MARKET RESPONSE WITH RESPECT TO THE SOUNDNESS OF BANKS AND MANAGERIAL DISCRETION: AN EMPIRICAL INVESTIGATION OF INDONESIAN BANKING SECTOR

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ABSTRACT

Bank has an important role in economy, due to the main function of bank as an intermediary institution between the surplus of fund side and the lack of fund side. Bank is one of the financial institutions trusted by the people to manage their funds. The soundness of a bank, therefore, become an important factor to measure bank's performance that can be useful for the stakeholders including owners, management of the bank, the public using the services of the bank, and Bank Indonesia as the bank supervisory authority.
Previous research found that there were relationships among the soundness of banks, managerial discretion, and market response. However, it seems that complementary research according to this topic is still needed because there is an area which is not covered yet. The relationships among the soundness of banks, managerial discretion, and market response will be investigated further in term of the possibility of the existence of the soundness of banks impact towards market response (either directly or indirectly through the existence of managerial discretion). Further, this research use path analysis as the pattern of data analysis.
Eight financial ratios were used in this research. The results show only Classified Earnings Assets to Earnings Assets and managerial discretion (Discretionary Accruals) has a direct impact towards market response (Earnings Response Coefficients). An indirect impact of banks soundness towards market response only occurred in a relationship between Capital Adequacy Ratio (CAR), Established Allowance to Compulsory Allowance (EALL to CALL), and Return on Equity (ROE) with Earnings Response Coefficients partially.

Keywords: CAELS Ratios, Discretionary Accruals, Earnings Response Coefficients, Path Analysis

INTRODUCTION

Background

Bank has an important role in economy, due to the main function of bank as an intermediary institution between the surplus of fund side and the lack of fund side. The soundness of a bank, therefore, become an important factor to measure bank's performance that can be useful for the stakeholders including owners, management of the bank, the public using the services of the bank, and Bank Indonesia as the bank supervisory authority.

Based on the Act of the Republic of Indonesia number 7 of 1992 concerning banking as amended by the Act number 10 of 1998 article 29, a bank should maintain its soundness in accordance to the provisions concerning the adequacy of capital, quality of assets, quality of management, liquidity, profitability, solvency, and other aspects related to the operations of a bank, and should be required to conduct operations in accordance to the prudential principle. Furthermore, based on the Bank Indonesia regulation number 6/10/PBI/2004 concerning rating system for commercial banks, banks are required to conduct business on the basis of prudential principles with the objective for maintaining or improving bank rating. Bank rating is the qualitative rating of various aspects affecting the condition or performance of a bank by means of either quantitative or qualitative rating of the factors of capital, asset quality, management, earnings, liquidity, and sensitivity to market risk (that also known as CAMELS). Quantitative rating is rating of the position, developments, and projection of the financial ratios of the bank while qualitative rating is rating of the factors supporting the results of quantitative rating, application of risk management, and the compliance of the bank. Therefore, by using financial ratios that generate from banks financial statement, certain aspects of the soundness of bank can be analyzed.

Scott (2009) shows two theories that explain the behavior interaction of related parties in a securities market. Bringing the importance of the soundness of banks as stated above, and positive accounting theory assumption that agents (like principals) are rational, therefore, they will choose accounting policies in their own best interests if able to do so. Then, there will be a possibility of commercial banks to conduct managerial discretion in forming the allowance for losses on earning assets. As result, there will be a discretionary accrual beside the non-discretionary accruals that basically should have be form to overcome the default risk that may occur according to the existence of earning assets portfolio. Furthermore if it is related to efficient securities markets theory, the soundness of banks as the main indicator of banks performance and as the possible factor may lead to managerial discretion, and can bias any related information that will be used by investors in making investment decisions. Moreover, it may cause the market to behave in certain response (either directly or indirectly).

