A COMPARATIVE STUDY OF BANK SOUNDNESS METHODS TO MARKET DISCIPLINE AND CORPORATE VALUE (STUDY ON COMMERCIAL BANKS WHICH LISTED IN INDONESIA STOCK EXCHANGE)

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Abstract: *Experience a crisis of 1997-1998 and 2008 showed that the banking crisis is one of the main factors that lead to countries experiencing severe economic contraction. If the banking system in an unhealthy condition, the bank functions as an intermediary institution will not function optimally, the allocation and provision of funds from banks for investing activities and financing productive sectors in the economy will be hampered, traffic payments made through the banking system is not smooth and efficient, and also will hamper the effectiveness of monetary policy. Various problems in the banking crisis, indirectly, have shown a variety of systemic weaknesses that still exist rules of prudence (prudential regulation) that the current banking. In accordance with the Bank's business development is dynamic and increased risk exposure and risk profile, the Bank Rating methodologies need to be improved in order to better reflect the current condition of the Bank and in the future. This is exactly what makes the method CAMELS refined into RBBR method. This study aimed to compare methods of bank soundness, CAMELS and RBBR methods, using Market Discipline and Corporate Value as a performance indicators. In this study analyzed 14 major variables, namely CAR 1, KAP, BOPO, ROE, LDR, BETA (CAMELS); NPL, IRR, PDN, NIM, ROA, CAR 2 (RBBR); Δ Deposits and Tobin's Q. The population in this study are all commercial banks registered in Bank Indonesia's directory and listed in Indonesia Stock Exchange (IDX), at four years period time, 2010 until 2013. Sample was selected by using purposive sampling method. The analysis technique used is multiple regression and comparation test. The results of this research showed that the CAR 1, KAP, ROE, LDR (the CAMELS method) and NPL, PDN, ROA, CAR 2 (the RBBR method) are proven to give a significant effect on ΔDPK. And, the ratio of BOPO, ROE, BETA (the CAMELS method) and IRR, NIM, ROA (the RBBR*

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method) are proven to give a significant effect on Tobin's Q. In addition, based on means comparation test, this research showed that there is no difference between the variance of the residual value of the two methods CAMELS and RBBR, both the △ DPK and Tobin's Q regression. In the analysis of the model's accuracy in predicting the dependent variable, RBBR more accurate in predicting market discipline (△DPK), and CAMELS method is more accurate in predicting the corporate value (Tobin's Q).

Keywords: CAMELS, RBBR, Market Discipline, △DPK, Corporate Value, Tobin's Q.

INTRODUCTION

The Indonesian economy is ever crash as the impact of the economic crisis that hit the Asia region in 1997. The crisis was repeated in 2008, believed to be the impact of the banking sector many other countries that have high leverage levels, both on balance sheet and off-balance sheet which then erode the quality of bank capital. Moreover, problems in the quality of corporate governance, risk management quality, and transparency was allegedly still be a contributing factor to the crisis.

Experience a crisis of 1997-1998 and 2008 showed that the banking crisis is one of the main factors that lead to countries experiencing severe economic contraction. Simply put, when the banking system in an unhealthy condition, the bank functions as an intermediary institution will not function optimally, the allocation and provision of funds from banks for investing activities and financing productive sectors in the economy will be hampered, traffic payments made through the banking system is not smooth and efficient, and also will hamper the effectiveness of monetary policy. This is reinforced by the results of research Lindgren (1996), which shows that many countries whose economies are damaged as a result of the unhealthiness of the banking sector.

Various problems in the banking crisis, indirectly, have shown a variety of systemic weaknesses that still exist rules of prudence (prudential regulation) that the current banking. Several studies have doubted the effectiveness of prudential regulation and performance monitoring agencies because they have 'missed' resulting in a crisis. This makes policy makers respond to formulate and create formulas rules and policies that are more rigorous and focused on improving the stability of the financial sector and prevent negative effects on the economy of the crisis that may happen again in the future, as well as restore public confidence in the system banking.

The recovery and strengthening resilience, competitiveness, and the banking intermediation done through regulatory and supervisory approaches, namely through risk management policies and governance, capital capacity, and related policies and contribute to the economic efficiency. These efforts sought to improve the performance of the banking industry and realize an efficient banking system, healthy, and stable.

In accordance with the Bank's business development is dynamic and increased risk exposure and risk profile, the Bank Rating methodologies need to be improved in order to better reflect the current condition of the Bank and in the future. Rating Bank with the method CAMELS (Capital, Asset quality, Management, Earnings, Liquidity, and Sensitivity to market risk), which has been in place since 2004 and stated in Peraturan Bank Indonesia (PBI) 6/10/PBI/2004 and Surat Edaran BI No. 6/23/DPNP about the Sistem Penilaian Tingkat Kesehatan Bank Umum, the perceived need to be re-adjusted in order to be effectively used as a tool to evaluate the performance of the Bank, including the application of risk management and the precautionary principle. Therefore, based on the PBI 13/1/PBI/2011 and Surat Edaran BI No. 13/24/DPNP about Penilaian Tingkat Kesehatan Bank Umum dated October 25, 2011, they invented the new Bank soundness system, later known as the Risk Based Bank Rating (RBBR) method or RGEC and entered into force since 2011. Assessment of banks based on four factors including the Risk Profile, Good Corporate Governance(GCG), Earnings, and Capital. In RBBR, assessment must be done either by the bank (self-assessment) or by bank supervisors.

In the book *Banking Soundness and Monetary Policy* (Enoch, 1997: 4-5), Manuel Guitian, an expert from the IMF, stated that the third approach, which consists of three pillars : Minimum Capital Requirements, Supervisory Review Process, and Market Discipline, must be done because the process of banking supervision pace with the speed of liberalization, globalization, and technological advances in financial instruments. The rapid development of the banking industry in the era of globalization can be seen from the development of financial transactions and the integration of a variety of banking products and services are increasingly complex and diverse. This makes the risk exposure faced by banks are becoming increasingly complex and increasing. Thus, supervision should be equipped with internal and external discipline of banks. The inclusion of market discipline reflects the fact that without a competitive market and punitive for the failure to compete in the market it is not enough incentive for bank owners, managers and customers to make the right financial decisions.

