.

This study adopts Pulic's [12] value added intellectual capital (VAIC^{TM}) for measuring the efficiency of intellectual capital because it considers the stakeholder and resource-based views and it recognizes human capital as the main component of IC. VAIC^{TM} also directly addresses[8] argument that IOS is created from both physical and human capital, beside the other firm- and industry-specific factors and macroeconomic factors. That is, VAIC^{TM} can be dissected into;

$$VAIC_i^{TM} = ICE_i + CEE_i = (HCE_i + SCE_i) + CEE_i \qquad (1)$$

where HCE = VA/HC, SCE = SC/VA, CEE = VA/CE, VA = OP + EC + D + A, OP = operating profit, EC = employee cost, D = depreciation, A = amortization, HC (human capital) = total salaries and wages for a company, SC (structural capital) = VA – HC, and CE = book value of the net asset for a company.

Another advantage of VAIC^{TM} is it includes CEE based on the argument that physical and financial capital is a prerequisite for creating value and delivering performance [12].

In testing the relationship between ICE and IOS, this study also controls for some variables (CV); financial Leverage (LEV = total debt/total assets), firm size (SZE = log of total assets), and financial flexibility (FLEX = (cash + cash equivalents)/net assets). The general panel regression equation is represented as;

$$IOS_{i,t} = \alpha + \beta_1 ICP_{i,t} + \beta_k \sum_{k=1}^{K} CV_{i,k} + \varepsilon \qquad (2)$$

where ICP$_{i,t}$ is the alternatively, VAIC^{TM} or one of its components for the *i*th company at the end of year *t*, *α* is the intercept, *β* is the estimated coefficient of the respective explanatory variable, *ε* is the error term, while the remaining *k* variables (CV) that are controlled for are as defined above.

4   RESULTS AND DISCUSSION

Table 2 reports the descriptive statistics. As predicted, VAIC as an index of ICP and each of its elements are significantly higher in advanced than in low technology companies. One exception is CEE which is a good piece of evidence that it is the quality of human capital that makes the difference in an organization. Note also that advanced technology companies are benefiting more from their capital than the low technology companies especially in terms of human and structural capital. The fact that the benefits from human and structural capital in advanced technology companies are combined with less advantage on physical capital correctly justify the importance of training and R&D activities to transform human creativity and innovativeness into new outputs.

Although advanced technology companies, due to its more complex nature, tend to hire highly qualified individuals (high employee costs (EC)), the outputs that these individuals generate through their capabilities to effectively and efficiently use the companies' assets seem to generate operating profits (OP) that are high enough to more than offset their employee costs. *Ceteris paribus*, each ringgit (MYR) spent on the employees adds MYR1.546 to the firms' value. In low technology companies, the same MYR1 investment would generate an additional value of MYR1.319. Still, investment in human capital produces greater added values than the same investment in structural capital and even more so than in physical capital. Overall, the total addition in value due to intellectual capital efficiency is also significantly higher in advanced (2.828) than in low (2.457) technology companies.

Table 2. Descriptive statistic

Tech Groups Variable	All Sample Mean (S.D)	Advanced Tech. Mean (S.D)	Low Tech Mean (S.D)	Mann-Whitney U Adv. *vs* Low
VAIC	2.628	2.828	2.457	
	(0.340)	(0.313)	(0.335)	9240***
ICE	2.068	2.289	1.943	
	(0.316)	(0.307)	(0.260)	8623***
HCE	1.397	1.546	1.319	
	(0.209)	(0.229)	(0.153)	9033***
SCE	0.672	0.743	0.624	
	(0.122)	(0.082)	(0.131)	9064***
CEE	0.559	0.539	0.515	
	(0.135)	(0.100)	(0.190)	18983
IOS Components				
MBA	0.901	0.979	0.859	
	(0.125)	(0.140)	(0.106)	10165***
MBE	0.830	0.978	0.743	
	(0.216)	(0.240)	(0.192)	9416***
PPEMVA	0.660	0.574	0.672	
	(0.191)	(0.151)	(0.244)	15024***
Firm-specific Factors				
FLEX	1.458	1.509	1.455	
	(0.435)	(0.443)	(0.535)	18629*
LEV	0.438	0.394	0.447	
	(0.172)	(0.176)	(0.196)	16923***
SIZE	2.305	2.316	2.326	
	(0.079)	(0.069)	(0.080)	1993

Note: ***, **, and * indicate significant at 1%, 5%, and 10%, respectively.

Consistent with the higher intellectual capital efficiency, advanced technology companies are also reporting higher performance in term of IOS components. This is despite the fact that in general, the ratios are less than 1, indicating that the market value the companies at less than their book value.

Finally, the relationships between VAIC (and its components) and investment opportunity set (IOS) are estimated using panel data fixed effect model regression model after the Hausman test shows fixed effects are exclusively supported in All companies, advanced technology group and the -low technology group. Panel-corrected standard errors (PCSE) method was employed for capturing autocorrelation and heteroscedasticity in the residuals The regression results in Table 3 show that VAIC, and each of its components consistently have a significantly positive relationship with IOS in all and sub-samples.

Table 3. Results of cross section and period fixed effect model.

Ind. Var.	VAIC	ICE	HCE	SCE	CEE
All companies					
Coef t-stat	0.909 (6.54)[a]	0.949 (5.59)[a]	1.335 (5.24)[a]	1.774 (4.60)[a]	1.302 (4.56)[a]
Adj. R^2	0.780	0.775	0.774	0.771	0.771
DW VIF	2.031 <1.59	2.024 <1.61	2.015 <1.60	2.020 <1.61	2.00 <1.66
Advanced technology companies					
Coef t-stat	0.928 (3.36)[a]	0.902 (2.88)[a]	1.102 (2.60)[b]	3.541 (3.26)[a]	3.220 (2.97)[a]
Adj. R^2	0.785	0.780	0.778	0.784	0.781
DW VIF	1.91 < 1.92	1.89 <1.96	1.88 <1.96	1.92 <1.94	1.96 <1.94
Low technology companies					
Coef t-stat	0.583 (3.05)[a]	0.596 (2.47)[b]	0.903 (2.86)[b]	0.996 (2.20)[b]	0.861 (2.14[b]
Adj. R^2	0.830	0.827	0.825	0.825	0.825
DW VIF	1.83 <1.55	1.81 <1.55	1.81 <1.55	1.80 <1.55	1.84 <1.57

Notes: Superscripts [a], [b] and [c] indicate significance at the 1%, 5% and 10% level, respectively. All models pass the following diagnostic tests (heteroscedasticity, autocorrelation, multicollinearity, and linearity of the IV-DV relationships) except the normal distribution of the residuals. Results of the control variables are not reported to conserve space.

As hypothesized, the relationships between VAIC (and each of its components) and IOS are apparently more prevalent in advanced technologies consistent with the argument that IC is more critical in companies that employ advanced technologies than in firms of low technologies. This result lends a strong support for [5] position that intellectual capital is an important factor in elevating innovations, in their study, of firms in construction industry.

The results also show that the value addition of intellectual capital is more prevalent in the form of structural capital in both technology groups, only that this effectiveness is stronger in advanced than in low technology companies. One of the possible explanations is because the nature of technology itself requires the right technological tools and systems such as the hardware, software, databases and everything else must be made available to the employees to enable them to reach their most efficiency [4].

5   CONCLUSION AND IMPLICATIONS

This study investigates the role of intellectual capital in enhancing firms' abilities to create investment opportunities in a sample of manufacturing firms that are categorized as advanced technology companies. The findings of this study show that the role of intellectual capital performance in creating investment opportunities is consistently greater in advanced than in low technology companies. Intuitively, this result means intellectual capital plays a greater role in companies where technologies are highly dynamic. This finding corroborates with previous studies [16, 10, 11] which show that R&D expenditure, as part of structural capital that constitutes intellectual capital, is higher in advanced than in low technology companies. Advanced technology companies require manpower (HC) with specialized expertise and skills and state-of-the-art technology to remain competitive in the industry. When properly managed, this costly human and structural capital should be more efficient in producing investment opportunities and value for the firms. Since there is no previous evidence established on the IC-IOS link in technology companies, future research involving different country setting is needed to draw a strong conclusion.

