

Impact of Macroeconomics and Bank Specifics on Nonperforming Loans and Banking Sustainability Performance

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ABSTRACT: This study is exploring impact of macroeconomics and bank specifics factor on nonperforming loans (NPLs) and banking sustainability performance (BSP) particularly in financial performance, with Indonesian commercial banking system back ground. The Study period is over the year 2004 to the year 2013. The objective is to perform statistic examining and analyzing to find out the impact of macroeconomic factors which comprise of gross domestic product (GDP); Bank Indonesia interest rate (BI rate); inflation; exchange rate; unemployment. Then bank specific indicators, which comprise of total assets; loan deposit ratio (LDR); capital adequacy ratio (CAR); credit growth. The conclusion of this study is confirmed that macroeconomic and bank specific factors have a significant impact on NPLs and BSP.

KEYWORDS: commercial banking, macroeconomics, nonperforming loans, Banks sustainability performance.

1 INTRODUCTION

In the period of 2004 to 2013, mostly Indonesia commercial banking generated income from lending interest income, which is approximately 70% of the total income.

It shows that the Indonesian banking industry's main income depends on lending or in other words, indonesia banking industry is sensitive towards credit risk or nonperforming loans. Lending interest income is the main earning of bank operation, which bears the brunt of most operational risks (Agu and Okoli, 2013). Banking operational risk is regarding to nonperforming loans (NPLs); as the result of Kolapo, et.al.(2012) and Karim, et.al.(2010) suggested that NPLs ratio is one of the banking operational performance indicators. Credit risk is correlated with bank asset quality and regarded as the primary cause of bank failures (Samad, 2012) and it is crucial to identify the drivers of credit risk, especially macroeconomic and bank's internal factors; those factors play an important role and may affect the quality of banking credit system. Tight credit monitoring system on lending is a must to anticipate NPLs in order to keep a good performance in bank operation. NPLs become important issue for both international and local banking regulators, since NPLs have a major impact on the performance of banking stability and financial sustainability. In this paper the terms of bank sustainability performance (BSP) is based on corporate sustainability performance definition, which is defined as the corporate capability to fulfill the shareholders and stakeholders interest as suggested by Dyllick and Hokerts (2002). NPLs issues have been explored by most researchers, in regards with the effect of macroeconomics and bank specifics factor, but in this study the analysis is expanding to financial performance, which is concerning on banking sustainability performance (BSP) ; represented by index. The BSP index is formulated by 7 factors, namely the audit opinion, ROE, ROA, LDR, NPL, CAR and BOPO (operation expense over operation income).

The objective of this paper is to identify the significant drivers of NPLs and BSP. The drivers on NPLs and BSP are confined of each; macroeconomics indicators consisting of gross domestic product (GDP), inflation, interest rate, exchange rate (*Rupiah Vs USD*) and unemployment, bank specific indicators consist of total assets, loan deposit ratio (LDR), capital adequacy ratio (CAR) and credit growth. Eventually, BSP index is expected to be useful as specific measuring instrument of banking financial performance, since nowadays, banking sustainability performance measuring is based on *SRI KEHATI*

(Sustainable and Responsible Investment *KeanekaragamanHayati*) index, Indonesian sustainability index which is generally applied for any company who is listed in the Indonesia stock exchange.

2 NONPERFORMING LOAN IN INDONESIAN BANKING SYSTEM

According to the IMF's Compilation Guide on Financial Soundness Indicators, NPL is defined as: A loan is nonperforming when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons such as a debtor filing for bankruptcy to doubt that payments will be made in full (Bloem & Freeman, 2005). Refer to Indonesian banking regulation, bank loans collectibility is classified into 5 categories: 1.) Current; 2.) Special mention; 3.) Substandard; 4.) Doubtful; 5.) Bad. Substandard, doubtful and bad loan are categorized in NPLs.

2.1 MACROECONOMICS

Phenomenon banking NPLs related to the macroeconomics factors on Indonesian Banking system has a specific condition as shown in table 1, as below :

Table 1. NPLs and Macroeconomics indicators Growth (year of 2004 – 2013)

Year	NPL	ΔNPL	inflation	Δinflation	Δ GDP	BI rate	ΔBI rate	Rate	Δ Rate	Unemployment	Δ unemployment
2004	3,860	0,000	6,400	0,000	4,900	15,560		9.336	0,000	9,860	0,000
2005	6,700	0,740	17,110	1,673	5,700	12,750	-0,181	9.879	0,058	10,260	0,041
2006	5,660	-0,160	6,600	-0,614	5,500	9,750	-0,235	9.065	-0,082	10,450	0,019
2007	3,680	-0,350	6,590	-0,002	6,300	8,000	-0,179	9.466	0,044	9,750	-0,067
2008	2,970	-0,200	11,060	0,678	6,000	9,250	0,156	11.005	0,163	8,460	-0,132
2009	2,880	-0,030	2,780	-0,749	4,600	6,500	-0,297	9.447	-0,142	8,140	-0,038
2010	2,630	-0,080	6,960	1,504	6,200	6,500	0,000	9.036	-0,044	7,410	-0,090
2011	2,160	-0,180	3,790	-0,455	6,500	6,000	-0,077	9.113	0,009	6,800	-0,082
2012	1,810	-0,160	4,300	0,135	6,200	5,750	-0,042	9.718	0,066	6,320	-0,071
2013	1,720	-0,050	8,380	0,949	5,780	7,500	0,304	12.250	0,261	5,920	-0,063

Source : *Bank Indonesia* (Indonesian Central Bank)

2.1.1 INFLATION

Data in table 1 shows that inflation growth (Δ Inflation) is fluctuating, while NPLs growth tend to decline. These circumstances affirmed that inflation is not associated with NPLs (Warue, 2013; Bonilla, et.al., 2012; Valahzagard, et.al., 2012). But it is contrary to the findings of Badar & Javid (2013); Greenidge & Grosvenor (2010); Ahmad & Bashir (2013); Farhan, et.al. (2012); Klein (2013), who suggested that inflation has a positive influence on NPLs, meaning that an increase in inflation will follow by an increase of NPLs. But the study of Albert & Ng (2012); Alhassan, et.al. (2014) have different outcomes; stating that increase in inflation will lead to the decrease of NPLs.

2.1.2 GROSS DOMESTIC PRODUCT (GDP)

GDP growth has an impact on public earning, which increases the economic power, including the paying power of debtors on credit. So the positive growth of GDP results in an improvement of loans quality by decreasing NPLs (table 1). This phenomenon is supported by Das & Gosh (2009); Ahmad & Bashir (2013); Bofondi & Ropele (2011); Festic & Beko (2008); Louzis, et.al. (2011). But a study conducted in Italy by Bonilla, et.al. (2012) had different findings - that the positive growth of GDP has a positive influence on NPLs; and also revealing that the economic growth motivates euphoria investment expansion but less precautionary analysis; these circumstances lead to business failure and cash flow problem to fulfill business obligation, which includes bank loan payment.