Accordingly, previous research found that there were relationships among the soundness of banks, managerial discretion, and market response. Liu et al. (1997) through their research found that there were differential valuation implications of loan loss provisions across banks and

fiscal quarters. They found that market perceived loan loss provision as good news (positively related to stock market reaction and future cash flow) only for at risk banks in the fourth quarter. Similarly, Rahmawati (2006) found that there was a significant relationship between banking regulation about health level and earnings management and market respond to announcement of financial statement of banking industry that doing earning management.

Based on those reasons, it seems that complementary research according to this topic is still needed because there is an area which is not covered yet. The relationships among the soundness of banks, managerial discretion, and market response will be investigated further in term of the possibility of the existence of direct relationship between the soundness of banks and market response and also the indirect relationship that may exist through the existence of managerial discretion. Further, this research will use path analysis to find out the existence of that direct relationship or indirect relationship.

Problem Statement

The problems statements are:

1. Does capital ratio (capital adequacy ratio) have an impact towards discretionary accruals and earnings response coefficient?

2. Does each of asset quality ratios (in term of classified earning assets to earning assets ratio, and established allowance for earning assets losses to compulsory allowance for earning assets losses ratio) has impact towards discretionary accruals and earnings response coefficient?

3. Does each of earnings ratios (in term of return on asset, return on equity, and operating ratio) have an impact towards discretionary accruals and earnings response coefficient?

4. Does liquidity ratio (in term of loan to deposits ratio) have an impact towards discretionary accruals and earnings response coefficient?

5. Does sensitivity to market risk ratio (interest sensitivity ratio) have an impact towards discretionary accruals and earnings response coefficient?

6. Does discretionary accrual have an impact towards earnings response coefficient?

7. Does each of CAELS ratios (capital adequacy ratio, classified earning assets to earning assets ratio, established allowance for earning assets losses to compulsory allowance for earning assets losses ratio, return on asset, return on equity, operating ratio, loan to deposits

ratio, and interest sensitivity ratio) have an impact towards earnings response coefficient through the discretionary accruals?

Some contributions can be attained from this research such as:

1. Provide information for the Bank Indonesia, as regulator, regarding the possibility of the existence of discretionary accrual as a result of managerial discretion in forming allowance for losses on earning assets.

2. Provide information for the investors regarding the possibility of the existence of discretionary accrual as a result of managerial discretion in forming allowance for losses on earning assets that may bias the real financial condition of banks, and furthermore, may bias any related information will be used by investors in making investment decisions.

LITERATURES REVIEW

CAMELS Ratio Analysis

Based on regulation, CAMELS is used to evaluate bank performance. Rose and Hudgins (2008:518) stated that CAMELS rating is a numerical ratings assigned based on examiner judgment about Capital adequacy, Asset quality, Management quality, Earnings record, Liquidity position, and Sensitivity to market risk exposure.

Hempel and Simonson (1999:322) stated that **Capital** plays an important role in both starting a bank and ensuring its survival. To measure the soundness of banks in capital aspect, one of financial ratio that widely used is Capital Adequacy Ratio (CAR). CAR is able to measure the ability of capital to cover probable loss in loans and trading securities (Fariana, 2009:10). Further, based on the Bank Indonesia Regulation number 3/21/PBI/2001 dated December 13, 2001 concerning Capital Adequacy Ratio for Commercial Banks, bank must provide minimum 8% capital from risk weighted assets since the end of December 2001.

Asset quality refers to earnings assets quality are funds which are allocated in rupiahs or foreign currencies to generate revenues according to their functions (Siamat, 2004:134). According to Bank Indonesia earning asset is placements of bank funds in rupiah and in foreign currencies covering credit, securities, interbank placement, and equity participation, and including commitments and contingencies (www.bi.go.id). Kuncoro and Suhardjono (2002:564) stated that asset quality shows the quality of assets in connection with credit risk faced by bank caused by giving loans and investing capital in different portfolio.