Market discipline approach aims to increase the awareness and the ability of customers and other stakeholders to participate actively direct bank supervision. Research Furlong and Williams (2005) explains that market signals can add to and complement the information required by the relevant bank supervisors and health performance of banks, and also market signals can reflect the bank's risk. Market Signals and Market Effect caused by the discipline of the market can be alternatives that are considered able to reflect the performance of the banking system. In countries where the pillars of market discipline already exist then the reward and punishment mechanism can run smoothly. So expect the banking sector will also be more concerned about the level of risk they face and will be

directly related to the security of customer funds (Teak, 2012:1). Several studies using samples of developed countries, shows that the depositors, either get a guarantee fund savings or not, will conduct monitoring and effective control of the bank (De Ceuster & Masschelein, 2003).

In addition to influence the decisions of depositors, bank soundness was believed to produce a perception that is called with the value of the company (firm value). The value of the company is investor perception of the company which is often associated with stock prices. High corporate value can increase prosperity for our shareholders, so the shareholders will invest capital to the company (Eau, 2008). Nurlela and Islahuddin (2008) explains that the value of the company is an important concept for investors, because it is an indicator for assessing the company's overall market. Basically, the fluctuations caused by changes in the value of shares that the company's revenue is reflected in the company's financial performance.

There are several previous studies that have done the comparison method of valuation of the bank, between CAMELS and RBBR. And provide the results of different studies. Results of Melia Kusumawati (2014) research, with the title *Comparative Analysis Method Based Banking Financial Performance Camels and RGEC At PT. Bank Mandiri (Persero). Tbk.*, showed that there was no significant difference between the results of the Bank's financial performance analysis is done by using the method CAMELS and RGEC. In general, the CAR, KAP, BOPO, ROA, LDR and MR on CAMELS method showed that the performance of Bank Mandiri average rated excellent.

Research Hogan, et.al. (2013), entitled *Valuating Risk-Based Capital Regulation*, aims to determine the differences in the method of the bank and what better method to commercial banks in the US in 2001 and 2011 with the RBC method with capital ratios standard. The results show the bank calculation performance with standard capital ratio is better than the method of RBC.

Research of Avery and Benger (1991), entitled *Risk-based Capital and Deposit Insurance Reform*, aims to find a better method between new standard RBC capital ratio applied to commercial banks in the US in 1982 to 1989 to measure the performance of banks. That research shows that RBC has a substantial improvement of the health assessment than the old bank capital standards, because RBC has a new standard and more stringent, in which the risk factors included in the assessment.

The big difference in the results of such research a topic of interest to be investigated further. Although the method RBBR in bank soundness assigned by Bank Indonesia to replace the CAMELS method, and based on the study for improvement of assessment methods in order to control, but still there are chances

for the outside researcher to help evaluate and assess methods of the bank rating. In addition, the bank assessment methods will certainly continue to be evaluated and corrected by the Supervisory Bank (BI/OJK) to find the best scoring model.

Based on the background described above, the researcher identified the problem to analyze and compare the methods of assessment of the Bank Soundness, namely CAMELS and RBBR. Is there any influence of financial ratios in the Bank Soundness based method CAMELS and RBBR on Market Discipline and Corporate Value? Is there a difference between events can not be anticipated (residual value) of the RBBR and CAMELS model equations to Discipline Market and Corporate Value? And which one is more accurate method is used to reflect the market discipline and corporate value in the eyes of society.

LITERATURE STUDY

Banking

Banking is a term used to explain everything to do with the bank, including institutional, business activities, as well as the manner and process of conducting its business. Bank Indonesia in carrying out its functions using the principles of economic democracy and the principle of prudence. The main function of Indonesian banks are as collector and distributor of public funds and aims to support the implementation of national development in order to improve the distribution of development and its results, the national economic growth and stability, in the direction of improvement of the living standard of the people (Booklet Perbankan Indonesia 2014).

Banking Regulation and Supervision

Bank regulation and supervision purpose is to optimize the Indonesian banking functions in order to create a sound banking system as a whole or individually, and able to maintain the interests of the community well, develop naturally and benefit the national economy. In carrying out the task of bank supervision, OJK is currently carrying out its supervisory system using two (2) approaches, namely: (1) Compliance Based Supervision/CBS, (2) Risk Based Supervision / RBS.

Bank Soundness

Assessment methodology development bank conditions are dynamic, so the bank's assessment of the health system is constantly adjusted to better reflect the actual condition of the bank, both current and future. Rearrangement, among other things includes the improvement of assessment approaches (quantitative and qualitative) and the addition of assessment factors when necessary. Method

or way of bank rating is then known as CAMELS method (enacted in 2004 to 2010) and RBBR (effective in 2011-now).

CAMELS method contains steps that assessed by calculating the ratio of each component. Factors to be part of the Bank Rating based method CAMELS are Capital, Asset quality, Management, Earnings, Liquidity, Sensitivity to market risk.

Risk Based Bank Rating (RBBR) is a mechanism for risk assessment and the condition of the bank's financial performance is done based on the analysis of the information obtained from the examination (on-site examination) or of a bank statement or other information (off-site examination).Bank Soundness assessment by using RBBR is a comprehensive and structured assessment of the results of the integration of risk profiles and performance that include the implementation of good governance, earnings, and capital. Factors to be part of the Bank Rating based methods RBBR are Risk Profile, Good Corporate Governance (GCG), Earnings, Capital.

There are differences of the capital factor between CAMELS and RBBR method. CAR calculation on CAMELS using Basel I, while RBBR using Basel II. The calculation of risk-weighted assets (ATMR) in the CAMELS including market risk and credit risk, while ATMR on RBBR includes three risks, namely market risk, credit risk, and operational risk.

RBBR method applied to replace and enhance the CAMELS method in assessing the soundness of banks. This is reinforced by the presence of Peraturan Bank Indonesia (PBI) 13/1/PBI/2011 made to replace PBI 6/10/PBI/2004, about the Bank Soundness Assessment System for Commercial Banks (*Sistem Penilaian Tingkat Kesehatan Bank Umum).*

Factors in the CAMELS method ratings still stand alone and not be a unity method. Each factor has a quantitative and qualitative assessment of each, and the results of the assessment were not integrated with each other. In addition, CAMELS also not take into account future performance as well as comparisons with similar banks (peer analysis).