2.1.3 UNEMPLOYMENT

An increase in unemployment would also lead to financial problem - the bank debtors facing cash flow trouble to pay bank loans and eventually leading to an increase of NPLs. This phenomenon is in line with the studies finding of Klein

(2013); Louzis,et.al.(2011);Bonilla,et.al. (2012); Bofondi&Ropele (2011); Festic&Beko (2008);Farhan (2012). But there is a contrary finding in Iran by Valahzaghared et.al.(2012), suggesting that unemployment has no relationship with NPLs.

2.1.4 INTEREST RATE

An increase in interest rates causes heavy load on debtors’ cash flow, which triggers loan payment delinquency or an increase of NPLs. (Gremi,2013; Khemraj& Pasha,2009; Farhan,2012; Warue,2013), that the interest rate has a strong positive relationship to the bank's NPL ratio. But those results differ from Bofondi&Ropele (2011);Ahmad& Bashir (2013), founding that a decline in interest rate raises NPLs ratio in Italian banking system. Both phenomenon is contrary to Indonesia’s current condition, as shown in table 1; that interest rate tends to fluctuate and NPLs to decrease. This means interest rate has no relationship with NPLs (Alhassan, et al.,2014).

2.1.5 EXCHANGE RATE

Depreciation of Exchange rates lead to hard cash flow for debtors to fullfil loan obligation; since prices increase inflict every business sectors, which causes abandoning in loan payment and an increase of NPLs (Beck,et.al.,2013; Farhan,et.al.,2012;Khemraj&Pasha, 2009; Shingjergji,2013; Badar&Javid , 2013.). Different findings, there is no relationship between exchange rate and NPLs (Ahmad & Bashir ,2013; Kalirai and Scheicher,2002) and Festic&Beko (2008) study suggested that exchange rate negatively impacted NPLs.

2.2 SPECIFIC BANKS

The specific relationship between NPLs and specific bank factors on the Indonesian Banking system is shown in table 2, as below :

Table 2. NPLs and Bank specific indicators Growth (year of 2004 – 2013)

Year	NPL	Δ NPL	CAR	Δ CAR	Δ Credit	LDR	Δ LDR	Asset	Δ Asset
2004	3,86	-	19,85	-	-	65,57	-	72,548.25	-
2005	6,70	0,74	19,48	-0,02	30,67	68,68	0,05	80.772,08	0,11
2006	5,66	-0,16	20,83	-0,07	18,34	70,99	0,03	90.961,58	0,13
2007	3,68	-0,35	18,72	-0,1	31,02	77,83	0,1	107.683,92	0,18
2008	2,97	-0,20	16,39	-0,12	27,34	79,57	0,02	124.709,75	0,16
2009	2,88	-0,03	16,59	-0,01	19,94	77,82	-0,02	144.966,25	0,16
2010	2,63	-0,08	15,81	-0,05	29,89	80,41	0,03	174.947,67	0,21
2011	2,16	-0,18	15,34	-0,03	25,18	82,49	0,03	211.325,00	0,21
2012	1,81	-0,16	16,37	-0,07	24,63	85,98	0,04	246.508,67	0,71
2013	1,72	-0,05	16,34	-	20,28	89,62	0,04	284.067,83	0,15

Source : *Bank Indonesia* (Indonesian Central Bank)

2.2.1 CAPITAL ADEQUACY RATIO (CAR)

CAR is a banking robustness instrument towards economic volatility and internal business risk such as bad loans or NPLs. As expected, by increasing CAR, the credit quality will improve in terms of lower NPLs; which means credit will be released in smarter ways (Boudriga,et.al.,2009; Shingjergji,2013 and Lis, et.al.,2000). But, their findings aren't supported in the relationship between CAR and NPLs in Indonesian banking system (see table 2), which is explained by the fluctuation of the Indonesian banking system CAR and the tendency of the decrease in NPLs. This implies that CAR is not associated with NPLs (Suryanto,2015;Albert & Ng,2012; Pastory& Mutaju,2013). Even so, Chang (2006); Vatansever&Hepsen (2013), have different findings, claiming that a CAR increase pushes an increase in NPLs also. Shingjergji (2013) suggested that CAR is negatively associated with NPLs.

2.2.2 CREDIT GROWTH

Fast credit growth could happen when the banking industry implements a soft standard of loan screening. When the economic condition slows down, it will encourage an increase of NPLs (Keeton,1999;Khemraj& Pasha,2014;

Louzis,et.al.,2011; Saba,et.al.,2012). But in the Indonesian banking system, as shown in table 2 it is revealed that credit growth fluctuates and the NPLs tend to decrease, as suggested by Bonilla,et.al.,2012; that credit growth has no relationship with NPLs. Other findings by Greenidgedan Grosvenor (2010) suggested that credit growth negatively impactNPLs; explaining that the economic recovery motivate business expansion, and would then push credit growth. Also, the recovery improve loan payment power, which will reduce bad loan or NPLs.

2.2.3 TOTAL ASSETS

Bank size is reprinted by total assets. Growing of assets is associated with the growth of the management team, which have high managerial capability and credit management. Big banks with higher assets are pictured to have a more sophisticated manner in credit risk management than smaller sized banks. So, big banks have sound problem loans. Bank size has a relationship with NPLs, negatively impacting them to be precise. (Lis, et.al,2000; Ranjan& Dhal,2003; Salas & Saurina,2002; Biepkke,2011), The suggestion is in line with Indonesian banking phenomenon (table 2). The contrary suggestion declares that bank size positively impacts NPLs (Misra& Dhal,2010); Khemraj& Pasha,2009). But a finding in Barbados banking sector stated that there is no relationship between bank size and NPLs (Greenidge&Grosvenor, 2010).

2.2.4 LOAN DEPOSIT RATIO (LDR)

LDR shows bank capability to generate fund and channelling it to debtors. The effect of LDR on NPLs occurs when the available funds are not marketable or unable to reach optimal loan disbursement; so to optimize LDR, the loan screening has to loosen. This circumstance would trigger loan problems and lead to NPLs' increase (Misra&Dhal, 2010;Suryanto,2015); the suggestion is opposite the conditions in the Indonesian banking system, which shows that the growth of LDR is negatively associated with NPLs. As suggested by Ranjan& Dhal (2003); Festic&Repina (2009). Makri,et.al. (2014), their studies have yielded different results, asserting that LDR has no impact on NPL in the Eurozones banking system.

2.3 BANK SUSTAINABILITY PERFORMANCE (BSP)

The literature of corporate sustainability in banking industry (Jeucken,2001) has inspired to initiate bank sustainability performance (BSP) index formulation for Indonesian banking system, particularly in financial performance; of which current banks sustainability index is referring on SRI KEHATI (Sustainable and Responsible Investment *Keanekaragaman Hayati*) is Indonesian sustainability index for public company who has listed in Indonesia stock exchange. The BSP index formulation certainly referred to the Bruntland Report (1987); which defines sustainable development nowadays as a development without ignoring and sacrificing future resources to supply needs of future generations. The comprehensive sustainability is defined by Jones (2010) explaining that in general, sustainability deals with 3 main respects, which are living environment, social life and economic sustainability; they are mutually related to one another. Jeucken & Bouma (1999) explained that the purpose of sustainable activities was to reserve goods and services in a proper manner by considering the impact on social life and life environments. Then Kuruppu, et.al. (2003) and Salehi (2009), suggested that some of the financial ratios which are related to risk, obligation and business plan execution to be solicitude in the matter of going concern.