In a nutshell, the evidence that intellectual capital is a strategic element that worth investing implies that firms' management should allocate ample budget for employing the right human capital and for providing training and conducting R&D activities to leverage on intellectual capital that can optimize the firms' scarce capital resources. At the policy level, strategies must be reformulated to emphasize investment in intellectual capital in companies which can leverage the most from it to help the nation achieve the target economic growth within the pre-specified time period. Since advanced technology companies benefit more from investment in IC, more of the country's monetary and non-monetary IC-related

resources should be placed on this industry to optimize its investment opportunities and values. The current training and education policies, and the systems and standards must be reassessed to enhance the quality of human capital in this country. Since Malaysia is also one of those developing economies which has been experiencing outflows of talents in high technology areas into foreign labor markets, the policy makers need to reformulate strategies which are competitive enough to bring these talents back into the countries.

Evidence on the important of intellectual capital should also be acknowledged by establishing standards for measuring and disclosing IC in financial reports such that the information is more accessible for the potential investors. Similarly, firms must be made more reliable on the disclosure of R&D activities in their financial reports because this information is crucial for differentiating the competitive strategies of one firm from another.

REFERENCES

[1]   J. Barney, "Firm resources and sustained competitive advantage. *Journal of Management*" Vol 17, No. 1, pp. 99–120,1991.

[2]   M. Clarke, D. Seng, and R.H. Whiting, "Intellectual capital and firm performance in Australia". *Journal of Intellectual Capital, Vol 12, No.4 , pp. 505–530.2011.*

[3]   D.Czarnitzki, and S. Thorwarth, *"Productivity effects of basic research in low-tech and high-tech industries", Research Policy ,* Vol,41, No. 9, ,pp. 1555–1564,2012.

[4]   Edvinsson, L. and Malone, M.S. *, Intellectual capital: Realizing your company's true value by finding its hidden brainpower.* New York, NY: HarperBusiness New York,1997.

[5]   C.O. Egbu, "Managing knowledge and intellectual capital for improved organizational innovations in the construction industry: an examination of critical success factors". *Engineering, Construction, and Architectural Management,*Vol, 11, No. 5, pp.301-315,2004.

[6]   P.C. Goh, "Intellectual capital performance of commercial banks in Malaysia". *Journal of Intellectual Capital,*Vol, 6, No. 3, pp.385–396,2005.

[7]   Hatzichronoglou, T., *Revision of the hig-technology sector ad product classification, OECD Science, Technology and Industry, Working Papers No. 1997/02. doi:* 10.1787/134337307632, Available at http://www. oecd.org/sti/ind/48350231.pdf, (July 17, 2013).

[8]   S. Kallapur and M.A.Trombley, "The investment opportunity set : Determinants, consequences and measurement". *Managerial Finance,* Vol, 27, No. 3, pp. 3-15,2001.

[9]   C. Myers, "Determinants of corporate borrowing". *Journal of Financial Economics* Vol,5, pp.147–175,1977.

[10] P.M. Nunes, Z. Serrasqueiro, L. Mendes and T.N. Sequeira, "Relationship between growth and R&D intensity in low-tech and high-tech Portuguese service SMEs". *Journal of Service Management ,* Vol, 21, No.3, pp. 291–320,2010.

[11] P. Porrini, "Alliance experience and value creation in high-tech and low-tech acquisitions". *The Journal of High Technology Management Research,* Vol,15,No. 2, pp. 267–292,2004.

[12] A. Pulic, "VAIC^TM–An accounting tool for IC management". *International Journal of Technology Management ,* Vol, 20, No.5, pp.702–714,2000.

[13] A. Riahi-Belkaoui, "Intellectual Capital and firm performance of U.S. multinational firms: A study of the resource-based and stakeholder views". *Journal of Intellectual Capital* Vol,4, No. 2, pp.215–226, 2003.

[14] B. Seyoum, "The role of factor conditions in high-technology exports: An empirical examination". *The Journal of High Technology Management Research* Vol, 15, No.1, pp.145–162, 2004.

[15] I.W.K.Ting and H.H. Lean, "Intellectual capital performance of financial institutions in Malaysia". *Journal of Intellectual Capital,* Vol,10, No.4, pp.588–599,2009.

[16] W.-Y.Wang, and C.Chang, "Intellectual capital and performance in causal models: Evidence from the information technology industry in Taiwan". *Journal of Intellectual Capital* Vol,6, No.2, pp.222–236. 2005.

[17] World Bank , *Navigating turbulence, sustaining growth. World Bank East Asia and Pacific Economic,* Update 2014, 2. Available at:http://www.word bank.com, 2014.

Earnings management checked between changes in profit margins and asset turnover ratio

Arefeh Mohaghegh

Department of Accounting, Semnan Branch, Islamic Azad University, Semnan, Iran

ABSTRACT: This paper aims to study and investigate the relationship of earnings management detection through changes in the profit margin and asset turnover ratio. It is applied based on the objective and its statistical population includes the investment companies listed on the Stock Exchange during 2007 until the end of financial year 2012. According to the main result of this study, there is a significant inverse relationship between the dependent variable (aggregate accruals) and changes in profit margins. In other words, by increasing the aggregate accruals, the changes in profit margins will decline, and vice versa. The dependent variable (aggregate accruals) has a direct and significant relationship with the changes in the asset turnover ratio. This means that as the result of the increase in the aggregate accruals, the changes in profit margins will raise, and vice versa. Calculations indicate a one unit increase in the amount of profit margin variable reduces the aggregate accruals to -1.09E+10. Furthermore, a one unit increase in the asset turnover variable leads to the enhanced aggregate accruals to 8331.777.

KEYWORDS: Earnings management, accruals, financial ratios.

1 INTRODUCTION

Nowadays, the financial markets are considered the most important ways for the big and small savings investments. The financial markets determine the stock value in the market according to the expected profit of company and the information supporting these expectations. The income measurement process and its result play an important role in corporate governance and the financial statements users often pay more attention to them. Since the calculation of economic profit is affected by the accounting estimation methods and the business management is responsible for preparing the financial statements for various reasons, the management manages the acquired profit (Ghosh, S. et al, 2013). Meanwhile, the reverse changes of profit margins and the asset turnover ratio can be considered as a potential for earnings management in order to destroy the shareholders' wealth over the long term and can loss the investors' confidence in reported profits and ultimately reduction in investing in equity markets. Thus, it is essential to conduct the research on the changes in the profit margin changes and asset turnover ratio and their relationship with the upward or downward earnings management (Mishra, A.K. et al, 2012). The profit margin changes and asset turnover ratio can be the signs of the acquired profit management. Accordingly, in the profit and loss statements and balance sheet classification, which can be influenced by the operating income and net operating assets, it is more likely that the managers manipulate the operating income and net operating assets according to their objectives. The studies indicate that the managers moderate the reported profits through choosing the certain accounting policies, and changing the accounting estimates and accruals management. The "Income Reporting" is one of the financial statement elements considered as the performance evaluation criterion and the profitability of profit unit. However, calculating the net profit of a profit unit is affected by the accounting methods and estimates. The income and loss statement includes the output of sources controlled by the business unit management and reflects the performance of business unit during the target period (Cosmina Pitulice, I. et al, 2013). Despite the fact that most of the academic studies on earnings management by accruals have utilized the modified Jones model, this study applies the changes in the profit margin and asset turnover ratio in addition to the modified Jones model in order to detect the upward or downward earnings management and also performs a comparison between the modified Jones model and changes in the profit margin and asset

turnover ratio in the field of obtaining more information content in detecting the earnings management and it is assumed that the studied companies have had no strategic modification during the years of study.

The objective of this paper is to study the earnings management according to the significant changes in the profit margins and the asset turnover ratio and provide a suitable model by detecting the relationship between the profitability components in the sustainable economy. Hence, this paper also pays attention to the theories of capital structure which becomes sustainable by the profitability management.