Performance evaluation has been done by banks more focused on the upside of the business (profit achievement and growth), but few discuss the downside (risk). The evaluation focused only on the upside likely to produce biased results of the assessment and not oriented towards achieving the long-term. Therefore, it is necessary to assess the soundness of banks that includes the upside and the downside to be a solution that is more comprehensive performance assessment.

Market Discipline

Market discipline is an action taken by customers and creditors, and investors in the case of banks that have go public, to "discipline" the bank is perceived to risk

too great. Market perception of the discipline of the market is very dependent on the availability and completeness of the published data banks, as well as the ability of customers, creditors, and investors in assessing the condition and performance of the bank. Through a disciplined approach to the market, the community is expected to conduct effective oversight and participate actively in assessing the performance and soundness of banks.

This study uses changes in the amount of customer deposits as an indicator of market discipline (Peria and Schmukler, 2001). To determine the change in total customer deposits (ΔDPK) that occurred on bank balance sheets, will be used the following formula:

$$\Delta DPK = \frac{DPK_n - DPK_{n-1}}{DPK_{n-1}}$$

Where: Δ DPK = change in the number of customer deposits year n

DPK = total customer deposits (third party funds)
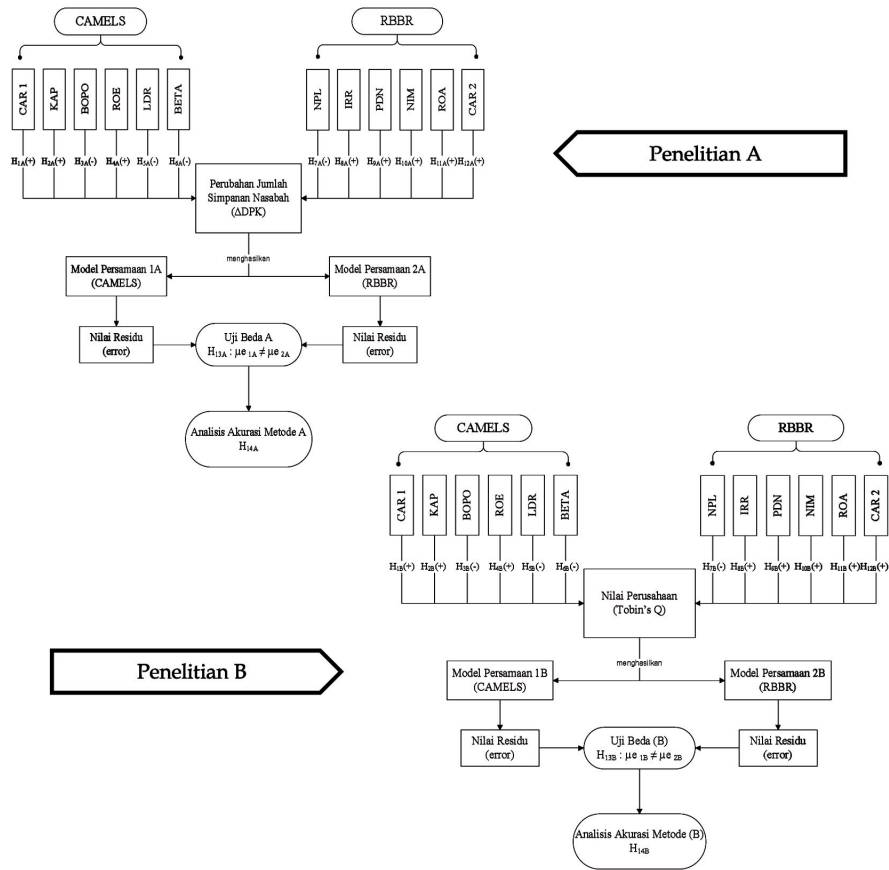
Corporate Value

Corporate Value is investor perception of the company, which is often associated with stock prices. The stock price is often regarded as a reflection of the true value of the company's assets. High stock price made the value of the company is also high. According to the company's main goal based on theory of the firm is to maximize wealth or value of the firm (Salvatore, 2005).

Ratio indicator used by investors to determine the corporate value can give an indication for the management of investors' assessment of the performance of companies in the past and prospects for the future. There are several ratios to measure the company's market value, one of Tobin's Q ratio is considered to provide the most information either, because in Tobin's Q incorporate all the elements of debt and equity of the company, not only ordinary shares only and is not only the equity of companies incorporated, but the whole assets of the company. Mathematically, Tobin's Q can be calculated with the following formula:

$$TQ = \frac{MVS + Debt}{Total\ Assets}$$

Market value of all outstanding shares (MVS) = the value of the stock market (Outstanding Shares x Stock Price).

FRAMEWORK

CAMELS

| CAR 1 | KAP | BOPO | ROE | LDR | BETA |

$H_{1A}(+)$ $H_{2A}(+)$ $H_{3A}(-)$ $H_{4A}(+)$ $H_{5A}(-)$ $H_{6A}(-)$

RBBR

| NPL | IRR | PDN | NIM | ROA | CAR 2 |

$H_{7A}(-)$ $H_{8A}(+)$ $H_{9A}(+)$ $H_{10A}(+)$ $H_{11A}(+)$ $H_{12A}(+)$

Penelitian A

Perubahan Jumlah Simpanan Nasabah (ΔDPK)

menghasilkan

Model Persamaan 1A (CAMELS)

Model Persamaan 2A (RBBR)

Nilai Residu (error)

Uji Beda A
$H_{13A} : \mu e_{1A} \neq \mu e_{2A}$

Nilai Residu (error)

Analisis Akurasi Metode A
H_{14A}

CAMELS

| CAR 1 | KAP | BOPO | ROE | LDR | BETA |

$H_{1B}(+)$ $H_{2B}(+)$ $H_{3B}(-)$ $H_{4B}(+)$ $H_{5B}(-)$ $H_{6B}(-)$

RBBR

| NPL | IRR | PDN | NIM | ROA | CAR 2 |

$H_{7B}(-)$ $H_{8B}(+)$ $H_{9B}(+)$ $H_{10B}(+)$ $H_{11B}(+)$ $H_{12B}(+)$

Penelitian B

Nilai Perusahaan (Tobin's Q)

menghasilkan

Model Persamaan 1B (CAMELS)

Model Persamaan 2B (RBBR)

Nilai Residu (error)

Uji Beda (B)
$H_{13B} : \mu e_{1B} \neq \mu e_{2B}$

Nilai Residu (error)

Analisis Akurasi Metode (B)
H_{14B}

RESEARCH METHOD AND DATA

This field research is economics-management research that focuses on the risk management. It has focus specifically on the management of banking and bank's health assessment. The method used in this research is descriptive and comparative methods. This study is doing a comparison between two approaches methods used in assessing the bank soundness. Each assessment method use different variables as components of the calculation. It is expected that this study can determine the significance of bank rating comparisons using the CAMELS and RBRR (Risk Based Bank Rating) approach.