Bank's financial ratios that can be used to measure asset quality factors are:

a. Classified Earning Asset to Earning Assets (CEA to EA): It depicts earning assets quality by comparing classified earning assets to total earning assets. Classified earning assets are earning assets that no longer or could potentially cease to generate returns or are incurring losses (glossary accessed from www.bi.go.id). The amount of classified earning assets is determined as follow: (1) 25% of earning assets categorized as special mention, (2) 50% of earning assets categorized as substandard, (3) 75% of earning assets categorized as doubtful, (4) 100% of earning assets categorized as loss.

b. Established Allowance for Earning Assets Losses to Compulsory Allowance for Earning Assets Losses (EALL to CALL): It depicts earning assets quality by comparing the allowance for losses on earning assets that already form by banks to allowance for losses on earning assets that must be form by banks based on regulation. This ratio refers to the adequacy level of allowance for losses on earning assets forming.

Based on the Bank Indonesia regulation number 6/10/PBI/2004 concerning rating system for commercial banks article 4, rating of management factor encompasses rating of the following components: (a) Quality of general management and application of risk management, and (b) Bank compliance with applicable legal provisions and commitments made to Bank Indonesia and/or other parties.

In the CAMEL rating system, **Management** quality is treated as the most qualitative aspect and is subjectively assigned by supervisors based on their judgment of bank management systems, compliance, and prudential practices. Further, based on appendix of Circular Letter number 6/23/DPNP, there is no financial ratio used to measure Management factor. Direct measures of these characteristics do not appear in the financial statements.

Tondoprasetyo (2005:11-12) stated that **Earnings** ratio analysis is a tool to analyze efficiency rate and profitability achieved by banks. In this ratio usually look for relationship between accounts in income statement and balance sheet to get indications that will be useful to measure efficiency rate and bank profitability.

Liquidity ratios indicate the firm's capacity for meeting its short term liabilities as they become due (Hempel and Simonson, 1999: 456). Bank's financial ratios that widely used to measure liquidity factors are Loan to Deposit Ratio (LDR). LDR is used to measure liquidity of bank by dividing total loans with third parties' funds. The greater the ratio, the lower the bank

liquidity, because funds needed to finance loan become bigger and bigger (Dendawijaya, 2003 in Tondoprasetyo, 2005:16).

Based on the regulation, **Sensitivity** to market risk factor encompasses rating of the following components: (a) Capacity of bank capital for covering potential loss from adverse movement in interest rates and exchange rates; (b) Adequacy of application of market risk management. However due to the limitation in gaining information, Sensitivity to market risk is measured using another formula instead of the formulas based on regulation. Since the samples consist of commercial banks, the sensitivity to market risk will refer to the sensitivity of interest rates that can be measured using Interest Sensitivity Ratio (ISR). Hempel and Simonson (1999:82) argued that ISR reflects the risk bank is willing to take that it can predict the future direction of interest rates. If a bank has a ratio above 1.0, the bank's returns will be lower if interest rates decline, and higher if they increase. Given the difficulty of predicting interest rates, some banks conclude that they can minimize interest rate risk with an interest sensitivity ratio close to 1.0. Further, Kuncoro and Suhardjono (2002: 289-290) stated that assets affected by interest fluctuation are earning assets consist of interbank placements, securities held, and loan; whereas types of liabilities affected by interest are third parties' fund, securities issued, and borrowings. Type of loan with floating interest rate is working capital loan. Sutojo (1997:220) stated that interest rate for working capital loan is determined using floating rate of interest which interest rate is agreed by both parties, observed and adjusted periodically based on interest rate in money market. However, due to the limitation in gaining information about the proportion of working capital loans in total loans, assumption is used to calculate working capital loans based on loan approval of commercial banks by group of banks and type of loans (www.bi.go.id) which is approximately 50% of total loans.

Market Response

Ball and Brown in 1968 were known as the first to provide convincing scientific evidence that firm's share returns respond to the information content of financial statements (Scott, 2009:149). Nowadays, this type of research is called an event study, since it studies the securities market reaction to a specific event, in this case a firm's release of its current net income. Further, regarding the investigation of the magnitude of unexpected earnings related to the magnitude of the security market response, Beaver, et al., (1979) found that the greater the change in

unexpected earnings, the greater the security market response. When the larger unexpected earnings changes are, more investors, on average, will revise their estimation of future of the firm performance and resulting returns from their investments, while other things being equal. Therefore, the ultimate outcome of research above is concept of Earnings Response Coefficients (ERC) that will be useful in explaining phenomenon regarding the relationship between unexpected earnings with the security market response.