2   RESEARCH LITERATURE

The profitability management and profit detection provide a unique theoretical model for every enterprise to be accountable to the stakeholders for the performance of management governing the organization because the organization survives by capital formation as the result of profitability and acquiring the benefits for its owners and beneficiaries. The studies indicate that none of the current theories and models can individually explain the factors which affect determining the corporate capital structure and provide the decisive responses to the questions in this regard. In numerous situations, a number of companies choose the issuance of stock, some of them the application of internal resources and others the borrowing method to finance their activities. Thus, it seems that the lack of a comprehensive theory, which can fully explain and predict the corporate capital structure and financing behavior, is the biggest current problem. However, there is no evidence for formulating such this theory in the near future (Khaleghi-Moghaddam, 2006). The issue of how the companies choose and adjust their strategic financial resources has been taken into account by most of the financial economists for a long term and is still a source of much debate (Marques, 2004). It was previously believed that the nature of such these problems is so complex, thus it is impossible to develop a reasonable theory in this regard. However, the studies indicate that none of the current models and theories can fully explain the factors, which affect determining the corporate capital structure, individually and find the decisive response to this question that why a number of firms choose the issuance of stock, some of them the internal resources and others the borrowing method for financing under various conditions (DeAngelo, 2006).

2.1   THEORETICAL FOUNDATIONS

The studies by Ball and Brown (1968) indicate that the changes in accounting earnings and stock prices are linked together. According to Schipper's view (1989), the earnings management is the targeted intervention in the process of extra organizational financial reporting of firm to gain the personal purposes. Healy and Wahlen (1999) argue that the earnings management occurs when the managers judge and obtain their desires in financial reporting with the aim to mislead the financial information users. According to the studies by Degeorge et al (1999), the corporate investors and executives pay accurate attention to the corporate income reporting.

The earnings management in this research applies the discretionary accruals concept which assumes that the managers primarily rely on their authorities over the accounting accruals including the discretionary and non-discretionary accruals. The discretionary accruals are determined by the management, while the non-discretionary accruals are financially determined and are outside of the management jurisdiction. The applied terms of this study are briefly described as follows.

Changes in Profit Margin (ΔPMt): The ratio of operating profit to sales – the ratio of operating profit to sales of last year.

Changes in asset turnover ratio (ΔATOt): The ratio of sales to the net operating assets- the ratio of sales to the net operating assets of last year.

2.2   LITERATURE REVIEW

Burgstahler and Dichev (1997) concluded that the investors in companies with multiple owners and no major shareholders relied on the low-cost criteria such as the profit-based indicators instead of accurate detailed processing. Dichev et al (1996) argue that the firms with a large number of board members, who are mainly responsible, apply more earnings management than the other companies. Bushee (1998) argues that the likelihood of earnings management is higher in firms largely owned by the institutional investors than others. McNichols (2000) argues that the future profitability growth forecasting factor is ignored in Jones model (1991) and should be considered as a variable affecting the earnings management. Xie (2001) argues that forecasting the corporate future earnings growth affects the earnings management. He concludes that the increased likelihood of profit growth increases the use of earnings management. Beatty et al (2002) measured the change in the corporate profitability by applying the changed cash flow and announced that the likelihood of earnings management in banks with positive change in the cash flow is more than others.

The purpose of Lange Meier in his paper is to examine the financial performance of a sample of crop/beef cow farms using the operating profit margin ratio and farm growth as relevant measures (Lange Meier, M., 2011). Deshpande in his paper proposed a model to void for a single product inventory control of a supply chain consisting of three echelons. A generic modification proposed to the membership functions of the fuzzy goal-programming approach is used to mathematically map the aspiration levels of the decision maker (Deshpande, P. et. al, 2011). The purpose of Iren RADU is to determine the managerial skills developed by the Romanian fluvial shipping company NAVROM, compared with ten other major competitors in the same domain, using financial information of these companies during the years 2005-2010 (Iren RADU, R. 2012). Huang in his study has developed a mathematical model for analyzing a capacitated reverse supply chain consisting of a single manufacturer and multiple retailers (Huang, S.M. et al, 2013). Baris presents a computational method to determine the order-up-to levels that maximize the expected profit with profit margins, inventory holding and substitution costs subject to service-level constraints (Baris, T. et al, 2013). Ray suggests a strong negative relationship between the measures of working capital management including the number of days accounts receivable and cash conversion cycle, financial debt ratio with corporate profitability (Ray, S. 2012). Talha focuses on the impact of working capital management on profitability of selected Indian corporate hospitals (Talha, M.S. et. al, 2010).

3   RESEARCH METHODOLOGY

This study is empirical and descriptive and seeks to describe the relationship between the variables through the statistical tests and is put into the positive theory domain. It is applied according to the objective and its results can be helpful for a wide range including the stakeholders, auditors, SEC officials, researchers, and standard developers. Eviews software is utilized in order to test the hypotheses. The purpose of this study is to evaluate the numerical relationship between the changes in profit margins and asset turnover ratio and the discretionary accruals. Since the type of relationship in the correlation hypotheses and type of data scales are proportional and the set of variables is also more than 2 and the number of tests can be unlimited, the regression is the most appropriate formula for test. Thus the two-or-more-variable regression model is applied in this regard.

3.1   DATA COLLECTION

Since the applied data in this study are among the secondary data which is obtained from other sources, it is among the documentary methods. Therefore, the research variables are extracted and analyzed by special formula available in the research literature. Given the availability of financial information in this article, the research period is from the fiscal year 2007 to the end of 2012.

3.2   STATISTICAL POPULATION

According to the classification made n Tehran Stock Exchange, the companies on Stock Exchange are classified into nine industries one of which is the financial intermediation industry. The statistical population of this study consists of the investment companies listed on Stock Exchange during the period from the fiscal year 2007 to the end of 2012. The following criteria are considered in selecting the samples.

1) The investment companies with constant operation during the study period.
2) The standard information filtering is performed.
3) The dates of their entry to the Stock Exchange are before 2007.

Cochran formula is applied for calculating the number of samples. The initial estimates indicate that 216 companies are eligible. Thus, according to the following calculations, 138 companies are randomly studied and selected.

$$n_{cochran} = \frac{\dfrac{p(1-p)z_{1-\alpha/2}^2}{d^2}}{1+\dfrac{1}{N}\left[\dfrac{p(1-p)z_{1-\alpha/2}^2}{d^2}-1\right]} = \frac{\dfrac{0.5*0.5*(1.96)^2}{(0.05)^2}}{1+\dfrac{1}{216}\left[\dfrac{0.5*0.5*(1.96)^2}{(0.05)^2}-1\right]} = \frac{384.16}{2.77389} \cong 138.49$$

3.3 RELIABILITY AND VALIDITY OF RESEARCH

Since the data should have the computational quality and acceptability in the research, there should be an accurate indicator of what is the goal of measurement. The validity and reliability are applied for evaluating the measurement tool. Thus, the mentioned concepts are utilized for evaluating the research tool quality.

For enhancing the research validity, this study considers different time periods for measuring the relationship between the variables. Furthermore, the target ratios are extracted through the mathematical operations in accordance with the existing theories of financial and accounting management in order to measure the studied variables. According to this method for extracting the research variables, it is expected that the obtained tools and sizes are validated.

Since the financial statements of companies listed on Tehran Stock Exchange are applied for calculating the variables in this study, these financial statements should be accepted and approved by reliable auditors of Stock Exchange, thus they will have the reliability in this regard.

3.4 RESEARCH HYPOTHESES

In this paper, the earnings management or (aggregate accruals) is considered as the dependent variable and the independent variables include the changes in profit margin and asset turnover. If the changes are related, the earnings management is upward otherwise it is downward. The change in the asset turnover ratio is considered as the ratio of sales to the net operating assets- the ratio of sales to the net operating assets of previous years.

Hence, the following research hypotheses are as follows:

- ✓ Positive changes in the profit margins indicate the upward earnings management.
- ✓ Positive changes in asset turnover ratio indicate the upward earnings management.

Given the variables defined in this paper, the regression model (Y) is formulated according to the following formula, in which α is the constant value, β_1 and β_2 are the coefficients of profit margin variables, and the asset turnover, respectively, and ϵ is the model error term. The amount of β is calculated by Pearson correlation coefficient.

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \epsilon$$

4 RESEARCH FINDINGS

The pre-tests for estimating the first hybrid regression model are presented as follows.

4.1 STATIC TEST OF RESEARCH VARIABLES

This section investigates the durability of research variables through the unit root test. If a variable is not durable, it should become durable by applying the techniques or this variable should be removed from the model in order to have no negative effect on the estimates. The results of test are presented in Table 1.