The object that studied is a comparative study of assessment methods of the bank soundness, CAMELS and RBBR, on market discipline (ΔDPK) and corporate

value (Tobin's Q) on banks listed in Indonesia Stock Exchange in 2010-2013. This type of research is descriptive quantitative research. The unit of analysis in this study is company (banks) listed on the Indonesia Stock Exchange (IDX) in 2010-2013.

Variables consisted of the independent variables and the dependent variable. The independent variables are categorized into two methods of assessment of the bank's health. The CAMELS method, which consists of a variable CAR 1 (Capital Adequacy Ratio based on Basel I), KAP (earning assets), BOPO (Operating Expenses to Operating Income), ROA (Return on Assets), LDR (Loan to Deposit Ratio), and BETA (Sensitivity to market risk). The RBBR method, which consists of variable NPL (Non-Performing Loan), IRR (Interest Rate Risk), PDN (Net Open Position), NIM (Net Interest Margin), ROA (Return on Assets), and CAR_2 (Capital Adequacy Ratio based on Basel II).Differences calculation from CAR_1 and CAR_2 lies in the calculation of ATMR (RWA-Risk Weighted Assets), where the CAMELS method use the market and credit risk in it's ATMR calculation, while the method RBBR use market, credit, and operational risk. The dependent variable in this study is the Market Discipline proxied by the ΔDeposits (ΔDPK) ratio and Corporate Value, that is proxied by Tobin's Q ratios (TQ).

Data

The population in this study is all commercial banks listed in the banking directory of Bank Indonesia and in the Indonesia Stock Exchange in 2010 – 2013. This research is conducted by using panel data design. The data used in this study is secondary data, in the form of annual financial report. The sampling method used is nonprobability sampling with purposive sampling technique. Based on this method, samples are taken to have the following criteria:

1. Commercial banks and listed in the Indonesia Stock Exchange during 2010-2013.

2. Publish financial statements ending December 31, and have been audited by a public accountant, released publicly on the Indonesia Stock Exchange, and listed in the banking directory issued by Bank Indonesia.

3. The availability of the data required in the study.

Based on criteria above,so the amount of sample companies that authors take for this research is 28 banking company.

This research use secondary data, in the form of bank's annual financial report, audited by a public accountant, published to public, and listed in the directory of Bank Indonesian.

Metode Analisis Data

This study uses statistical data analysis in order to simplify the research data into one or more simpler, so that information can be more easily understood. Regression analysis model is used to analyze the relationship between the dependent variable against a group of independent variables, namely:

Model A:

$$\Delta DPK = a + b_1 CAR_1 + b_2 KAP + b_3 BOPO + b_4 ROE + b_5 LDR + b_6 BETA + e_1$$

$$\Delta DPK = a + b_1 NPL + b_2 IRR + b_3 PDN + b_4 NIM + b_5 ROA + b_6 CAR_2 + e_2$$

Model B:

$$TQ = a + b1 CAR1 + b2 KAP + b3 BOPO + b4 ROE + b5 LDR + b6 BETA + e1$$

$$TQ = a + b_1 NPL + b_2 IRR + b_3 PDN + b_4 NIM + b_5 ROA + b_6 CAR_2 + e_2$$

The comparative test in this study conducted to see the differences of average residual value from the two equation models that have been obtained previously. Comparative test using T test (T-test) or Independent Sample T-Test.

Then, to test the level of accuracy between the two models using value of Mean Error, Mean Absolute Error (MAE) and Mean Absolute Percent Error (MAPE) (for knowing the model's ability to predict (forecasting) variable Y); F-Statistic, Adjusted R-squared, Akaike Information Criterion, Schwarz Criterion, and Hannan-Quinn Criterion (for knowing the feasibility of the model (Goodness of Fit Test)).

RESEARCH RESULT

Descriptive Analysis

Based on the results of the descriptive analysis, we can know the mean, median, minimum and maximum values, and standard deviation of each of the dependent variable and the independent variables.

Table 1
Descriptive Analysis of Research Variables

		Variabel	*Mean*	*Median*	*Max*	*Min*	*Std. Dev.*
	Y_1	ΔDPK	0.24	0.17	3.59	-0.17	0.36
	Y_2	TOBIN'S Q	1.11	1.06	1.76	0.72	0.16
CAMELS	X_1	CAR_1	0.19	0.17	0.51	0.11	0.06
	X_2	KAP	0.98	0.98	1.00	0.64	0.04

			0.83	0.82	1.58	0.60	0.13
	X_3	BOPO	0.83	0.82	1.58	0.60	0.13
	X_4	ROE	0.15	0.16	0.44	-0.84	0.15
	X_5	LDR	0.81	0.83	1.13	0.40	0.13
	X_6	BETA	0.75	0.84	2.73	-1.68	0.70
RBBR	X_7	NPL	0.03	0.02	0.51	0.00	0.05
	X_8	IRR	2.22	2.09	4.37	0.29	0.63
	X_9	PDN	0.02	0.02	0.12	0.00	0.02
	X_{10}	NIM	0.06	0.05	0.17	0.02	0.03
	X_{11}	ROA	0.02	0.02	0.05	-0.13	0.02
	X_{12}	CAR_2	0.17	0.15	0.47	0.10	0.05

Source: Data Processing

Based on Table 1, variable ΔDPK's maximum value is 3.5891, far from the average value was below 1.00. The phenomenon of this maximum value is from Bank Pundi Indonesia, Tbk. (BEKS), where the number of third party funds in 2010 was Rp 1,159,818,000,000 and in 2011 was Rp 5,322,511,000,000, resulting ΔDPK by 358.91%. And for the minimum value is -0.1667, occurred in Bank ICB Bumiputera, Tbk. (BABP), where the number of third party funds in 2010 was Rp 7,213,672,000,000 and in 2011 was Rp 6,011,364,000,000.