Earnings Response Coefficients (ERC)

An earnings response coefficient measures the extent of security's abnormal market return in response to the unexpected component of reported earnings of the firm issuing that security (Scott, 2009:154-159). The riskier the sequence of firm's future expected returns, the lower will be its value to a risk-averse investor, when other things being equal. For a diversified investor, the relevant risk measure of a security is its beta. Since investors look to current earnings as an indicator of future firm performance and share returns, the riskier these future returns are the lower investors' reactions to a given amount of unexpected earnings will be. Empirical evidence of a lower ERC for higher-beta securities was found by Collins and Kothari (1989) and Easton Zmijewski (1989). For highly levered firms, an increase in earnings (before interest) adds strength and safety to bonds and other outstanding debt so that much of good news (GN) in earnings goes to the debt-holders rather than shareholder. Thus, the ERC for a highly levered firm should be lower than that on a firm with little or no debt, other things equal. Dhaliwal, Lee, and Fargher (1991) reported empirical evidence of a lower ERC for more highly levered firms.

Different investors will have different expectations of firm's next-period earnings, depending on their prior information and the extent of their abilities to evaluate financial statement information. These differences will be reduced to the extent that they draw on common information source, such as analysts' consensus forecasts, when forming their expectations. Empirical investigation held by Abarnell et al. (1995) provided an analysis of conditions under which the ERC is increasing in the precision of analysts' earnings forecast and how this precision is affected by factors such as the number of analysts forecasting the firm. The more informative price is, the less information content of current accounting earnings will be, when other things equal, hence the lower ERC will be. The empirical investigation regarding this

negative relationship have been done by Easton and Zmijewski (1989) and also Collins and Kothari (1989).

Previous Research Results

CAEL Ratios Lead to The Existence of Discretionary Allowance

As cited by Deschenes (2008), research done by Kim and Kross (1998), Ahmad, et al. (1999), and Shrieves and Dahl (2003) found that engaging in accounting information management to calculate regulatory capitalization is more significant in banks that showing a low ratio. The rationale behind is financial institutions that maintain the required regulatory capital ratio by a healthy margin appear safer. These institutions also pay lower insurance premiums and also are under less scrutiny from regulatory agencies. They are also less restricted in business development. Being aware of these advantages, financial institution managers may want to artificially increase this ratio by managing accounting numbers. Similarly, Setiawati and Na'im (2001) found that discretionary accrual of bank whose healthy scores decrease is higher than discretionary accrual of bank whose healthy scores do not decrease.

The Market Response to the Existence of Discretionary Accruals

Beatty et al. (2002) have hypothesis that managers of public banks are under more pressure to practice earnings managements using the discretionary accruals than their counterparts in private bank; because according to Barth et al. (1999), investors have a tendency to penalize heavily public corporations that fall short of analysts' expectations by reducing sharply stock prices. Based on sample of American banks, they revealed that compared to private banks, public banks were more likely to smooth earnings in order to show a constant upward slope over many fiscal years. Moreover, Choi and Sohn (2006) found that the stock prices of banks with higher disclosure score respond less negatively (positively) to the non-discretionary (discretionary) allowance than do those of banks with lower disclosure scores. Thus, public disclosures have a governance effect on bank manager's discretion and reduce the market reactions to that discretion.

The Relationship of Banks Health Level, Discretionary Accruals, and Market Response

Wahlen (1994) found that a key component of bank stock valuation is on the assessment of default risk inherent in loan portfolio in which related with disclosures of the differences of

non-performing loans across period, loan loss provision, and loan charge-off. Further, annual returns and earning announcement date stock price reactions confirm that investors interpret discretionary components of unexpected provisions as "good news" about future changes in cash flow even though provisions itself are measures of expected losses that reduce current earnings, thus, this result is consistent with signaling and financial reporting literature.