The core of sustainability is to conceive participation and interrelationship of various aspects to generate benefit for shareholders and stakeholders. In this study, it is suggested that the Indonesian banking industry needs sustainable index, which is represented for banking; particularly in financial performance. The BSP index fundamental factors is represented by 7 indicators, which is *BOPO* (operating expenses to operating income ratio), annual independent auditor opinion, ROA (Return of assets), ROE (return of equity), NPL (nonperforming loan), LDR (loan to deposit ratio) and CAR (capital adequacy ratio). The BSP index is calculated by following sequence processes in this order:

1. Define BSP indicators as weighted value to each indicator, is 0,1429 (100/7). The justification assumes that all indicators have a same role on BSP.
2. Define BSP indicators' level value (see table 3).
3. Define BSP indicators' index (see table 4).
4. Define BSP index (see table 5)

The BSP index is performed on appendix 1, which is shown index of 12 banks (research sample) during the research period of the year 2004 until the year of 2013.

Table 3. Indicator Level Value

no	Indicator	Level value 1 (worst)	Level value 2 (bad)	Level value 3 (fair)	Level value 4 (good)	Level value 5 (excellent)
1	Audit opinion	disclaimer	adverse	qualified	modified unqualified	unqualified
2	ROE	≤ 0%	>0% < 5%	>5% ≤ 12,5%	>12,5% ≤ 20%	>20 %
3	ROA	≤ 0%	>0% < 0,5%	>0,5% ≤ 1,25%	>1,25% ≤ 2%	>2 %
4	LDR	>110%	>94% ≤ 110%	78% - 94%	< 78% > 62%	62 %
5	NPL	>10%	>5% ≤ 10%	5%	<5% ≥ 0,1%	< 0,1 %
6	CAR	≤ 0%	>0% < 8%	8%	>8% ≤ 16%	>16 %
7	BOPO	>98%	>96% ≤ 98%	94% - 96%	<94% ≥ 90%	< 90 %

Note:

1. Audit opinion (indicator) level value is based on independence audit regulation.

2. Remain indicators level values are referring on Indonesian banking regulation.

Table 4. Indicator index

No	Indicator	Weighted value (a)	Level value (b)	Index (a x b)
1	Audit opinion	0,1429	1 - 5	0,1429 ≤ 0,7145
2	ROE	0,1429	1 - 5	0,1429 ≤ 0,7145
3	ROA	0,1429	1 - 5	0,1429 ≤ 0,7145
4	LDR	0,1429	1 - 5	0,1429 ≤ 0,7145
5	NPL	0,1429	1 - 5	0,1429 ≤ 0,7145
6	CAR	0,1429	1 - 5	0,1429 ≤ 0,7145
7	BOPO	0,1429	1 - 5	0,1429 ≤ 0,7145
	Total indicators index			>0,0000 ≤ 5,0000

Note: Indicators index is calculated by multiplying indicators weighted value with indicators level value

Table 5. BSP Index

Total Indicators Index	BSP Index	condition
> 0,0000 ≤ 1,0000	1	Worst
> 1,0000 ≤ 2,0000	2	Bad
> 2,0000 ≤ 3,0000	3	Fair
> 3,0000 ≤ 4,0000	4	Good
> 4,0000 ≤ 5,0000	5	Excellent

Note: BSP index is calculated by adding up all indicators index

3 METHODOLOGY

This section discusses the issues relating to research design and strategies, model specification, data requirements and sources, the nature and scope of data collected, the data processing technique and the theoretical significance of parameter estimate are discussed. The frame work of analysis, as shown on figure 1.