Table (1) The results of unit root reliability test for the dependent variable of aggregate accruals

Pool unit root test: Summary Sample: 1385 1390				
Method:	Statistic	Prob.**	Cross-Sections	Obs.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-23.4713	0.0000	123	615
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat (**IPS**)	-3.90988	0.0000	123	615
ADF - Fisher Chi-square	369.937	0.0000	123	615
PP - Fisher Chi-square	445.210	0.0000	123	615

The Prob. amount of IPS Statistics and other statistic is less than the significance level of 1%, 5% and 10%, thus it can be concluded that the hypothesis of non-reliable Return on Asset variable is rejected and this variable is reliable at the levels

above. The summary of static test results through the IPS unit root test in the time series of model are presented in Table 2 for research variables.

Table (2) The results of IPS test for the reliability of research variables

Variable	IPS	Prob*	Result	Degree
Aggregate accruals	-3.90988	0.000	Reliable	I(0)
Changes in income ÷ 1	-300.017	0.000	Reliable	I(0)
Changes in income ÷ Assets of the previous year	-10.8621	0.000	Reliable	I(0)

Independent variables of research are static, thus the models can be fitted by determining the fitness of variables and the models will be faced with no problem. Furthermore, since all variables of model are static, there is no need for the co-integration test.

4.2   CHOW TEST

In this test, the equal y-intercept (hybrid method) is compared to the opposite H1 which is the anisotropy y-intercept. Thus the Fixed effect model is approved in the case that the H0 is rejected. Chow test results are presented in Table 3.

Table (3) Chow test results of research variables

Effects Test	Statistic	d.f.	Prob.
Period F	0.084958	(5.729)	0.9946
Period Chi-square	0.429909	5	0.9945

The amount of Prob is more than 5% and the hypothesis of y- intercept equalities is not rejected. At this stage, the fixed effect model should be examined as the preferred model is selected. However, the fixed effect model should be tested compared to the random effect model. Hausman test is applied for this case.

4.3   HAUSMAN TEST

Based on Hausman test, the existence of difference between the estimators of fixed effects and random-effects approach is considered as the null hypothesis. Thus, the rejected null hypothesis indicates the fixed effect method. The results of test are presented in Table 4.

Table (4) Hausman test model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	0.372757	3	0.9458

The amount of Prob is more than 0.05 and the null hypothesis, based on the lack of relationship between the individual effects and explanatory variables, is not rejected. Therefore, the fixed effects method should be applied for estimating both models.

4.4   ESTIMATING THE MODEL BY THE FIXED EFFECTS MODEL

The results of model estimation by the hybrid approach are presented in Table 5 by considering the random effects through Eviews software.

Table (5) The results of estimating the Jones aggregate random item model considering the fixed effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1043070	189382.9	5.507733	0.00000
X1 (Changes in income ÷ 1)	-1.09E+10	6.63E+09	-2.64106	0.01012
X2 (Assets of previous year ÷ Changes in income)	8331.777	1596.198	5.219765	0.00000
Fixed Effects (Period)				
2007 C	-166535			
2008 C	-73435.6			
2009 C	12747.85			
2010 C	-52236.6			
2011 C	187107.7			
2012 C	92351.37			
Effects Specification Period fixed (dummy variables)				
R-squared	0. 38395	Mean dependent var.		998285.6
Adjusted R-squared	0.027842	S.D. dependent var.		4843290
S.E. of regression	4775390	Akaike info criterion		33.60797
Sum squared resid	1.66E+16	Schwarz criterion		33.66412
Log likelihood	-12392.3	Hannan-Quinn criter.		33.62962
F-statistic	3.638396	Durbin-Watson stat		1.945081
Prob(F-statistic)	0.000364			

According to the results of estimating the model, the statistics (R-squared) of coefficient of determination indicates that 38% of changes in the dependent variable (aggregate accruals) can be explained by two explanatory variables of x1 (Changes in income ÷ 1) and x2 (Changes in income ÷ asset of previous year). Obviously, to increase the statistics amount (R-squared), other variables affecting the dependent variable (aggregate accruals) should be followed.

According to the results of estimating the coefficients of two explanatory variables, x1 (Changes in income ÷ 1) and x2 (Changes in income ÷ asset of previous year) that are less than 0.05, it can be concluded that the hypothesis for the lack of significant relationship between these variables are rejected.

- There is an inverse relationship between the variable, x1, with the dependent variable (aggregate accruals). In other words, with one unit increase in the value of variable, x1, (changes in income ÷ 1), the aggregate accruals will be decreased equal to -1.09E +10 units.

- There is a direct relationship between x2 variable and the dependent variables (aggregate accruals). This means that with one unit increase in x2 variable (Changes in income ÷ asset of previous year), the aggregate accruals is increased to 8331.777 units.

According to the calculations for the research hypothesis, it can be concluded that:

1 – There is a significant but inverse relationship between the dependent variable (aggregate accruals) with the changes in the profit margins. This means that with one unit increase in the aggregate accruals, the changes in profit margin will fall, and vice versa.

2 – There is a direct and significant relationship between the dependent variable (aggregate accruals) and the changes in the asset turnover ratio. This means that with one increase in the aggregate accruals, the changes in the profit margins rise, and vice versa.

4.5   POST-TESTS FOR ESTIMATING THE REGRESSION MODEL

- Regression true test

The regression true test is done through Durbin-Watson test. The results are presented in Table 6.

Table (6) The results of Durbin-Watson statistics and critical quantify CRDW

Result	Critical quality at the level of 10%	Critical quality at the level of 5%	The amount of Durbin-Watson statistics resulted from the regression
Rejecting the null hypothesis	0.323	0.386	1.945

According to the obtained results, it can be concluded that the co-integration (long term relationship) is confirmed between the variables of model. Therefore, it is obvious that the performed simple regression above indicates the long-term equilibrium relationship between the variables. In other words, the estimated coefficients are not only true in the short term, and they can also be used in the analysis of long-term relationships.

- Normality Test of error distribution (residuals)

Jarque-Bera test is one of the proposed tests for evaluating the data normality and performs this test based on the values of skewness and kurtosis of sample data. The values of skewness near zero and the kurtosis near three represent the normality of error distribution. The normality of studied data is the null hypothesis of this test. The normality test of residual terms and the error standard normal diagram should be observed in order to investigate this hypothesis. This test represents the histogram of residual term and Jarque-Bera statistics for normality plus some of the simple descriptive statistics of residual term. The normality probability of research models is greater than 0.05, thus the normality of model distribution is not rejected at the confidence level of 0.95; hence, it can be concluded that the distribution of errors (residuals) has the normal distribution. The results of calculation are shown in Figure 1.
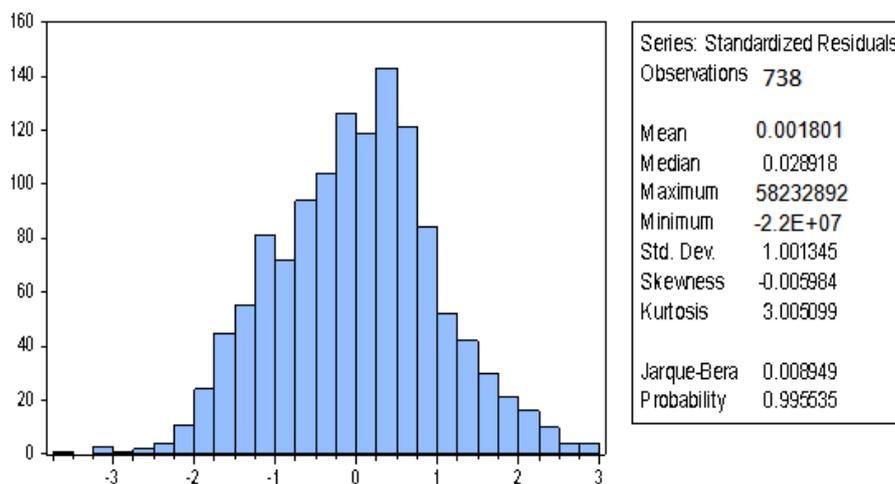

Figure (1) The results of residual term normality test

The results of calculation indicate that the values of skewness near zero and the kurtosis nearly three defined represent the normality of error distribution.