Similarly, Bhat (1996) found that small banks with high risk and poor financial condition tend to practice income smoothing using the discretionary accruals. Liu et al. (1997) also arrive into similar finding. They found that increased discretionary loan loss provision is associated with steps being taken by bank manager to resolve loan default problems. The increasing that perceived in fourth quarter is predicted as the impact of the audit existence. Thus, the increasing of discretionary loan loss provision is perceived as GN (positively related to stock market reaction and future cash flow) only for at risk banks in the fourth quarter. Rahmawati (2006) found similar finding showed that banks which exercise decreasing of health level will increase the total allowance for losses on earning assets. Further, result of examination of market reaction show the relationship between discretionary accruals, non-discretionary accruals, and operating cash flow with cumulative abnormal returns have the character of three rank non-linier.

Research Hypothesis and Model

Based on the above explanation, research hypothesis can be stated as follow:

H_1: Capital ratio (capital adequacy ratio) has impact towards discretionary accruals.

H_{2a}: Asset quality ratio (classified earning assets to earning assets ratio) has impact towards discretionary accruals.

H_{2b}: Asset quality ratio (established allowance for earning assets losses to compulsory allowance for earning assets losses ratio) has impact towards discretionary accruals.

H_{3a}: Earnings ratio (return on asset) has impact towards discretionary accruals.

H_{3b}: Earnings ratio (return on equity) has impact towards discretionary accruals.

H_{3c}: Earnings ratio (operating ratio) has impact towards discretionary accruals.

H_4: Liquidity ratio (loan to deposits ratio) has impact towards discretionary accruals.

H_5: Sensitivity to market risk ratio (interest sensitivity ratio) has impact towards discretionary accruals.

H_6: Capital ratio (capital adequacy ratio) has impact towards earnings response coefficient.

H_{7a}: Asset quality ratio (classified earning assets to earning assets ratio) has impact towards earnings response coefficient.

H_{7b}: Asset quality ratio (established allowance for earning assets losses to compulsory allowance for earning assets losses ratio) has impact towards earnings response coefficient.

H_{8a}: Earnings ratio (return on asset) has impact towards earnings response coefficient.

H_{8b}: Earnings ratio (return on equity) has impact towards earnings response coefficient.

H_{8c}: Earnings ratio (operating ratio) has impact towards earnings response coefficient.

H_9: Liquidity ratio (loan to deposits ratio) towards earnings response coefficient.

H_{10}: Sensitivity to market risk ratio (interest sensitivity ratio) has impact towards earnings response coefficient.

H_{11}: Discretionary accrual has impact towards earnings response coefficient.

H_{12a}: Capital adequacy ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12b}: Classified earning assets to earning assets ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12c}: Established allowance for earning assets losses to compulsory allowance for earning assets losses ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12d}: Return on asset has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12e}: Return on equity has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12f}: Operating ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12g}: Loan to deposits ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

H_{12h}: Interest sensitivity ratio has impact towards earnings response coefficient through the existence of discretionary accruals.