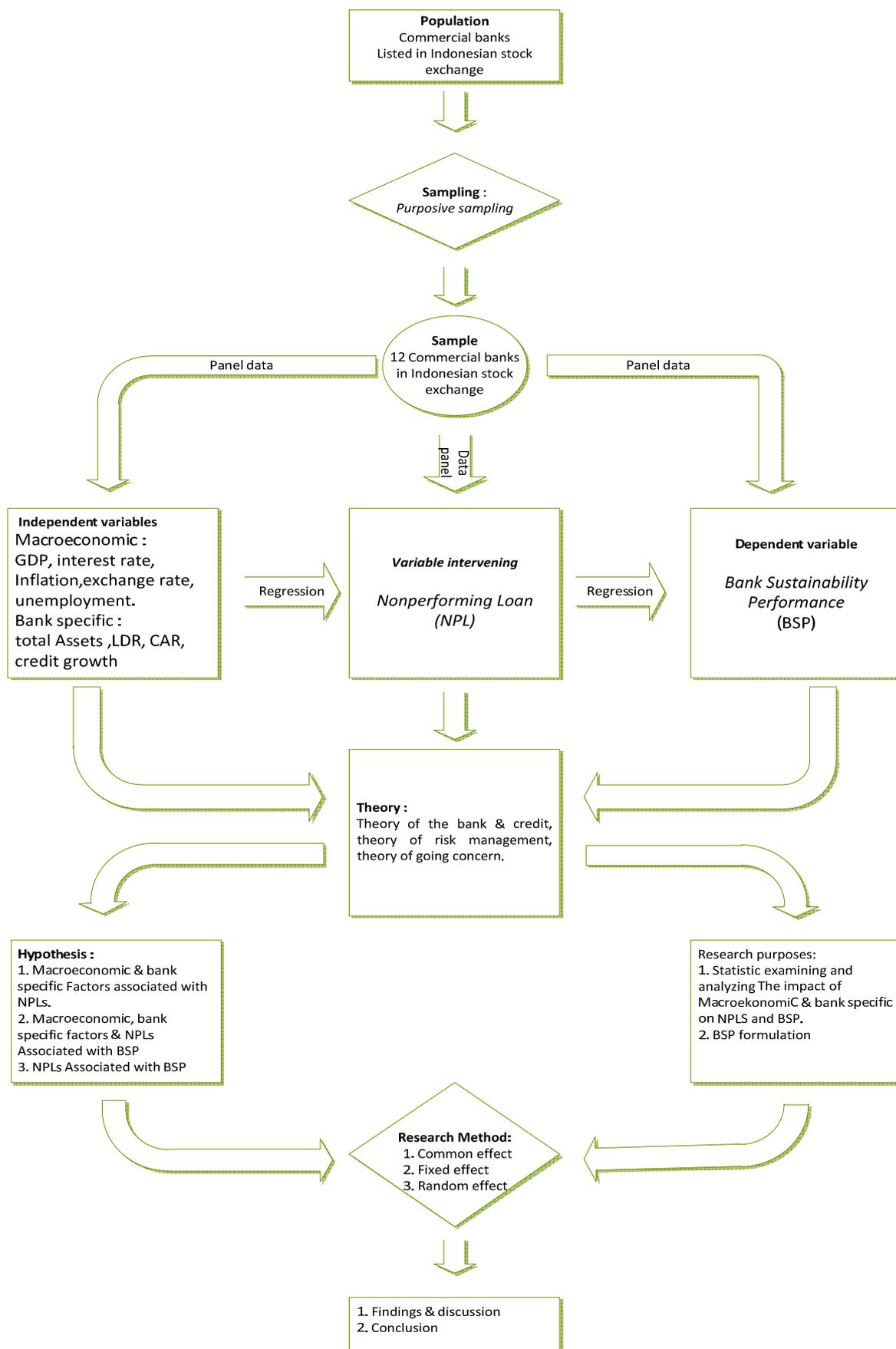


Fig. 1. The Frame Work of Analysis

3.1 RESEARCH DESIGN

The study approach and research style are both empirical and analytical in nature of the Indonesian commercial banking, which has been listed on Indonesia stock exchange. It employs annual time series empirical data spanning the year 2004 to 2013 and cross-section data of 12 sampling commercial banks. All data are provided in panel data and run econometric regression analyses by employed generalized least square (GLS) and Random Effect Model (REM). The methods were employed to identify the nature and causes of bad debts or NPL, then enhance to BSP formulation. The study uses empirical research design approach for the data analysis. The approach combines theoretical consideration (prior criteria) with the empirical available data. Secondary data were used, such as banks annual statements, journals, bank related regulation published materials and any other secondary data sources.

3.2 DATA COLLECTION

Population of this study is the Indonesian commercial banking sector, which has been listed on Indonesian stock exchange and still active on the year 2013. The discussion is regarding with non-performing loan, in which the growth is unstructured and fluctuating; secondly the discussion is focused on gauge formulation for bank sustainability performance. Purposive sampling method is used to obtain research object that will represent the population. The sampling frame are prescribed, namely 1.) Commercial Bank; 2.) Total assets on 2013, amounted to Rp.70 trillion; 3.) On 2013 still listed in Indonesian stock exchange. Following the sampling frame criterias, 12 commercial banks listed in Indonesian stock exchange have been selected to be the samples. The 12 selected banks represented the 36 commercial listed banks in BEI on 2013, since the sample banks' total assets are accounted 86,55 % (see table 6) and the total credits are accounted 88,61 % (see table 7) of the entire listed commercial banks. The 12 selected banks for sample are *BankMandiri* (Mandiri); *Bank Rakyat Indonesia* (BRI); *Bank Central Asia* (BCA); *BankNegara Indonesia* (BNI); *Bank CIMB Niaga*(CIMB); *Bank Danamon Indonesia* (Danamon); *Bank Permata* (Permata); *Bank Pan Indonesia* (Panin); *Bank Internasional Indonesia* (BII); *Bank Tabungan Negara*(BTN); *Bank OCBC NISP*; and *Bank Pembangunan Daerah Jawa Barat dan Banten*(BJB).

Table 6. Total Asset of Sample banks

Year 2013	Bank	Total Asset (in billion Rp)
1	Mandiri	733.100,00
2	BRI	626.183,00
3	BCA	496.305,00
4	BNI	386.655,00
5	CIMB	213.574,00
6	Danamon	184.200,00
7	Permata	165.834,00
8	Panin	164.056,00
9	BII	140.547,00
10	BTN	131.170,00
11	OCBC NISP	97.525,00
12	BJB	70.958,00
	Sub total asset 12 banks	3.410.107,00
	Total asset 36 Listed Banks	3.940.126,00
Source : Banks annual report and Bank of Indonesia (Indonesian central bank)		
Note : There were 36 banks listed in Indonesian Stock Exchange (BEI) on 2013		

Table 7. Total Credit of Sample Banks

Year 2013	Bank	Total Credit (in billion Rp)
1	Mandiri	472.435,00
2	BRI	448.345,00
3	BCA	312.290,00
4	BNI	250.638,00
5	CIMB	143.641,00
6	Danamon	135.400,00
7	Permata	118.369,00
8	Panin	103.072,00
9	BII	102.030,00
10	BTN	101.467,00
11	OCBC NISP	62.358,00
12	BJB	46.105,00
	Sub total credit 12 banks	2.296.150,00
	Total credit 36 Listed Banks	2.591.320,00

Source : Banks annual report and Bank of Indonesia (Indonesian central bank)
Note : There were 36 banks listed in Indonesian Stock Exchange (BEI) on 2013

The data set is quantitative data performance in balanced panel consisting of 10 cross section data for the 12 commercial banks, and 10 time series data spanning from the year of 2004 until the year of 2013. The data is collected from banks annual report and *Bank Indonesia* (Indonesian central bank), then process by software EViews 6.

3.3 HYPOTHESIS

Referring to the descriptions of literature review, it is indicated that banking risk and banking sustainability have a relationship with macroeconomic and specific bank factors. From which this study draws 3 hypothesis, namely;

- H1. Macroeconomic and bank specific factors have a considerable impact on nonperforming loan (NPL).
- H2. Macroeconomic, bank specific and nonperforming loan have a considerable impact on bank sustainability performance (BSP).
- H3. Nonperforming loan (NPL) has a considerable impact on bank sustainability performance (BSP).

3.4 EMPIRICAL MODEL & FINDINGS

Refer to the literatures, notice that there are international evidences which suggest that NPLs are explained by both macroeconomic and bank specific factors. This paper takes into account some data of macroeconomic factors (see appendix 2) and bank specific factors (see appendix 3) to explain the dependent variable of NPLs ratio and Bank sustainability performance. Panel data is used for the estimation, from the year of 2004 until the year of 2013. Explanation of the hypothesis will be conducted into 3 regression equations, performed by Eviews 6 which are:

a) Empirical model 1 :

$$NPL_{i,t} = \gamma_0 + \gamma_1 GROWTH_{it} + \gamma_2 RATE_{it} + \gamma_3 LNKURS_{it} + \gamma_4 INFLASI_{it} + \gamma_5 UNEMPLOY_{it} + \gamma_6 LNASET_{it} + \gamma_7 LNKREDIT_{it} + \gamma_8 CAR_{it} + \gamma_9 LDR_{it} + \epsilon_i$$

Where $NPL_{i,t}$ is nonperforming loan of bank i , year t ; $GROWTH_{it}$ is gross domestic product in year t ; $RATE_{it}$ is central bank (Bank of Indonesia) rate in year t ; $LNKURS_{it}$ is the natural logarithm of exchange rate of Indonesian currency (Rupiah) to US Dollar in year t ; $INFLASI_{it}$ is inflation rate in year t ; $UNEMPLOY_{it}$ is unemployment rate in year t ; $LNASET_{it}$ is the natural logarithm of total asset of bank i , year t ; $LNKREDIT_{it}$ is the natural logarithm of total loan of bank i , year t ; CAR_{it} is capital adequacy ratio of bank i , year t ; LDR_{it} is loan deposit ratio of bank i , and year t ; ϵ_i is error term of bank i ; γ is covariant between exogen variables; i is bank (sample) consists of *BCA, MANDIRI, BTN, BRI, BNI, PANIN, CIMB, DANAMON, BII, PERMATA, OCBC, BJB*; t is the year of 2004 until 2013.