5   CONCLUSION AND SUGGESTIONS

This study investigated the relationship between the earnings management with the notation of "aggregate accruals" with the variables including the changes in the profit margins and changes in the asset turnover ratio. In terms of the procedures and similarities in some of the results, this research is consistent with some of the previous studies such as (Rezazadeh, 2010), (Bagheri, 2007), (Khodadadi, 2012), and (Sajjadi, 2007). According to the results of estimated coefficients of two explanatory variables, x1 (Changes in income ÷ 1) and x2 (Changes in income ÷ asset of previous year), which are less

than 0.05, it can be concluded the hypothesis for the lack of significant relationship between these variables is rejected at the significance level of 0.95.

- The main result of study

The dependent variable (aggregate accruals) has a significant inverse relationship with the changes in profit margins. In other words, with one unit increase in the aggregate accruals, the changes in profit margin will fall, and vice versa. The dependent variable (aggregate accruals) has a direct and significant relationship with the changes in asset turnover ratio. This means that with one unit increase in the aggregate accruals, the changes in the profit margin will rise, and vice versa.

- There is an inverse relationship between the profit margin and the dependent variable (aggregate accruals). In other words, with one unit increase in the amount of profit margin variable, the amount of aggregate accruals is reduced to -1.09 E+10, and vice versa.

- There is a direct relationship between the asset turnover variable and dependent variable (aggregate accruals). In other words, with one unit increase in the amount of asset turnover variable, the amount of aggregate accruals is increased to 8331.777, and vice versa.

- According to the regression model defined in the article hypotheses (Section 3-4), the model which is calculated by the coefficients of table, is presented as follows.

$$Y = \alpha + (-1.09E +10) X_1 + (8331.777) x_2 + \varepsilon$$

SUGGESTION

- ✓ The research results indicate that there is a direct inverse relationship between the changes in profit margins and the profitability management. The managers should pay attention to this ratio in their estimates and financial planning and adapt the performance with the objective of profitability through following the target ratio procedure.

- ✓ The research results indicate that there is a direct relationship between the changes in the asset turnover ratio and the profitability management. The managers should pay attention to this ratio in their estimates and financial planning and adapt the performance with the objective of profitability through following the target ratio procedure.

SUGGESTIONS FOR FUTURE STUDIES

The earnings management means smoothing the computing income in the current period. In general, the income smoothing refers to the corporate management's dominance over the transposition of recording the costs and revenues or expenses accounting, or taking into account the costs and transferring them into the following years, so that the company will be able to utilize the profits without major changes during a few consecutive years. The earnings management is generally done under two ways (Nazemi-Ardakani, 2010).

1 - The manipulation of discretionary accruals

2 - The manipulation of real activities

Therefore, the following suggestions are offered according to the subjects above.

- ✓ Investigating the relationship of profit margin according to the management's desired changes in the discretionary accruals.

- ✓ Investigating the relationship of inventory turnover according to the management's desired changes in the discretionary accruals.

- ✓ Investigating the relationship of profit margin according to the management's desired changes in the real activities.

- ✓ Investigating the relationship of asset turnover ratio according to the management's desired changes in the real activities.

REFERENCES

[1] Ghosh, S. Reitz, S., (2013), Capital Flows, Financial Asset Prices and Real Financial Market Exchange Rate: A Case Study for an Emerging Market, India, Life-science Global, Journal of Reviews on Global Economics, Vol. 2, pp. 158-171.

[2] Mishra, A.K. Harris, J.M. Erickson, K.W. Hallahan, C. Detre , J.D., (2012), Drivers of agricultural profitability in the USA: An application of the Du Pont expansion method, Emerald Group Publishing, Agricultural Finance Review, Vol. 72, pp. 325-340.

[3] Cosmina Pitulice, I. Gorgan, C. (2013), the Use of Statistical Information For Financial Reporting Purposes - The Case Of Fadn, Faculty of Sciences, "1 Decembrie 1918" University, Alba Iulia, Journal of Annales Universitatis Apulensis, Series Oeconomica, Vol. 1, pages: 6.

[4] Khaleghi-Moghaddam, Hamid; Baghomian, Rafik, (2006), An overview of the theories of capital structure, Peyke Nour, Fifth year, No. 4, pp. 58-82.

[5] Marques M.O., and M.C. Santos (2004), "Capital Structure Policy and Determinants: Theory and Managerial Evidence", Working Paper, Department of Economy, University of Porto, Portugal.

[6] DeAngelo H., L. DeAngelo (2006), "Capital Structure, Payout Policy, and Financial Flexibility", Working Paper No. FBE 02-06, Marshall School of Business, University of Southern California.

[7] Ball, R., P. Brown. (1968), an empirical evaluation of accounting income numbers. Journal of Accounting Research 6 (autumn): 103-126.

[8] Schipper, K. (1989), Commentary on earnings management. Accounting Horizons 3 (4): 91–102.

[9] Healy, P. M., J. M. Wahlen. (1999), A review of the earnings management literature and its implications for standard setting. Accounting Horizons 13 (December): 365-383.

[10] Degeorge, K, J. Patel, R. Zeckhauser, (1999), Earnings management to exceed thresholds, Journal of Business 72 (1): 1-33.

[11] Burgstahler, D., and I. Dichev. 1997. Earnings management to avoid earnings increases and losses. Journal of Accounting and Economics 24 (1): 99-126.

[12] Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1996. Causes and consequences of earnings manipulations. Contemporary Accounting Research 13 (spring): 1-35.

[13] Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. The Accounting Review 73 (3): 305-333.

[14] McNichols, M. 2000. Research design issues in earnings management studies. Journal of Accounting and Public Policy 19 (4-5): 313-345.

[15] Xie. H. 2001. The mispricing of abnormal accruals. The Accounting Review 76: 357-373.

[16] Beatty, A., B. Ke, and K. Petroni. 2002. Earnings management to avoid earnings declines across publicly and privately held banks. The   Accounting Review 77 (July): 547-570.

[17] Langemeier, M., (2011), financial performance configurations, Institute of Agricultural Management & International Farm Management Association, International Journal of Agricultural Management, Vol. 1.

[18] Deshpande, P. Shukla, D. Tiwari, M.K., (2011), Fuzzy goal programming for inventory management: A bacterial foraging approach, Elsevier, European Journal of Operational Research, Vol. 212, pp. 325-336.

[19] Iren RADU, R. (2012), Quantification Methods of Management Skills in Shipping, "Dunarea de Jos" University of Galati, Faculty of Economics and Business Administration, journal of Economics and Applied Informatics, pp. 77-82.

[20] Huang, S.M. Su, J.C.P., (2013), Impact of product proliferation on the reverse supply chain, Elsevier, Omega, Vol. 41, pp. 626-639.

[21] Baris, T. Selcuk, K., (2013), Retail inventory management with stock-out based dynamic demand substitution, Elsevier, International Journal of Production Economics, Vol. 1145, pp. 79-87.

[22] Ray, S., (2012), evaluating the Impact of Working Capital Management Components on Corporate Profitability, Evidence from Indian Manufacturing Firms, Academy of Economic Studies-Bucharest, Romania, International Journal of Economic Practices and Theories, Vol. 2, pp. 127-136.

[23] Talha, M.S. Christopher B. Kamalavalli, A.L., (2010), Sensitivity of profitability to working capital management: a study of Indian corporate hospitals, Inter science Enterprises Ltd., Int. J. of Managerial and Financial Accounting, Vol. 2, pp. 213-227.

[24] Rezazadeh, Javad; Heydarian, Jafar, (2010), The effect of Working Capital management on the profitability of Iranian companies, accounting research, No. 2 (7), pp. 20-33.

[25] Bagheri, Hossein, (2007), Analysis of factors affecting the profitability of commercial banks (Case Study: Refah Bank), Financial Research, Vol. 8, No. 1.

[26] Khodadai, Vali; Janjani, Reza (2012), Investigating the relationship between the earnings management and profitability of companies listed on Tehran Stock Exchange, Journal of Financial Accounting, Third Year, No. 1, Serial Number (7), pp. 77-96.

[27] Sajjadi, Hossein; Dastgir, Mohsen; Farazmand, Hassan; Mahmoudi, Vahid (2007), Factors influencing the profitability of companies listed on Tehran Stock Exchange, Journal of Economic Research, No. 80, pp. 49-73.