Conceptual Framework

Figure 1: Conceptual Framework
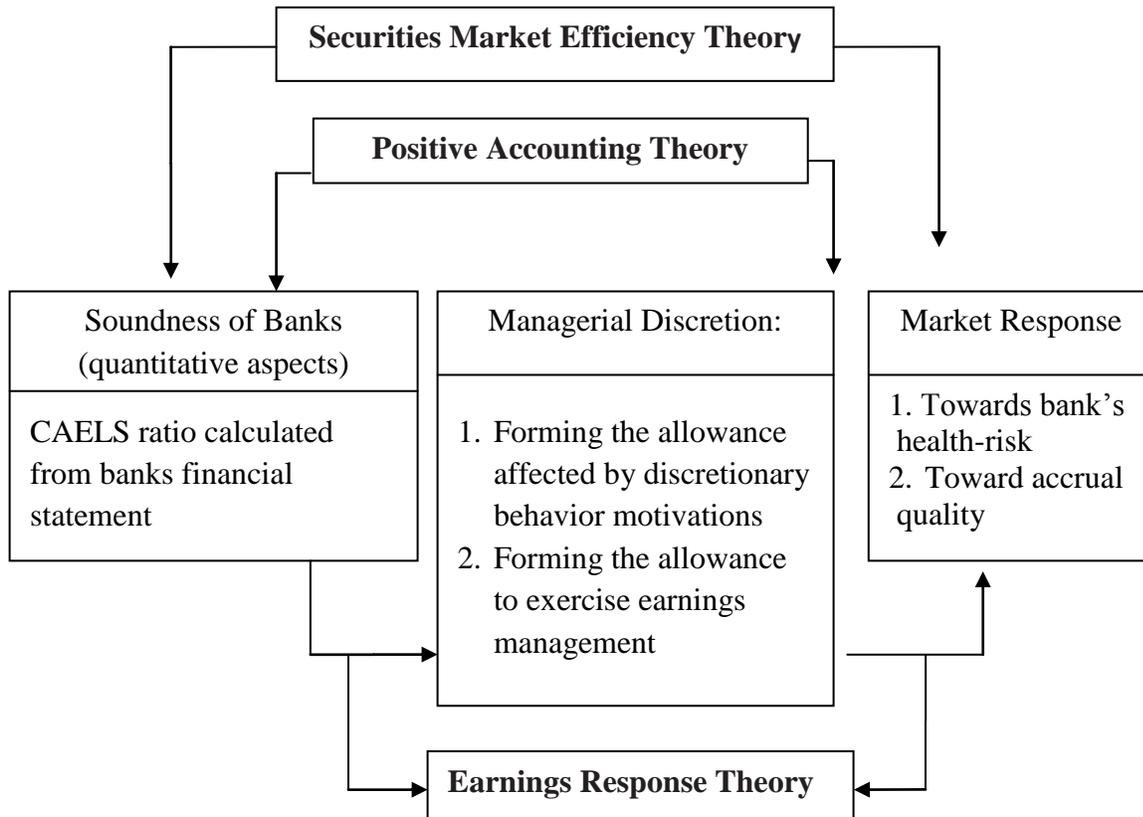
Research Model

Since the aim of this research is to proof the existence of direct and indirect relationship between each of CAELS ratio (as the representation of soundness of banks) with ERC (as the representation of market response) in which indirect relationship may possible through the existence of discretionary allowance for losses on earning assets, then, the using of path analysis is considerable. The regressions that will be analyzed through path analysis are as follow:

$$Y = \rho_{yx1}x_1 + \rho_{yx2}x_2 + \rho_{yx3}x_3 + \rho_{yx4}x_4 + \rho_{yx5}x_5 + \rho_{yx6}x_6 + \rho_{yx7}x_7 + \rho_{yx8}x_8 + \rho_y\varepsilon_1$$

$$Z = \rho_{zx1}x + \rho_{zx2}x_2 + \rho_{zx3}x_3 + \rho_{zx4}x_4 + \rho_{zx5}x_5 + \rho_{zx6}x_6 + \rho_{z7}x_7 + \rho_{zx8}x_8 + \rho_{zy}y + \rho_z\varepsilon_2$$

Which:

Y = discretionary accruals in forming allowance for losses on earnings assets (DA)
Z = earning response coefficient (ERC)
X_1 = capital adequacy ratio (CAR)
X_2 = classified earnings assets to earnings assets (CEA to EA)
X_3 = established allowance for earning assets losses to compulsory allowance for earning assets losses (EALL to CALL)
X_4 = return on assets (ROA)

X_5 = return on equity (ROE)
X_6 = operating ratio (OR)
X_7 = loan to deposit ratio (LDR)
X_8 = interest sensitivity ratio (ISR)
ρ_{yx1}- ρ_{yx8} = path coefficient of first substructure
ρ_{zx1}- ρ_{zy} = path coefficient of second substructure
ε_1 = epsilon of first substructure
ε_2 = epsilon of second substructure