Chow test and Hausman test have been run on the empirical model 1, in which the result is that model 1 preferred random effect model (REM) regression model of panel data with generalized least squares (GLS) estimator. Using regression method of pooled EGLS (cross section random effects) of Eviews by eliminating several insignificant variables, the final result of model 1 is shown on table 9 :

Table 9: Model 1 pooled EGLS (cross section random effects)

Variable	coeffisien	Std Error	t-Statistic	Probability
C	-4,045421	1,522188	-2,657636	0,0091
CAR	0,236662	0,081110	2,97179	0,0043
D(LNKREDIT)	-4,276038	2,486364	-1,719796	0,0885
RATE	0,552349	0,114658	4,817356	0,0000
D(LNKURS)	-3,599587	2,116542	-1,700692	0,0920

The result of the empirical model 1 is :

$$NPL_{i,t} = -4,0454 + 0,2367CAR_{i,t} - 4,2760 D(LNKREDIT)_{i,t} + 0,5523 RATE_{i,t} - 3,5996 D(LNKURS)_{i,t} + \epsilon_{i,t}$$

b) Empirical model 2 :

$$BSP_{i,t} = \beta_0 + \beta_1 GROWTH_{i,t} + \beta_2 RATE_{i,t} + \beta_3 LNKURS_{i,t} + \beta_4 INFLASI_{i,t} + \beta_5 UNEMPLOY_{i,t} + \beta_6 LNASET_{i,t} + \beta_7 LNKREDIT_{i,t} + \beta_8 CAR_{i,t} + \beta_9 LDR_{i,t} + \beta_{10} NPL_{i,t} + \epsilon_i$$

Where $BSP_{i,t}$ is bank sustainability performance of bank i , year t ; $GROWTH_{i,t}$ is gross domestic product in year t ; $RATE_{i,t}$ is central bank (Bank of Indonesia) rate in year t ; $LNKURS_{i,t}$ is the natural logarithm of exchange rate of Indonesian currency (Rupiah) to US Dollar in year t ; $INFLASI_{i,t}$ is inflation rate in year t ; $UNEMPLOY_{i,t}$ is unemployment rate in year t ; $LNASET_{i,t}$ is the natural logarithm of total asset of bank i , year t ; $LNKREDIT_{i,t}$ is the natural logarithm of total loan of bank i , year t ; $CAR_{i,t}$ is capital adequacy ratio of bank i , year t ; $LDR_{i,t}$ is loan deposit ratio of bank i , and year t ; ϵ_i is error term of bank i ; $NPL_{i,t}$ is nonperforming loan of bank i , year t ; γ is covariant between exogen variables; i is bank (sample) consists of *BCA, MANDIRI, BTN, BRI, BNI, PANIN, CIMB, DANAMON, BII, PERMATA, OCBC, BJB*; t is the year of 2004 until 2013.

Chow test and Hausman test have been run on the empirical model 2 - the result is that model 2 preferred random effect model (REM) regression model of panel data with generalized least squares (GLS) estimator. Using regression method of pooled EGLS (cross section random effects) of Eviews by eliminating several insignificant variables, the final result of model 2 is shown on table 10 :

Table 10 : Model 2 pooled EGLS (cross section random effects)

Variable	coefficient	Std Error	t-Statistic	Probability
C	4,096264	0,417603	9,808991	0,0000
CAR	0,023928	0,007292	3,281488	0,0014
INFLASI	0,016314	0,007695	2,120137	0,0365
GROWTH	0,086915	0,038860	2,236610	0,0275
D(LNKURS)	0,585093	0,298537	-1,959871	0,0528
UNEMPLOY	0,062016	0,019598	-3,164462	0,0021
LDR	0,010181	0,002728	-3,732472	0,0003
NPL	0,065389	0,008159	-8,013990	0,0000

The result of the empirical model 2 is :

$$BSP_{i,t} = 4,0963 + 0,0239CAR_{i,t} + 0,0163 INFLASI_{i,t} + 0,0869 GROWTH_{i,t} - 0,5851 KURS_{i,t} - 0,0620 UNEMPLOY_{i,t} - 0,0102 LDR_{i,t} - 0,0655 NPL_{i,t} + \epsilon_{i,t}$$

c) Empirical model 3 :

$$BSP_{i,t} = \phi_0 + \phi_1 NPL_{i,t}$$

Where $BSP_{i,t}$ is bank sustainability performance of bank i , year t ; $NPL_{i,t}$ is nonperforming loan of bank i , year t ; ϕ is covariant between exogen variables; i is bank (sample) consists of *BCA, MANDIRI, BTN, BRI, BNI, PANIN, CIMB, DANAMON, BII, PERMATA, OCBC, BJB*; t is the year of 2004 until 2013.

Chow test and Hausman test have been run on the empirical model 3, with the result showing that model 3 preferred random effect model (REM) regression model of panel data with generalized least squares (GLS) estimator. Using regression method of pooled EGLS (cross section random effects) of Eviews by eliminating several insignificant variables, the final result of model 3 is shown on table 11 :

Table 11 : Model 3 pooled EGLS (cross section random effects)

Variable	coefficient	Std Error	t-Statistic	Probability
C	3,77037	0,071538	52,70450	0,0000
NPL	-0,044198	0,008522	-5,186419	0,0000

The result of the empirical model 2 is :

$$BSP_{i,t} = 3,7704 - 0,0442 NPL + \varepsilon_{i,t}$$

The regression results are strong evidences on the association between BSP, NPL, macroeconomic variables and bank specific variables. The findings are:

- 1) Interest rate, exchange rate, loan and CAR are statistically proven to have significant impacts to NPLs. Particularly, interest rate impacted the level of the problem loan most positively, and total loan has the highest negative impact on the level of problem.
- 2) GDP, exchange rate, inflation, unemployment, CAR, LDR and NPL are statistically proven to have significant impacts to BSP. Particularly, exchange rate impacted BSP most positively, and GDP has the highest positive impact on BSP.
- 3) BSP formula calculation, which is shown by index of 12 banks; the result supported to the actual condition of the entire samples have sustained in their operation, particularly in financial performance during the year of 2004 to year of 2013.