It was also found extreme data on variable BOPO, where the maximum value of ROA is 1.5750. This phenomenon is occurred in Bank Pundi Indonesia, Tbk. (BEKS), where since 2008 the BOPO ratio of this bank always exceed 100% through 2012, and the highest peak in the 2011, which is 157.5%. And as it has been estimated that the bank is always a loss until 2011, but since the year 2012 this bank recorded starting to have a more healthy financial condition.

In addition, the minimum value on variables BETA is negative, -1.6762. There is negative BETA in theory, but in reality a negative beta is due to market anomalies. Negative BETA shows the stock price movement (securities or portfolios) opposite to the market. The minimum value of BETA phenomenon occurs in Bank of India Indonesia, Tbk. (BSWD) in 2012. The minimum beta value may occur because BSWD is a private bank, ownership of 76% shares owned by Bank of India, thus allowing the beta value shares are not in tune with the market.

It was also found extreme conditions on variable NPL, where the maximum value of NPL is 50.96%. This NPL value is surprising because it is far from the threshold of BI/OJK regulation allowed for NPL value, which is 5%. This phenomenon is occured in Bank Pundi Indonesia,Tbk. (BEKS) in 2010, but

fortunately in 2011 immediately dropped to 9.12%. Beside that, the minimum value of the variable NPL is very small, which is 0.0021 or 0.21%. The minimum value of the NPL phenomenon occurs at Bank Bumi Arta, Tbk. (BNBA) in 2013.

Standard deviation is a reflection of the average deviation from the mean of data. If the standard deviation is much larger than the mean value, than the mean value is a poor representation of the overall data. In Table 1, the standard deviation of variable BETA and IRR showed the largest value compared to other variables. It means, the data has a high level variation and also great risk of data interpretation.

In CAR_1 and CAR_2 variables, we can note that mean, median, maximum, and minimum value in the variable CAR_1 is greater than CAR_2 variables, it is because the value of the CAR_2 ratio has been taking into account the operational ratio at its ATMR, and automatically make the value of the capital adequacy ratio becomes smaller.

Results of Data Analysis

In Table 2, presented the results of multiple regression analysis to determine the influence of each financial ratio in both methods CAMELS and RBBR, to market discipline proxied by changes in third party funds (ΔDPK) and corporate value proxied by Tobin's Q ratio.

Table 2
Results of Multiple Regression Analysis

Panel 1			ΔDPK		Tobin's Q	
Methods	*Variables*	*Expected Sign*	*Coefficient*	*Prob.*	*Coefficient*	*Prob.*
CAMELS	CAR_1	(+)	-1.66 ***	0.0052	0.30	0.2869
	KAP	(+)	12.34 ***	0.0000	-0.32	0.6698
	BOPO	(−)	-0.19	0.7950	0.85 **	0.0162
	ROE	(+)	-3.50 ***	0.0000	0.47 **	0.0296
	LDR	(−)	-0.70 **	0.0366	-0.23	0.1543
	BETA	(−)	0.00	0.9992	-0.03 *	0.0956
	c		-10.30	0.0000	0.80	0.0000
	Adjusted-R^2		0.6119		0.5631	
	F-statistic		6.3026		5.3354	

Panel 2			ΔDPK		Tobin's Q	
Methods	*Variables*	*Expected Sign*	*Coefficient*	*Prob.*	*Coefficient*	*Prob.*
RBBR	NPL	(−)	-13.53 ***	0.0000	0.35	0.5807
	IRR	(+)	0.08	0.3174	-0.08 **	0.0388
	PDN	(+)	2.53 *	0.0741	-0.41	0.5550
	NIM	(+)	-5.89	0.1153	5.96 ***	0.0016
	ROA	(+)	-36.24 ***	0.0000	-4.96 *	0.0579
	CAR_2	(+)	-1.33 **	0.0374	0.23	0.4624
	c		1.63	0.0000	0.99	0.0000
	Adjusted-R²		0.6205		0.5567	
	F-statistic		6.4995		5.2240	

Source: Data Processing

Note: (*) Significant at the 90% confidence level
(**) Significant at the 95% confidence level
(***) Significant at the 99% confidence level

Based on the analysis, the following equation is obtained:

Equation Model 1A (CAMELS to ΔDPK):

$$\Delta DPK = -10.3 - 1.66CAR_1 + 12.34KAP - 0.19BOPO - 3.50ROE - 0.70LDR + 0.0BETA + e_1$$

Equation Model 2A (RBBR to ΔDPK):

$$\Delta DPK = 1.63 - 13.53NPL + 0.08IRR + 2.53PDN - 5.89NIM - 36.24ROA - 1.33CAR_2 + e_2$$

Equation Model 1B (CAMELS to Tobin's Q):

$$TQ = 0.80 + 0.30CAR_1 - 0.32KAP + 0.85BOPO + 0.47ROE - 0.23LDR - 0.03BETA + e_{1b}$$

Equation Model 2B (RBBR to Tobin's Q):

$$TQ = 0.99 + 0.35NPL - 0.08IRR - 0.41PDN + 5.96NIM - 4.96ROA + 0.23CAR_2 + e_{2b}$$

DISCUSSION

CAR_1 variable has a negative coefficient of 1,66 to ΔDPK and significant effect on the level of confidence of 99%. While on Tobin's Q, the CAR_1 variable has a positive coefficient 0,30 but the effect is not significant because the probability value of 0,29, greater than α. The results of this study do not support the hypothesis H_{1A} and H_{1B}, where the high CAR will indicate a healthy condition of the bank and should have a positive effect on the perception of the market, especially depositors and investors. The results of this study may occur allegedly because the average value of the overall sample of bank's CAR already passed the minimum limit, which is 8%. So it can be estimated capital ratio is escaped the attention of depositors and investors because they are in a safe condition. There are many other considerations that may influence the decision to keep the funds of depositors and investors in creating corporate value.