[28] Nazemi-Ardakani, Mehdi (2010), Earnings management based on the accounting figures vs. the real earnings management, Kankash Journal, accounting, pp. 114-119.

A study of the effect of firm size and quality of disclosure on the cost of company common stock

Farzin Rezaei[1] and Abbas Shabani[2]

[1]Assistant Professor of Department of Accounting,
Qazvin Branch, Islamic Azad University,
Qazvin, Iran

[2]Master of Department of Accounting,
Qazvin Branch, Islamic Azad University,
Qazvin, Iran

ABSTRACT: The aim of the study is to explore the effect of firm size and quality of disclosure on the cost of common stock. The cost of common stock as dependent variable, quality of disclosure and firm size as independent variables, financial leverage and book value to market value, and systematic risk as control variables have been reviewed. The time span of the study was a ten year course starting from 2003 to 2012, and selected sample consisted of 1090 year-firm. The research method is a correlational descriptive method, and a multivariate regression method was used to test hypothesis. Results indicated that there is a significant negative relationship between firm size and cost of common stock as well as between quality of disclosure and cost of common stock.

KEYWORDS: quality of disclosure, firm size, cost of common stock.

1 INTRODUCTION

The main purpose of the research is to examine the effect of firm size and quality of disclosure on the cost of common stock. Indeed, in the study, as against previous studies where it appeared as a control variable, firm size was used to examine its effect on the cost of common stock. Accurate and timely disclosure of information is viewed as an important tool for managers so as to reduce costs. Nevertheless, it seems that big companies gain more advantage from improvement and promotion of disclosure level than smaller companies.

Financial reporting and disclosure are conceived as crucial instruments for managing effective information supply to individuals outside organization. In available literature, numerous hypotheses and theories have been expressed concerning disclosure, as the economic repercussion of disclosure and its positive effects have been pointed out. According to Embang et al. (2012), firm size modifies the relationship between disclosure level and cost of common stock, in that the relationship is negative in big firms as it is intangible in smaller firms. Firms with bigger size enjoy cash dividend policy more than smaller firms; disclosure measure, due to its frugality leading to lower production costs on the one hand and profit raise, and risk reduction as a result of information disclosure against owners on the other, benefit from higher profit quality compared to smaller firms, where further information disclosure would result in an increase in proprietary costs and risk of information disclosure. That is, firm with bigger size would incur lower costs than smaller firms, which indicates that increase in the quantity and quality of disclosure can result in further decrease in cost of common stock in bigger firms with respect to such costs and risks. By an increase in the quality of disclosure, it is expected the attempts by investors have been declined in getting access to private information, thereby reducing information asymmetry, so investors will demand less expected return. And, since the cost of investment is the least return expected, so it will decline (Embang et al., 2012).

2   RESEARCH THEORETICAL FRAMEWORK

The main goal of disclosure is to inform analysts and investors about the amount and timing of future cash flows so that financial analysts and investors make a better forecast about future earnings. Therefore, better transparency and disclosure can make better information available to shareholders.

According to information economy theory, soliciting information is acceptable when its benefits exceeds its costs. The theory states that information constitutes economic value, as there is a must to conduct benefit-cost analysis when making decision about whether or not we issue additional information. Thus, we can claim that soliciting further information is hardly recommended, because information comes with prices (Que, 2011).

According to signaling theory, firms with good performance benefit from strong incentives to report their operational status. Competitive pressure drives other companies to report, even if their results are not satisfactory.

Silence (negligence in reporting) could be interpreted as a malign news, so firms will be in a battle with one another about getting access to rare financial resources. Hence, it is imperative to deliberately divulge information in order to win the competition (Watson et al., 2002).

According to agency theory, information asymmetry between owner and managers would arise when one party (manager) has further access to valuable information, so managers have an incentive to voluntarily divulge additional information as a signal to their future expectation (Wallace et al., 1994).

The larger the size of firm, the more accurate guidelines, procedures, and organizational methods will be for controlling a firm. Thus, budgeting is formally addressed as an imperative, as it takes over an independent unit in the structure of final budgeting responsibility, because such firm is big enough to allow the establishment of such unit. Large companies can supply their necessary fund with lower interest due to a reputation they have in the world capital market. On the contrary, the smaller the firm, the more difficult the access to capital market will be, as lower credit along with high interest will be expected for the firms in the market. As well, because of high costs, the establishment of an independent unit for planning, budgeting, monitoring, controlling and modifying deviations seemed almost impossible, though it entails more activities that can result in further profitability for them compared to smaller firms. Larger firms can gain more benefit by divulging information as against smaller companies. A reason for saving caused by size; that is to say, bigger companies will incur lower costs when divulging information, while additional information disclosure would allow proprietary costs to rise in smaller companies, as well as posing the risk of information disclosure; the whole cost of such disclosure would rise compared to larger companies. Cognizant investor has access to private information and can make a decision as well as an attempt to make the incognizant sustain loss. By an increase in the quality of disclosure, it is expected that investor attempt to get access to private information would decline, as information asymmetry drops, so investors would demand less expected return. Since the cost of capital is the least expected, it will fall (Embang et al, 2012).

3   BACKGROUND

3.1   DOMESTIC RESEARCH

Bulow et al (2012), in a study entitled "financial ratios and capital costs", reviewed the relationship between financial ratios and cost of common stockduring the period 2003-2009. The statistical population of the study consisted of 60 firms listed in stock exchange. In order to calculate the cost of capital, Gordon's model was used. The results indicated that there is a significant relationship between liquidity ratios, profitability ratios, leverage ratios, market ratios, and cost of common stock.

Dastgir and Bazazzadeh (2003) conducted a study entitled "a review of the effect of disclosure size increase (obligatory) on cost of common stock", coming up with the following results: level of disclosure has been addressed by comparing financial statement of sample firms with specified disclosure items, accounting guidelines, business law, and direct taxes. The cost of common stock has been calculated based on capital asset pricing model through Daymenson' method. The results of the study on 40 samples consisting of manufacturing companies indicated that increased disclosure level would result in a decrease in the cost of common stock.

Khodamipour and Ghadiri (2010) addressed the relationship of accruals to information asymmetry. In the study, in order to measure information asymmetry and accrual components, the scope of difference between proposed purchase price and share sell, and Jones' modified model were used respectively. The results of data analysis indicated that there is a significant positive relationship between accruals and information asymmetry.

A research was also conducted by Mehrazin et al (2011) and entitled "the relationship of information asymmetry to financial reporting quality in Tehran Stock Exchange with the participation of 90 firms listed in Iran Stock Exchange within the period 2008-2010. Results indicate that there is no significant correlation at all between the above mentioned variables in a linear or nonlinear fashion in Tehran Stock Exchange.

3.2 FOREIGN RESEARCH

Spense et al (1970) indicated that information asymmetry can give rise to adverse selection in markets, which occurs prior to a transaction made between individuals. Spense pointed out that cognizant mediators can earn more income from market by making their private information available to less-informed mediators.

Akerlof provides a picture of a market where seller make further information available to buyer, so to speak. However, accountants agreed the policy of total disclosure to reduce the problem of adverse selection so that they can increase the level of information available to the public.

Verchia (2001) and Diamond (1985) tested the results of voluntary disclosure of information, concluding that additional disclosure of information would make investors reap the benefits as much as they can. In case the disclosure of public information takes place for all investors, information asymmetry as well as exorbitant activities of information gathering will fade.

Kim et al (2004) assume that if information is by all means made available to all market activists, declaration of interest will reduce information asymmetry. They found that it is possible for high level information asymmetry to happen if some traders are able to process information better.

Batacharia et al (2007), in a research entitled "quality of earnings and information asymmetry", demonstrated that low quality of earnings would result in high risk of wrong choice and stock liquidity reduction, thereby increasing information asymmetry. He addressed three parameters, stock buy and sale price difference, stock liquidity, prediction deviation analysis, as information asymmetry. According to the findings of the study, the voluntary and constant disclosure of information may lead to information asymmetry through stock liquidity increase and stock buy and sale price difference.

Vasan and Bowen (2010) studied the relationship between accruals and asymmetry of information. According to them, the relationship between the absolute value of total accruals and difference scope of stock buy and sale proposed price was negative and insignificant, and the relationship between the absolute value of abnormal accruals and difference scope of stock buy and sale proposed price was positive and insignificant.