4 DISCUSSION OF FINDINGS

Referring to the regression result, these findings have been confirmed, that:

1) Hypothesis 1: macroeconomic indicators and bank specific indicators are confirmed to impact NPLs, though several indicators are insignificant; such as GDP, inflation, unemployment, total asset and LDR. The significant relationship variables on NPL are showing that interest rate, coefficient 0,5523 have positive relationships on NPLs, which is that the growth in interest rates will raise NPLs ratios, thus increasing interest rate burden to debtors in paying bank loan. These results are also suggested by Louzis, et al. (2011); Festic & Beko (2008); Valahzagard, et al. (2012), but contrary to the findings by Ahmad & Bashir (2013); Bofondi & Ropele (2011). Their findings suggested that interest rates negatively impact NPLs while CAR and coefficient 0,2367 have positive relationships. This means that the growth of CAR will raise NPLs ratio, by which increasing CAR would raise the confidence of credit committees and then, loosening the credit analysis will affect NPLs by increasing their ratio (Chang, 2006; Vatansever and Hepsen, 2013), but there are also different findings that explained CAR has no impact on NPLs (Suryanto, 2015; Albert & Ng, 2012; Pastory & Mutaju, 2013; Shingjergji, 2013; Lis, et al, 2000). Total loan, coefficient -4,2760 has negative relationship with NPLs. The growth of total loan will decrease NPLs ratios, means loan growth support by economic growth, then debtors have better cash flow to fulfill bank obligations (Greenidge & Grosvenor, 2010), but the contrary findings are explained by Festic and Repina (2009); Saba, I., et al. (2012) - that loan growth will increase NPLs. Exchange rate, coefficient -3,5996 have negative relationships with NPLs, in which an increase in exchange rate (fall of local currency) will decrease NPLs ratio, resulting in debtors having good cash flow to fulfill bank obligations (Festic & Beko, 2008), but there are contrary findings stating that exchange rates have a positive relationship with NPLs (Farhan, et al., 2012; Khemraj & Pasha, 2009; Shingjergji, 2013; Badar & Javid (2013), and Ahmad & Bashir (2013) suggested that both do not have any relationships.

2) Hypothesis 2: macroeconomic indicators, bank specific indicators and NPLs are confirmed to have impacted BSP, though several indicators are insignificant; such as interest rate, total asset and total loan. The significant relationship variables on BSP are showing that GDP, coefficient 0,5523 has positively impacted BSP, in which the growth of GDP will raise BSP. With GDP as a general economic growth indicator, its growth will affect and improve general financial conditions and the sustainability of banking sector would also increase. Exchange rate, coefficient -0,5851 both have negative relationships with BSP, in which the increase of exchange rate (fall of local currency) will enfeeble BSP. This means the fall of local currency affects general financial conditions, which will in turn affect banking sustainability indicators. Inflation, coefficient 0,0163 have positive relationships with BSP, in which is the growth of inflation will raise BSP. Inflation pushes price up, stimulating the emergence of investment that will affect the improvement of banking financial condition and its sustainability. Unemployment, coefficient -0,0620 negatively affect BSP, in which the increase of unemployment will weaken BSP. Unemployment happening due to general business condition has dropped and resulted in a decline in general financial conditions, negatively impacting BSP. CAR, coefficient 0,0239 have positive relationships with BSP, in which the growth of CAR will raise BSP. Since CAR is a sign of banking sustainability towards risk, the increasing CAR would automatically strengthen

BSP. LDR, coefficient -0,0102 both have negatively impacts on BSP, in which the increase of LDR will weaken BSP. Loan disbursement is followed by risk, resulting in the need for more reserves to back up these risks. This condition can be a burden to corporate financial, eventually weakening BSP. NPL, coefficient -0,0655 negatively impact BSP, in which the increase of NPL will weaken BSP. Bad loan will affect most BSP indicators and automatically enfeeble BSP.

3) Hypothesis 3: NPLs are confirmed to have an impact on BSP. NPL, coefficient -0,0442 both have significant negative relationships with BSP, in which the increase of NPL will result in the weakening of BSP. Bad loans or NPLs have an effect on financial condition, that impacts BSP strength.

5 CONCLUSION

NPLs are elements that affect the sustainability of the bank, and NPLs themselves are also influenced by macroeconomic factors and bank specific factors. This conclusion is drawn based on the results of the statistic tests, stating that the macroeconomic factors which has the most positive influence on NPL are interest rates and the bank-specific factors that negatively influence the most is total assets (bank size). Exchange rates have the most positive influence on BSP and GDP negatively impact BSP the most. This conclusion shows the role of macroeconomic and bank specific factors contributing to NPL, in the sense of rising interest rates (macroeconomic) lowering investment and triggering declining profits that would often lead to bad credit. And increasing certain bank-specific factors such as total assets (bank size) lower NPLs, due to the sophistication of the management skill in analyzing credit. This is explained in the sense that credit is given properly and also reducing NPLs. BSP is also more sensitive towards macroeconomic factors; when foreign exchange rates increase, the financial capacity tends to slump and eventually lead to the weakening of the sustainability power in the financial performance, having an effect on BSP. Next, GDP has a negatively influence on BSP; when GDP is increased by stimulating economic growth in various industrial sectors, the improvement in the company's financial conditions could indirectly strengthen BSP. Conclusions of this study are expected to be used as a reference for the banking regulators in issuing favorable policies relating to interest rates (*Bank Indonesia* rate), and exchange rates; then for effective management of NPLs, commercial banks focus more on management of specific bank factors and seek the best practice achievable solution to improve credit quality in term of reducing NPLs. At the eventually, the BSP index is expectedly will contribute to banking industry, used as financial sustainability measurement instrument.

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APPENDIX 1 : BSP INDEX OF 12 BANKS (RESEARCH SAMPLE)

BANK	Year	NPL index	CAR index	LDR index	ROA index	ROE index	BOPO index	Audit index	BSP index	Condition
BCA	2004	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	4,1429	excellent
	2005	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	4,1429	excellent
	2006	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	4,1429	excellent
	2007	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	4,1429	excellent
	2008	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2009	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2010	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2011	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2012	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
2013	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good	
MANDIRI	2004	0,2857	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2005	0,1429	0,7143	0,7143	0,4286	0,2857	0,5714	0,7143	2,8571	fair
	2006	0,1429	0,7143	0,7143	0,4286	0,4286	0,2857	0,7143	2,7143	fair
	2007	0,2857	0,7143	0,7143	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2008	0,5714	0,5714	0,7143	0,7143	0,5714	0,7143	0,7143	3,8571	good
	2009	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2010	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2011	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2012	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
2013	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good	
BTN	2004	0,5714	0,7143	0,5714	0,5714	0,7143	0,7143	0,7143	3,8571	good
	2005	0,5714	0,7143	0,4286	0,5714	0,7143	0,7143	0,7143	3,7143	good
	2006	0,5714	0,7143	0,4286	0,5714	0,7143	0,7143	0,7143	3,7143	good
	2007	0,5714	0,7143	0,4286	0,5714	0,7143	0,7143	0,7143	3,7143	good
	2008	0,5714	0,7143	0,4286	0,5714	0,5714	0,7143	0,7143	3,5714	good
	2009	0,5714	0,7143	0,4286	0,5714	0,5714	0,7143	0,7143	3,5714	good
	2010	0,5714	0,7143	0,4286	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2011	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2012	0,5714	0,7143	0,4286	0,5714	0,5714	0,7143	0,7143	3,5714	good
2013	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good	
BRI	2004	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2005	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2006	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2007	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2008	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2009	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2010	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2011	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2012	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good
2013	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good	
BNI	2004	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	0,7143	4,1429	excellent
	2005	0,1429	0,5714	0,7143	0,5714	0,5714	0,7143	0,7143	3,2857	good
	2006	0,1429	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	3,4286	good
	2007	0,2857	0,5714	0,7143	0,4286	0,4286	0,5714	0,7143	3,0000	fair
	2008	0,5714	0,5714	0,5714	0,4286	0,4286	0,5714	0,7143	3,1429	good
	2009	0,5714	0,5714	0,5714	0,5714	0,5714	0,7143	0,7143	3,5714	good
	2010	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2011	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2012	0,5714	0,7143	0,5714	0,7143	0,5714	0,7143	0,7143	3,8571	good
2013	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good	
PANIN	2004	0,2857	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2005	0,2857	0,7143	0,7143	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2006	0,2857	0,7143	0,4286	0,7143	0,5714	0,7143	0,7143	3,4286	good
	2007	0,5714	0,7143	0,4286	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2008	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good
	2009	0,5714	0,7143	0,5714	0,5714	0,4286	0,7143	0,7143	3,5714	good
	2010	0,5714	0,7143	0,5714	0,5714	0,7143	0,7143	0,7143	3,8571	good
	2011	0,5714	0,7143	0,4286	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2012	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
2013	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good	