KAP variable has a positive coefficient of 12.34 against ΔDPK and significant effect on the level of confidence of 99%. While on Tobin's Q, the variable has a negative coefficient KAP 0.32 but the effect is not significant because the probability value of 0.67, greater than α. This supports the hypothesis H_{2A}, that the greater value of the KAP ratio can indicate the higher growth in the number of third party funds held. And also, it can indicate the greater effective performance of the Bank to suppress Non-Performing Loan (NPL) and increase the total earning assets that will increase revenue, thus increasing the profit generated. This information of good quality asset management and maintained profits will increase customer trust, so that would put their money in the bank. However, the results of this study do not support the hypothesis H_{2B}, where the greater the KAP ratio did not responded to the increase corporate value. Negative direction of this study results can be explained from the formula used, the greater the ratio of the firm indicates that the current productive assets, which is part of the bank's assets, even bigger than the composition earning assets. This can increase the number of corporate assets. And the greater the amount of assets will make the value of Tobin's Q ratio gets smaller. However, because the average value of the KAP ratio from entire bank studied are in a safe condition, then the KAP ratio is not a major concern in creating corporate value. There are many other considerations that more affect the value of the corporate.

BOPO variable has a negative coefficient of 0.19 to ΔDPK but the effect is not significant because the probability value of 0.80, greater than α. In addition, variable ROA has a positive coefficient of 0.85 on Tobin's Q and significant effect on the level of confidence of 95%. The results of this study do not support the hypothesis H_{3A} and H_{3B} proposed, where the greater value of BOPO ratio was responded with an increase in the corporate value, and has no effect on the amount

of third party funds (ΔDPK). This can be due to related information efficiency levels that have been made by management are not perfectly informed to public. Depositors do not make the value of BOPO ratio as an important consideration in deciding where they will place their funds. Depositor believes BOPO value is not directly related to their savings in the bank because they do not affect the interest rates on deposits. On the other hand, high BOPO value can indicate the amount of operating expenses are borne by the bank. The amount of operating expenses are borne by the bank is mainly derived from an increase in other operating expenses, ie the load allowance for impairment losses (CKPN) on financial assets and non-financial assets of the bank. This is occurred in order to reduce the large ratio of nonperforming loans (NPL) and improve the quality of credit. In addition, the increase in operating expenses is also can occur as a result of an increase in business development activities are quite expansive, particularly in terms of the development of the distribution network and increase the number of employees. There is an increasing and business development banks can attract interest from investors to invest their shares in the bank, so as to increase corporate value.

ROE variable has a negative coefficient of 3.50 to ΔDPK and significant effect on the level of confidence 99%. Meanwhile, on Tobin's Q, ROE has a positive coefficient of 0.47 and significant effect on the level of confidence 95%. This means that the hypothesis H_{4A} rejected. The results of this study stated that the ROE significant negative effect on ΔDPK, and shows that management failed to increase the trust of depositors (customers), so that the change in total customer deposits (ΔDPK) can not be improved through efforts to increase ROE. On the other hand, the results are consistent with the hypothesis H_{4B}, where it is known that ROE has positive and significant effect on the corporate value. Positive ROE indicates that the company can make a profit with their own capital capabilities that can give benefit for shareholders. ROE may reflect company's ability to generate high returns for shareholders.

LDR variable has a negative coefficient of 0.70 to ΔDPK and significant effect on the level of confidence 95%. In addition, the variable LDR has a negative coefficient of 0.23 to Tobin's Q, but the effect is not significant because the probability value 0.1543, greater than α. This is consistent with the hypothesis H_{5A} proposed, where the LDR will affect the level of customer trust in saving their funds in bank. High LDR indicates a high degree of credit risk as well, thus making people feel worried to put money in the bank because the bank will not be able to return the money they save. The higher LDR, decreasing the amount of ΔDPK. On the other hand, the results of this study are not consistent with the hypothesis H_{5B}, where LDR did not affect the perception of investors and the corporate value. Negative coefficient of LDR may indicate a negative information for investors, it has the potential occurrence of withdrawal of shares by investors that will cause a decline in the

investors trust, and the decrease in market value can also indicate the falling value of the company. However, based on the results of this study, LDR is not a major concern in creating corporate value. There are many other considerations that more affect the corporate value.

BETA variable has a positive coefficient of 0.00004 to ΔDPK but the effect is not significant because the value of the probability is 0.9992, greater than α. In addition, the variable BETA has a negative coefficient of 0.03 to Tobin's Q and significant effect on the level of confidence 90%. The results of this study do not support the hypothesis H_{6A}, which BETA did not affect the ΔDPK significantly. It may be because there are other things more attention and be taken into consideration by the depositor than the value of BETA. Beta value is not directly affect customer deposits as Beta more related to the value of the stock market. On the other hand, the results of this study support the hypothesis H_{6B}, where BETA affect the perception of investors significantly. BETA value can reflect the level of risk of company's stock market. While it can not be predicted and controlled because it is influenced by internal and external factors (market conditions, national and global economic, political, etc.), but BETA is pretty affect the corporate value. High beta can reduce investor confidence in the company, for example due to negative issues that plagued the company. High corporate risk will make investors withdraw their funds in the company's capital markets.

NPL variable has a negative coefficient of 13.53 against ΔDPK and significant effect on the level of confidence 99%. However, NPL variable also has a positive coefficient of 0.35 on Tobin's Q, but the effect is not significant because the probability value of 0.58, greater than α. This is consistent with the hypothesis H_{7A} proposed, in which the high NPL ratio indicates the level of risk faced by banks, especially credit risk, will be higher. The higher NPL ratio will further reduce the level of customer confidence, which in turn will impact on the emergence of customer concerns to save money in the bank. Customers who are concerned will tend to withdraw money at the bank. On the other hand, the results of this study do not support the hypothesis H_{7B}, where the NPL did not affect the perception of investors. This can be due to other considerations, both objective and subjective, the more influence the corporate value compared to the NPL.

IRR variable has a positive coefficient of 0.08 to ΔDPK but the effect is not significant because the probability value of 0.32, greater than α. However, IRR variable has a negative coefficient of 0.08 to Tobin's Q and significant effect on the level of confidence 95%. This is not consistent with the hypothesis H_{8A} proposed, where the higher the IRR rate did not affect the more customer to save their money in the bank. Positive direction indicates the potential for increased

profit achievement from the interest margin will make depositors expect to get the interest rate increases. However, the interest rate is not only influenced by it, so it does not significantly affect ΔDPK. On the other hand, the results of this study did not support the hypothesis H_{8B}, where the ratio of IRR variable affects the perception of investors negatively. That may occur because investors see another potential factors that bank owned, or other considerations that more affect investors' perceptions.