4 RESEARCH STATISTICS MODELS AND ASSUMPTIONS

4.1 RESEARCH METHOD

To choose research method depends on the nature of topic, research objectives, designed hypotheses, ethical and human considerations of research subject, and the scope and facilities of its execution. The statistical population of the study consisted of all companies listed Tehran Stock Exchange. The scope of time included information on a ten year period from 2003 to 2012. The sample was chosen by the following conditions: they have a maximum of six month trading pause, they have cash dividend distribution over research period per annual, sample companies have manufacturing activities, the company's fiscal year ending in March of each year, over the research course, no change was made in company's fiscal period, company information is made available and comprehensive.

How sample firms are distributed in different industries is shown in table 1:

Table 1. *distribution of sample firms in industries*

Percentage of observations with respect to all available firms in		Frequency of available firms in		Type of industries	row
sample	society	sample	society		
%23.85	%63.41	26	41	**Automotive and Parts Manufacturing**	**1**
%14.68	%61.54	16	26	**Machinery and equipment**	**2**
%10.09	%45.83	11	23	**Basic metals**	**3**
%12.84	%53.85	14	26	**Food products and beverages**	**4**
%0.92	%20.00	1	5	**Mining**	**5**
%12.84	%60.87	14	24	**Other non-metallic mineral products**	**6**
%6.42	%46.67	7	15	**Metal products**	**7**
%15.60	%51.52	17	33	**Chemical products**	**8**
%0.92	%20.00	1	5	**Electrical machinery and apparatus**	**9**
%1.83	%22.22	2	9	**Other metal products**	**10**
%100	-	109	207	**Total**	

4.2 RESEARCH PATTERNS AND HYPOTHESES

With the increase of quality of disclosure, it is expected that information asymmetry will decrease when investor attempt to get access to private information is declined. Thus, investors would demand less expected return. As well, since cost of investment is the least expected return, it will diminish. Therefore, the first hypothesis is raised as follows:

Hypothesis 1: there is an inverse relationship between quality of disclosure and the cost of common stock.

To test the hypothesis, pattern (1) is used

$$CoE = \alpha_0 + \alpha_1 \text{ Disclosure} + \alpha_2 \text{ Beta} + \alpha_3 \text{ BTM} + \alpha_4 \text{ Lev} + \varepsilon \tag{1}$$

In smaller firms, further disclosure of information would lead to proprietary costs and disclosure risk increase, thereby increasing costs of firm capital. Therefore, firms with bigger size would incur lower costs than smaller companies by further information disclosure, so cost of common stock will rise in smaller companies due to such costs and risks. This indicates that an increase in the size of firm can result in further decrease of cost of common stock, so the second hypothesis is raised as follows:

Hypothesis II: there is an inverse relationship between size of firm and costs of common stocks

In order to test the hypothesis, pattern (2) is used;

$$CoE = \alpha_0 + \alpha_1 \text{ Disclosure} + \alpha_2 \text{ Beta} + \alpha_3 \text{ BTM} + \alpha_4 \text{ Lev} + \alpha_5 \text{ Size} + \varepsilon \tag{2}$$

4.3 THE OPERATIONAL DEFINITION OF VARIABLES

4.3.1 HOW TO MEASURE INDEPENDENT VARIABLES

In order to measure quality of disclosure variable, the scores given to each company and issued by Tehran Stock Exchange have been used. The use of disclosure quality measurement parameter has the advantage that it does not consider the quality, yet it deals with timeliness and reliability of data.

The size of firm variable was obtained through a stock market value logarithm calculation.

4.3.2 HOW TO MEASURE INDEPENDENT VARIABLES

Financial leverage can be calculated by dividing the book value of total long run debts by the book value of total assets, and the ratio of book value to stock market value and systematic risk, also by the data of RAHAVARD NOVIN software application.

4.3.3 HOW TO MEASURE THE DEPENDENT VARIABLE, COST OF COMMON STOCK

To measure the variable, the pattern known as OJ proposed by Olsen and Norse (2005) and used according to formula 3:

$$COE_1 = A_1 + \sqrt{A_1^2 + \frac{eps_1}{p_0}(g_2 - g_p)}$$

(3)

Where COE_1 cost of capital in the first year and A constant (equation 4), earnings growth rate g, earning per share eps, dividend per share dps, are calculated as follows

$$A_1 = \frac{1}{2}\left(g_p + \frac{dps_1}{p_0}\right)$$

(4)

G^2 earnings growth rate in the second year which is obtained through dividing earnings per share in the second year after being deduced from earnings per share in the first year by earnings per share in the first year

$$g_2 = \frac{eps_2 - eps_1}{eps_1}$$

(5)

g_p is profit growth during the ten year research course, which is obtained by dividing earnings per share of the last year, the tenth year, having been deduced from earnings per share of the first year by earning per share of each year (equation 6).

$$g_p = \frac{eps_{10} - eps_1}{eps_1}$$

(6)

EPS is earnings per share, which can be calculated by dividing net income by the weighted average of the number of common stocks.

DPS, dividend per share and P stands for the value of share which is extracted by RAHAVARD NOVIN software application

It should be noted that the pattern for the calculation of the cost of common stock based on Olsen and Jotner, known as OJ, have been less frequently used in research so far.

4.3.4 DESCRIPTIVE DATA STATISTIC

In order to review general characteristics of variables, as well as model estimate, and their thorough analysis, it is imperative to get acquaintance with descriptive statistic concerning variables

Table 2. descriptive statistics of research variables

max	min	strain	skewness	SD	median	mean	Number of observation	symbol	variable
0.419	0.012	4.018	0.537	0.066	0.125	0.119	1090	COE	**Cost of equity**
95.00	5.00	3.750	- 0.353	20.874	41.683	42.887	1090	Disclosure	**Quality of disclosure**
18.321	10.729	2.937	0.618	1.691	13.438	13.614	1090	Size	**Firm size**
0.327	0.000	3.980	- 0.357	0.198	0.513	0.674	1090	LEV	**leverage**
0.980	0.000	4.150	- 0.587	0.295	0.640	0.583	1090	BTM	**Book value to market**
7.550	- 4.480	5.012	1.096	1.202	0.195	0.248	1090	Beta	**Systematic risk**

The approximation of data mean and median indicate that data possess normal distribution. Mean and standard deviation of quality of disclosure in this research were 42,887 and 20.874, respectively. In Setayesh (2011), the mean and standard deviation of quality of disclosure were studied for 105 firms; 44.93 and 21.44. As well, Kazemnezad (2010), the mean and standard deviation of quality of disclosure were studied for 149 firms; 44.53 and 22.69, respectively. The variant median of common stock cost was 0.125, which shows that half of data was less than the quantity, as other half was more

than it. The mean of financial leverage is 0.674, which indicates that the amount of firms' debts is almost 67% of their assets. Skewness and strain coefficients of common stock costs stood at 0.537 and 4.0187, respectively, which indicates that the cost distribution of common stock was not deviated from normal distribution.

4.3.5   THE RESULTS OF THE RESEARCH FIRST HYPOTHESIS TEST

The statistical results of the research first hypothesis test are outlined by table 5:

Table 3.   the statistical results of first hypothesis test

CoE = α_0 + α_1 Disclosure + α_2 Beta + α_3 BTM + α_4 Lev + ε				
significance	T statistic	Standard error	coefficient	symbol
0.0000	11.059	0.523	5.873	C
0.0105	- 2.574	0.246	- 0.634	DS
0.0013	3.253	0.591	1.923	BETA
0.4401	- 0.773	0.687	- 0.531	LEV
0.3697	- 0.898	14.954	- 13.435	BTM
Durbin-Watson statistic	**F significance of statistic**	**F statistic**	**Modified coefficient of determination**	**Coefficient of determination**
2.208	0.0000	19.099	0.651	0.683

Considering the quantity of F statistic, 19.098, as well as the rate of probability, it can be stated that the overall significance of fitted regression model stood at 95% significance level. The rate of coefficient of determination of model confirms that the independent variable of the model has an explanatory capability of about 68 percent in order to explain dependent variable.

Similarly, the value of Durbin-Watson statistic in this model was acceptable, which indicates that the model does not sustain autocorrelation between residual sentences. The estimate coefficient of the independent variable, quality of disclosure, indicated a negative significant relationship between quality of disclosure and cost of common stock at 0.05 error level, because the value of estimate coefficient probability of independent variable was less than 0.05. Thus, it can be stated that the first hypothesis of the research was accepted at 95% confidence level.