APPENDIX 1 : BSP INDEX OF 12BANKS (RESEARCH SAMPLE) - CONTINUES

BANK	Year	NPL index	CAR index	LDR index	ROA index	ROE index	BOPO index	Audit index	BSP index	Condition
CIMB	2004	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2005	0,2857	0,7143	0,5714	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2006	0,5714	0,7143	0,5714	0,5714	0,5714	0,7143	0,7143	3,7143	good
	2007	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2008	0,5714	0,5714	0,4286	0,4286	0,4286	0,7143	0,7143	3,1429	good
	2009	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2010	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2011	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2012	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
2013	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good	
DANAMON	2004	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2005	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2006	0,5714	0,7143	0,4286	0,5714	0,5714	0,7143	0,7143	3,5714	good
	2007	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2008	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2009	0,5714	0,7143	0,4286	0,7143	0,4286	0,7143	0,7143	3,5714	good
	2010	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2011	0,5714	0,7143	0,2857	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2012	0,5714	0,7143	0,2857	0,7143	0,5714	0,7143	0,7143	3,5714	good
2013	0,5714	0,7143	0,2857	0,7143	0,5714	0,7143	0,7143	3,5714	good	
BII	2004	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2005	0,5714	0,7143	0,5714	0,5714	0,5714	0,7143	0,7143	3,7143	good
	2006	0,2857	0,7143	0,4286	0,4286	0,4286	0,5714	0,7143	2,8571	fair
	2007	0,5714	0,7143	0,4286	0,4286	0,4286	0,2857	0,7143	2,8571	fair
	2008	0,5714	0,7143	0,4286	0,4286	0,4286	0,4286	0,7143	3,0000	fair
	2009	0,5714	0,5714	0,4286	0,2857	0,1429	0,1429	0,7143	2,1429	fair
	2010	0,5714	0,5714	0,4286	0,4286	0,4286	0,5714	0,7143	3,0000	fair
	2011	0,5714	0,5714	0,2857	0,4286	0,4286	0,5714	0,7143	2,8571	fair
	2012	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
2013	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good	
PERMATA	2004	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2005	0,2857	0,5714	0,4286	0,4286	0,5714	0,7143	0,7143	3,0000	fair
	2006	0,2857	0,5714	0,4286	0,4286	0,5714	0,5714	0,7143	2,8571	fair
	2007	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2008	0,5714	0,5714	0,4286	0,5714	0,4286	0,7143	0,7143	3,2857	good
	2009	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2010	0,5714	0,5714	0,4286	0,5714	0,7143	0,7143	0,7143	3,5714	good
	2011	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2012	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
2013	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good	
OCBC	2004	0,5714	0,5714	0,5714	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2005	0,5714	0,7143	0,5714	0,5714	0,5714	0,7143	0,7143	3,7143	good
	2006	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good
	2007	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good
	2008	0,5714	0,7143	0,5714	0,5714	0,4286	0,7143	0,7143	3,5714	good
	2009	0,5714	0,7143	0,5714	0,5714	0,4286	0,7143	0,7143	3,5714	good
	2010	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good
	2011	0,5714	0,5714	0,4286	0,5714	0,5714	0,7143	0,7143	3,4286	good
	2012	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good
2013	0,5714	0,7143	0,4286	0,5714	0,4286	0,7143	0,7143	3,4286	good	
JABAR	2004	0,5714	0,5714	0,5714	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2005	0,5714	0,5714	0,4286	0,7143	0,5714	0,7143	0,7143	3,5714	good
	2006	0,5714	0,5714	0,5714	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2007	0,5714	0,7143	0,4286	0,7143	0,5714	0,7143	0,7143	3,7143	good
	2008	0,5714	0,5714	0,4286	0,7143	0,7143	0,7143	0,7143	3,7143	good
	2009	0,5714	0,7143	0,4286	0,7143	0,7143	0,7143	0,7143	3,8571	good
	2010	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2011	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
	2012	0,5714	0,7143	0,5714	0,7143	0,7143	0,7143	0,7143	4,0000	good
2013	0,5714	0,7143	0,2857	0,7143	0,7143	0,7143	0,7143	3,7143	good	

APPENDIX 2 : DATA OF MACROECONOMIC FACTORS ON 2004 – 2013

Year	Inflation	GDP	Interest Rate*	Exchange rate**	Unemployment
2004	6,40	4,90	15,56	9.336,00	9,86
2005	17,11	5,70	12,75	9.879,00	10,26
2006	6,60	5,50	9,75	9.065,00	10,45
2007	6,59	6,30	8,00	9.466,00	9,75
2008	11,06	6,00	9,25	11.005,00	8,46
2009	2,78	4,60	6,50	9.447,00	8,14
2010	6,96	6,20	6,50	9.036,00	7,41
2011	3,79	6,50	6,00	9.113,00	6,80
2012	4,30	6,20	5,75	9.718,00	6,32
2013	8,38	5,78	7,50	12.250,00	5,92

Source: *Bank Indonesia* (Indonesian central Bank)

Note : * Interest rate is Bank Indonesia rate (BI Rate)