PDN variable has a positive coefficient of 2.53 to ΔDPK and significant effect on the level of confidence 90%. However, PDN variable also has negative coefficient of 0.41 to Tobin's Q but the effect is not significant because the probability value 0.555, greater than α. This is consistent with the hypothesis H_{9A} proposed, where the higher-level PDN will make customers trust to save their money in the bank. This is especially become customer consideration who use foreign currencies as savings. On the other hand, the results of this study do not support the hypothesis H_{9B}, where the ratio of this PDN did not affect significantly the perception of investors. This can be due to exchange rate movements are difficult to predict and many factors that affect exchange rate movements, either derived from the fundamental (eg interest rates, inflation, supply and demand of foreign currency credit), market sentiment (eg psychological condition or the foreign exchange market rumors), or technical. And the source can be from within and outside the country, making it difficult to predict exactly.

NIM variable has a negative coefficient of 5.89 to ΔDPK but the effect is not significant because the value of the probability is 0.115, greater than α. But according to the hypothesis, this NIM variable has a positive coefficient of 5.96 on Tobin's Q and significant effect on the level of confidence 99%. It does not support the hypothesis H_{10A} proposed, where the high level of NIM ratios are not addressed by the customer to increase the amount of savings in the bank. This can be due to the NIM that describes the level of good corporate governance (GCG) from the company, and it is not too directly influence their savings in the bank. GCG level of the corporate does not affect the interest rate given to customers, so that customers do not make the level of GCG as one of the considerations to keep the funds in the bank. On the other hand, this study supports the hypothesis H_{10B}, where the higher the ratio of NIM will make the corporate value increasing. Large ratio of NIM can describe the condition of good corporate governance of banks. NIM is able to measure the bank's ability to generate net interest income on a large processing earning assets. With the increasing interest income can contribute to the bank's profits. With the achievement of high profits, the investor can expect to benefit more from dividends received. High dividends will keep investor interest in the bank so as to affect the stock price increases, the impact on the increased corporate value.

ROA has a negative coefficient of 36.24 to ΔDPK and significant effect on the level of confidence 99%. In addition, ROA also has a negative coefficient of 4.96 to Tobin's Q and significant effect on the level of confidence 90%. This is not consistent with the hypothesis H_{11A} proposed. The results of this study stated that ROA has significant negative effect on ΔDPK. This can be due to customers paying attention to the amount of assets owned by the company, particularly related to the bank's assets supporting facilities for the comfort and convenience of customers, so that the basis for consideration of the placement of customer funds. Great asset value will make the ROA ratio gets smaller. So the smaller the ROA will make ΔDPK increased. On the other hand, the results of this study did not support the hypothesis H_{11B}, where it is known that the ROA not responded positively by investors. This can be due to other considerations, both objective and subjective, the more influence the corporate value than ROA.

CAR_2 variable has a negative coefficient of 1.33 to ΔDPK and significant effect on the level of confidence of 95%. On the other hand, CAR_2 variable has a positive coefficient of 0.23 on Tobin's Q, but the effect is not significant because the value of the probability is 0.4624, greater than α. The results of this study do not support the hypothesis H_{12A}, where the greater value CAR_2 ratio was not responded to the increase in the number of third-party funds (ΔDPK). In addition, the hypothesis H_{12B} was not supported in this study, because it was found that CAR_2 did not significantly effect the corporate value based on the statistical results. This can be due the ratio CAR_2 not be a major consideration for depositors and investors. As in CAR_1 ratio, large minimum required CAR is 8%, and all the research sample banks already exceeds the minimum threshold. So it can be expected to depositors and investors have not paid much attention to capital owned by the bank because they are in a safe condition. There are many other considerations that may influence the decision of depositors and investors to keep their funds. So the hypothesis H_{12A} and H_{12B} rejected.

Comparative Analysis of the Residual Value Method RBBR and CAMELS

The next test is to test whether there are differences in the variance of the residual value from the model equations in each of the dependent variables. Residual values (errors) which compared are the results of the previous regression analysis.

Based on the results of the *Independent Samples Test* analysis in Table 3, it is known that the F-test for Equality Model A is 0.136 with probability 0.712. And for Equation Model B, the calculated value of F-test is 0.000 with probability 0.983. Because of probability value> 0.01 (α), then the hypothesis H_{13A} and H_{13B} are rejected, and no difference between the two population variances.

Table 3
Comparative Analysis of Residual Value

Equation Model A *(ΔDPK)*			*Equation Model B* *(Tobin's Q)*	
Independent Samples Test				
Camels	*RBBR*	*Indicators*	*Camels*	*RBBR*
Equal Variances assumed	Equal variances not assumed	Levene's Test for Equality of Variances	Equal Variances assumed	Equal variances not assumed
0.136		F	0.000	
0.712		Sig.	0.983	
T-Test for Equality of Means				
0.000	0.000	T	0.000	0.000
222	221.972	df	222	221.988
1.000	1.000	Sig. (2-tailed)	1.000	1.000
0.000000	0.000000	Mean Difference	0.000000	0.000000
0.024764	0.024764	Std. Error Difference	0.012081	0.012081
Comparative Analysis of Goodness of Fit Test				
Camels	*RBBR*	*Indicators*	*Camels*	*RBBR*
0.7273	0.7333	R-squared	0.6930	0.6885
0.6119	0.6205	Adjusted R-Squared	0.5631	0.5567
6.3026	6.4995	F-Statistic	5.3354	5.2240
0.0000	0.0000	Prob (F-statistic)	0.0000	0.0000
0.0759	0.0534	Akaike info criterion	-1.3782	-1.3636
0.9012	0.8787	Schwarz criterion	-0.5529	-0.5383
0.4107	0.3883	Hannan-Quinn criter.	-1.0433	-1.0288
Comparative Analysis of Mean Error of Model Equations				
Camels	*RBBR*	*Indicators*	*Camels*	*RBBR*
-0.0000001786	0.0000001786	Mean Error	0.00000008929	0.0000002679
0.115136	0.133778	Mean Absolute Error	0.056793	0.057979
82.90384%	176.5020%	Mean Absolute Percent Error	4.979957%	5.111375%

Source: Data Processing

It can be concluded that there is no difference between the residual value of the two methods of bank soundness assessment, CAMELS and RBBR, both regression with ΔDPK and Tobin's Q. This is not consistent with the hypothesis, since the expected error rate of the model equations RBBR be smaller than the model equations CAMELS, so it can make a difference of two population variances. CAMELS method that will be replaced by RBBR method was not shown to provide significant added value in this study. This can be due to the lack of professional adjustment and qualitative assessment in this study, and there are the differences in calculation methods performed.