4.3.6   THE RESULTS OF THE RESEARCH SECOND HYPOTHESIS TEST

The statistical results of the first hypothesis test are outlined in table 6:

the statistical results of the second hypothesis test

CoE = α_0 + α_1 Disclosure + α_2 Beta + α_3 BTM + α_4 Lev + α_5 Size + ε				
significance	T statistic	Standard error	coefficient	symbol
0.0000	- 4.697	6.297	- 29.578	C
0.0000	- 5.694	0.535	- 3.049	DS
0.0012	3.258	0.599	1.953	BETA
0.0182	- 2.234	0.660	- 0.814	SIZE
0.4401	- 0.773	0.687	- 0.531	LEV
0.1778	- 1.350	14.300	- 19.314	BTM
Durbin-Watson statistic	**F significance of statistic**	**F statistic**	**Modified coefficient of determination**	**Coefficient of determination**
1.904	0.0000	16.936	0.605	0.625

In order to examine the overall significance of the model, F statistic was used. Considering the fact that the probability of F statistic was equal to 0.000 and less than 0.05, it can be claimed that the fitted regression model is significant. Given the coefficient of determination of the fitted model, it can be stated that almost 62 percent of variations of the model dependent variable (cost of common stock) can be explained by independent variable.

The computed value of Durbin-Watson statistic in this model was equal to 1.90, which suggests that the model does not sustain autocorrelation problem among residual sentences considering its approximation to number 2.

The estimate coefficient of independent variable, firm size, indicates that a negative significant relationship between firm size and cost of common stock was at 0.05 error level, because the amount of estimate coefficient probability of the variable was less than 0.05. Hence, we can say that the second hypothesis of the research can be accepted at 95% confidence level.

5   CONCLUSION AND INTERPRETATION OF RESULTS

The results indicated that an increase in disclosure level can bring down cost of common stock. In other words, investors are more inclined to invest in firms with further disclosure rate or lower risk of disclosure. As quality of disclosure improves, investors' effort to get access to private information will diminish, thereby reducing information asymmetry. Once information asymmetry is moderated, stock liquidity and transaction costs will decline and as the demand for company share rises, i.e. this is followed by company capital reduction. The results indicated that there is a negative significant relationship between level of disclosure and cost of common stock in larger firms as there is a subtle relationship in smaller companies. Generally, as disclosure rises in medium and large companies, cost of capital decreases, though it is negligible in case of smaller companies. In this respect, the sum total of results obtained from the present study is in line with foreign and domestic research, substantiating a negative relationship between quality of disclosure variable, firm size and cost of common stock.

6   SUGGESTIONS

6.1   RESEARCH APPLIED SUGGESTIONS

The study can be useful for all companies listed in stock exchange, investors, as well as relevant users. The study can

- Stock brokers can make use of the output of the study in an attempt to determine stock exchange prices and control rate volatility in main and side stock exchange halls within financial and capital market environment.

- There are many users including stock market investors and financial creditors. As well, government can be addressed as one of the main users of the research, because it can be used as a control tool in financial market context.

6.2   SUGGESTIONS FOR FUTURE RESEARCH

- The use of an index different in measuring cost of common stock and performing study

- Conducting the above research for stock exchange and non-stock companies and comparing them with the above study

7   LIMITATIONS OF THE STUDY

- Lack of access to financial data of companies

- 2- Time limitation concerning doing research

REFERENCES

[1] Etemadi, H., Hessarzadeh, R. Mohammadabadi, M. Bazrafshan, A**. (2012) "disclosure and firm value: evidence from emerging capital market of Iran", scientific-research journal of Management Accounting, Year V. No. 13. P.88.

[2] Banimahd, B., Baghbani, T. (2009), "the effect of accounting conservatism, state ownership, firm size, and leverage ratio to the losses of companies", Accounting auditing studies, volume 16, No. 58, pp. 53-70.

[3] Banimahd, B. Mohseni-Sharif, M. (2010) "a study of contributing factor in ranking Tehran Stock Exchange companies in term of quality of disclosure and timeliness", Journal of Management Accounting, year III, No. 7.

[4] Bulow, Gh. Afsar, A. Tahmasbzadeh Baee, M. (2012), "financial ratios and costs of common stock", Journal of Accounting Developments, volume IV, No. I. PP. 1-26.

[5] Pourzanfi, M.E., Mansouri, H. (2000), "the role of financial reporting in capital market", Journal of accountant, No. 138, PP. 9-10.

[6]   Talaneh, A. (2001), "weakness and richness of the general objective of financial reporting", p. 4

[7]   Hasasyeganeh, Y., Kheirollahi, M. (2008) "corporate governance and transparency", P. 74.

[8]   Khodamipour, A., Ghadiri, M. (2010) "a study of the relationship between accruals and information asymmetry in Tehran Stock Exchange", Journal of Accounting Development, volume 2, pp. 1-29.

[9]   Dastgir, M., Bazazzadeh, H. (2003), "the effect of disclosure rate on the cost of common stock", financial research, No. 16. PP. 83-103.

[10] Rahmani, A. Falahnejaz, F. (2010) "the effect of accruals quality on the cost of common stock capital", Financial Accounting Research Journal, Year II, No. III, PP.17-30.

[11] Setayesh. M., Kazemnejad., M. (2012) "Identifying and Explaining contributing factors in quality of information disclosure of the companies listed in Tehran Stock Exchange", Journal of Accounting Developments, Vol IV, No. I, P. 79.

[12] Samadi-Lorgani, M. Arad, H. (2010) "voluntary disclosure and transparency in financial reporting", Auditor, Issue. 57.

[13] Ghaemi, M. Vatanparast, M. (2005), "a study of the role of accounting information in reducing information symmetry in Tehran Stock Exchange", Accounting and Auditing Investigations, Year XII, issue 41, PP. 83-103.

[14] Ghaemi, M. Shahriari, M. (2009), "corporate governance and financial performance of companies", Journal of Accounting Developments, Vol. I, P. 115.

[15] Kurdestani, GH. Ebrahimi, T. (2013) "a study of the relationship between quality of disclosure and incorrect pricing of accruals and cash flow", P.2.

[16] Noroush, I. Hosseini, S.A. (2009) "a study of the relationship between quality of disclosure (reliability and timeliness) and earnings management", Accounting and auditing investigations, Vol. 16, P.55. PP. 117-134.

[17] Albert, R. L. and G. V. Henderson. (1995). " Firm size, overreaction, and return reversals ". Quarterly Journal of Business and Economics, Vol 34, pp. 60-80.

[18] Darlene, Brannigan, Smith and Harold D. Fletcher. (2003). " The Balance Scorecard: A Useful Framework for Achieving Curriculum Integration ".Journal of Executive, pp. 41-55.

[19] Elena, Petrova. (2012). " Relationship between Cost of Equity Capital and Voluntary Corporate Disclosures ".Journal of Economics and Finance, Vol 4, p p. 83-96.

[20] Frank, Heflin; Kenneth, W. Shaw; John, J. Wild. (2003). " Disclosure Quality and Market Liquidity ".pp. 1-27.

[21] Hemang, Desai; Shivaram, Rajgopal; Mohan, Venkatachalam. (2004). " Value-Glamour and Accruals Mispricing: One Anomaly or Two ". The Accounting review, Vol 79, pp. 355-385.

[22] Monica, Espinosa; Mikel, Tapia; Marco, Trombetta. (2008). " Disclosure and Liquidity in a Driven by Orders market: Empirical Evidence from Panel Data ". Investigaciones Economicas, Vol 3, pp. 339-370.

[23] Robert, M. Bushman; Abbie, J. Smith. (2001). " Financial accounting information and corporate governance". Journal of Accounting and Economics, Vol 32, pp. 237-333.

[24] Zaini, Embong; Norman, Mohd-Saleh; and Mohamat Sabri Hassan.(2013) "Firm size, disclosure and cost of equity capital ". pp. 119-138.

[25] Zhihong, Chen; Dan, S. Dhaliwal; Hong, Xie. (2008). " Regulation Fair Disclosure and the Cost of Equity Capital ". pp. 1-60.