** Exchange rate is Rupiah Vs US Dollar, in absolute value

Inflation, GDP, interest rate and unemployment are in percentage

APPENDIX 3 : DATA OF BANK SPECIFIC FACTORS ON 2004 – 2013

BANK	Year	NPL**	CAR**	Total Loan*	LDR**	Total Asset*
BCA	2004	1,30	24,00	40.360	30,60	149.169
	2005	1,71	21,50	54.131	41,78	150.181
	2006	1,30	22,10	61.422	40,30	176.799
	2007	0,80	19,20	82.389	43,60	218.005
	2008	0,60	15,80	112.784	53,80	245.570
	2009	0,70	15,30	123.901	50,30	282.392
	2010	0,60	13,50	153.923	55,20	324.419
	2011	0,50	12,70	202.255	61,70	391.908
	2012	0,40	14,20	256.778	68,60	442.994
MANDIRI	2004	7,10	25,30	94.403	53,70	248.156
	2005	25,20	23,70	106.853	51,70	263.383
	2006	16,30	25,30	117.671	57,20	267.517
	2007	7,20	21,10	138.530	54,30	319.086
	2008	4,70	15,70	174.498	59,20	358.439
	2009	2,62	15,43	198.547	59,15	394.617
	2010	2,21	13,36	246.200	65,44	449.775
	2011	2,18	15,34	314.381	71,65	551.892
	2012	1,74	15,43	388.830	77,66	635.619
BTN	2004	3,21	16,64	12.609	67,90	26.743
	2005	4,04	16,60	15.273	78,93	29.083
	2006	3,91	18,23	17.829	83,75	32.576
	2007	4,05	21,86	22.343	92,38	36.693
	2008	3,20	16,14	32.025	101,83	44.922
	2009	3,36	21,54	40.733	101,29	58.448
	2010	3,26	16,74	51.550	108,42	68.386
	2011	2,75	15,03	63.564	102,56	89.121
	2012	4,09	17,69	81.411	100,90	111.749
BRI	2004	4,19	16,19	62.368	75,69	107.040
	2005	4,68	15,29	75.533	77,83	122.776
	2006	4,81	18,82	90.283	72,53	154.725
	2007	3,44	15,84	113.853	68,80	203.604
	2008	2,80	13,18	161.061	79,93	246.026
	2009	3,52	13,20	208.123	80,88	316.947
	2010	2,78	13,76	252.489	75,17	404.286
	2011	2,30	14,96	294.515	76,20	469.899
	2012	1,78	16,95	362.007	79,85	551.337
BNI	2004	4,60	17,10	57.868	55,10	136.582
	2005	13,70	16,00	62.659	54,20	147.812
	2006	10,50	15,30	66.460	49,20	169.416
	2007	8,20	15,70	88.651	60,60	183.342
	2008	4,90	13,50	111.994	68,60	201.741
	2009	4,70	13,80	120.843	64,10	227.497
	2010	4,30	18,60	136.357	70,20	248.581
	2011	3,60	17,60	163.533	70,40	299.058
	2012	2,80	16,70	200.742	77,50	333.303
PANIN	2004	7,71	37,43	10.058	72,93	23.937
	2005	9,34	28,72	13.896	55,17	36.919
	2006	7,95	29,47	17.838	80,47	40.515
	2007	3,06	21,58	29.891	92,36	53.471
	2008	4,64	20,31	35.282	78,93	64.392
	2009	3,15	21,79	39.967	73,28	77.916
	2010	4,36	16,65	55.683	74,22	108.995
	2011	3,56	17,50	69.079	80,36	124.755
	2012	1,69	14,67	91.652	88,46	148.793
2013	2,13	15,32	103.072	87,71	164.056	

Source : *Bank Indonesia* (Indonesian central bank)

Note: * in billion Rupiah; ** in percentage

APPENDIX 3 : DATA OF BANK SPECIFIC FACTORS ON 2004 – 2013 (CONTINUES)

BANK	Year	NPL**	CAR**	Total Loan*	LDR**	Total Asset*
CIMB	2004	3,18	10,29	21.092	85,28	30.798
	2005	5,23	17,24	29.601	74,15	41.366
	2006	3,47	16,65	33.429	61,22	46.464
	2007	3,79	15,43	42.188	79,44	54.733
	2008	2,51	15,60	50.667	89,52	69.301
	2009	3,06	13,88	82.970	85,17	106.877
	2010	2,59	13,47	102.075	74,89	142.922
	2011	2,64	13,16	120.195	78,50	164.239
	2012	2,29	15,16	133.605	82,82	192.705
DANAMON	2004	4,00	25,60	30.294	72,20	58.821
	2005	2,60	22,70	36.757	80,80	67.803
	2006	3,30	20,80	42.986	75,50	82.073
	2007	2,30	20,30	53.330	88,10	89.410
	2008	2,30	15,40	66.989	86,42	107.268
	2009	3,30	20,70	63.300	88,80	98.600
	2010	2,60	16,00	82.700	93,80	118.400
	2011	2,20	17,60	101.800	98,30	142.300
	2012	2,30	18,90	116.600	100,70	155.800
BII	2004	4,02	20,24	13.214	44,21	36.077
	2005	2,77	21,74	23.390	60,31	50.571
	2006	5,03	23,34	26.248	70,01	53.040
	2007	2,92	20,19	32.953	88,01	55.016
	2008	3,12	19,58	38.304	86,53	56.855
	2009	2,42	14,78	39.643	82,93	60.966
	2010	3,09	12,51	53.736	89,03	75.130
	2011	2,14	11,83	67.186	95,07	94.919
	2012	1,70	12,83	80.949	92,97	115.773
PERMATA	2004	3,60	11,40	13.859	57,20	31.757
	2005	5,30	9,80	21.357	78,50	34.782
	2006	6,40	13,50	22.784	83,10	37.842
	2007	4,60	13,30	25.289	88,00	39.298
	2008	3,50	10,80	33.661	81,80	54.060
	2009	4,00	12,20	39.810	90,60	56.010
	2010	2,70	14,10	51.253	87,50	73.813
	2011	2,04	14,07	68.204	83,06	101.324
	2012	1,37	15,86	93.706	89,52	131.799
OCBC	2004	1,01	15,11	9.898	77,34	17.877
	2005	2,46	19,71	12.245	77,62	20.106
	2006	2,49	17,07	15.410	82,17	24.206
	2007	2,53	16,15	18.858	89,14	28.969
	2008	2,72	17,01	20.401	76,69	34.246
	2009	3,17	18,00	21.887	72,39	37.053
	2010	2,00	17,63	31.539	80,00	50.142
	2011	1,26	13,75	41.077	87,04	59.834
	2012	0,91	16,49	52.085	86,79	79.142
BJB	2004	0,33	14,20	8.746	77,50	13.265
	2005	0,46	14,80	10.074	87,42	15.588
	2006	0,41	14,97	11.763	75,67	21.290
	2007	0,70	16,81	13.047	79,02	23.124
	2008	0,78	15,06	16.429	89,44	26.113
	2009	1,97	21,20	19.631	82,47	32.457
	2010	1,86	22,85	23.669	71,54	43.445
	2011	1,21	18,36	28.764	72,95	54.448
	2012	2,07	18,11	38.332	74,09	70.840
2013	2,83	16,51	48.902	96,47	70.958	

Source : Bank Indonesia (Indonesian central bank)

Note: * in billion Rupiah; ** in percentage