Accuracy Analysis of RBBR and CAMELS Methods

Several methods can be used to get the best model, such as *Akaike's Information Criterion* (AIC), *Schwarz Information Criterion* (SIC), and *Hannan-Quinn Criterion* (HQC). Advantages of AIC and SIC is primarily on the selection of best regression model through the *Goodness of Fit Test*, which can explain the equation model fit with the existing data (in sample forecasting) and values that will occur in the future (out of sample forecasting). In addition, you can also use the information of *Adjusted R-Squared* and *F-Statistics.*

Methods criteria for analysing equation model are as follows:

a. *Adjusted R-squared* : used to show the ability of the model to explain the effect of the independent variable on the dependent variable.

b. *F-statistic* : simultaneous test of the independent variables effect on the dependent variables.

c. *Akaike info criterion* (AIC): The smaller AIC indicates the better model.

d. *Schwarz criterion* (SIC) : The smaller SIC indicates the better model.

e. *Hannan-Quinn criter.* (HQC) : The smaller HQC indicates the better model.

Based on the above criteria and Table 3, it can be seen in model A, RBBR equation model can explain the variable ΔDPK better than CAMELS method. Equation Model of RBBR proven has better accuracy rate than the CAMELS method for predicting the Market Discipline (ΔDPK). While the model B, CAMELS equation model can better explain the variable Tobin's Q than RBBR method. Equation Model RBBR method no proven has better accuracy rate than the CAMELS method to predict the corporate value (Tobin's Q). The result of this calculation support the hypothesis H_{14A}, where the model equations RBBR method will be more accurate in predicting growth in deposits compared CAMELS. However, the results of this study do not support the hypothesis H_{14B}.

And if we pay attention to the ability of the model to predict (forecasting), then we can compare the value of the mean error, mean absolute error (MAE), and

mean absolute persent error (MAPE). From processing the data obtained in Table 3, we can obtain the value of the mean error, MAE and MAPE. Criteria decision making can be determined based on the value of the result. The smaller the value of the residual (error) of the model equations, the more precise and accurate model of the equation to predict the value of the dependent variable. That is because the smaller the error value of a model equation so that the equation model will be closer to the actual value.

For Equation Model A, the value of mean error, MAE and MAPE of the CAMELS model equations (-0.0000001786, 0115, and 82.9%) smaller than the RBBR method (0.0000001786, 0134, and 176.5%). So it can be seen that in Equation Model A, the CAMELS model equations is able to predict (forecasting) Market Discipline (ΔDPK) better than RBBR model equations. While in Equation Model B, note the value of mean error, MAE and MAPE of the CAMELS model equations (0.00000008929, 0.056793, and 4.98%) is smaller than the RBBR method (0.0000002679, 0.057979, and 5.11%). So it can be seen that in Equation Model B, the CAMELS model equations is able to predict (forecasting) Corporate Value (Tobin's Q) better than RBBR model equations.

Incompatibility results of this study could be due to the lack of professional adjustment and qualitative assessment, and the differences in calculation methods performed. In addition, the corporate value variable was greatly influenced by many factors beyond the company's performance. Efficient market conditions in Indonesia has a weak form, then market discipline influenced by investors (stock value) are not done perfectly in Indonesia, and it is one of the causes of unpredictability bank soundness condition if based on the corporate value.

Based on the interpretation above, it is known there are many variables that contrary to the hypothesis, both in model A and B. A decrease or increase in the change of number deposits in this study is assumed as a form of "discipline" from the depositor (the community) on bad bank performance. However, please note that this change of the amount of third party funds can be also influenced by other factors, such as the "interest rate war" from each conventional bank, the decline in bank marketing performance, or macro factors such as the existence of a crisis or inflation. Various factors may be other reasons why ΔDPK in a bank fluctuate.

In addition, the corporate value was affected by stock prices, so most likely there are other considerations of investors, both objective and subjective, that more influence the corporate value. Ricciardi and Simon (2000: 2) says that Behavioral Finance can explain and improve the understanding about the investor reason who deals with the emotional aspects that influence in decision-making. So the investors decision to buy stocks is not only based on the level of risk of the issuer's but also to individual preferences - each investor, for example, based on the good

image of the issuer owned. And it will affect the corporate (from the rise and fall of stock prices).

CONCLUSION

Based on the results of data analysis and hypothesis testing that has been done, it can be concluded as follows:

1. In Model 1A. CAR 1 and ROE have significant negative effect on ΔDPK, KAP has significant positive effect on ΔDPK, LDR has significant negative effect on ΔDPK, then ROA and BETA has no significant effect on ΔDPK.

2. In Model 1B. NPL, ROA, and CAR 2 have significant negative effect on ΔDPK, PDN has significant positive effect on ΔDPK, then IRR and NIM have no significant effect on ΔDPK.

3. In Model 2A. ROA and ROE have significant positive effect on Tobin's Q, BETA has significant negative effect on Tobin's Q, and CAR 1, KAP, and LDR have no significant effect on Tobin's Q.

4. In Model 2B. IRR and ROA have significant negative effect on Tobin's Q, NIM has significant positive effect on Tobin's Q, and then NPL, PDN, and CAR 2 have no significant effect on Tobin's Q.

5. In Comparative Test, note that there is no difference residual value between CAMELS and RBBR method, both of which perform regression with ΔDPK and Tobin's Q. Or in other words, the two variants of the population is the same (homogeneous).

6. To test the accuracy of the model, this study analyzes the value of *F-Statistic*, *Adjusted R-squared,* AIC, SIC, and HQC. In model A, the RBBR model equations proven has better accuracy rate than the CAMELS method for predicting the Market Discipline (ΔDPK). In model B, the RBBR model equations no proven has better accuracy rate than the CAMELS method to predict the Corporate Value (Tobin's Q). While based on the model's ability to predict *(forecasting)*, we see the value of *mean error*, MAE and MAPE, then either the A or B model, CAMELS model equation is able to predict *(forecasting)* Market Discipline (ΔDPK) and Corporate Value better than RBBR equation method.

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