Operational Definition

Dependent variable in this research is market response which is being measured by Earnings Response Coefficient (ERC). To calculate ERC, this research refers to Kartikasari and Setiawan (2008) who used Firm Specific Coefficient Methodology (FSCM) approach and daily-market adjusted model. Under that model, ERC is obviously beta of regression between Cumulative Abnormal Return (CAR) and Unexpected Earnings (UE). Since this research applies event study in the earnings announcement through the issuing of annual financial statements, then, event window needs to be determined. This research use 11 days as event window, thus, CAR will be the result of cumulative abnormal return from t-5 day until t+5 from the date of the issuing of annual financial statement. According to market adjusted model, the calculation of expected return is the same as the calculation of market return. The steps for calculating ERC are as follow:

Figure 2.1. Research Model

Independent Variables	Intervening Variable	Dependent Variable

CAPITAL RATIO

Capital Adequacy Ratio (X_1)

ASSET QUALITY RATIO

Classified Earning Assets to Earning Assets (X_2)

Established Allowance for Earning Assets Losses to Compulsory Allowance for Earning Assets Losses ratio (X_3)

EARNINGS RATIO

Return on Assets (X_4)

Return on Equity (X_5)

Operating Ratio (X_6)

LIQUIDITY RATIO

Loan to Deposits Ratio (X_7)

SENSITIVITY TO MARKET RISK RATIO

Interest Sensitivity Ratio (X_8)

Earnings Response Coefficient (Z)

Discretionary Accruals (Y)

1. The Calculation of CAR

Cumulative abnormal return is the cumulative difference of actual return with expected return (market return) during event window. Thus, the calculations are as follow:

Actual Return: $R_{it} = \frac{(P_t) - (P_{t-1})}{P_{t-1}}$ ....(1)

Which:
R_{it} = actual return of company$_i$ at day$_t$ P_t = share price of company$_i$ at day$_t$
P_{t-1} = share price of company$_i$ at day$_{t-1}$

Expected Return: $R_{mt} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$ ....(2)

Which:

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R_{mt} = market return $IHSG_t$ = composite index at day_t
$IHSG_{t-1}$ = composite index at day_{t-1}

Abnormal Return: $AR_{it} = R_{it} - R_{mt}$...(3)

Thus, **Cumulative Abnormal Return:** $CAR_{i(t-5,t+5)} = \sum_{t-5}^{t+5} AR_{i,t}$................................(4)

2. The Calculation of UE

Unexpected earning is the differences between actual earnings with expected earnings. Assuming that investors derived their earning expectation based on earnings in previous period, then, unexpected earnings calculated as following:

$$UE_{i,t} = \frac{E_{i,t} - E_{i,t,t-1}}{[E_{i,t-1}]}$$...(5)

Which:

UE_{it} = unexpected earnings of $company_i$ at $period_t$
E_{it} = earnings of $company_i$ at $period_t$ E_{it-1} = earnings of $company_i$ at $period_{t-1}$

Since CAR is in term of share, then earnings also calculated in term of share, then, Earnings per Share (EPS) is used.

3. The Calculation of ERC

As stated above, ERC is beta coefficient of regression between $CAR_{i(t-5,t+5)}$ and $UE_{i,t}$, therefore the regression is following:

$CAR_{i(t-5,t+5)} = \alpha + \beta UE_{i,t} + e$...(6)

Intervening variable in this model is managerial discretion in forming allowance for losses on earnings assets which measures by discretionary accruals. The model to calculate discretionary accruals refers to Rahmawati (2007) and also accordance to Circular Letter number 6/23/DPNP on May 31, 2004 concerning commercial banks rating and Bank Indonesia Regulation Number 7/2/PBI/2005 concerning Asset Quality of Commercial banks. The steps of calculation are as follows:

Total accruals consists of non-discretionary and discretionary portion, then, it can be stated mathemalically:

ALLit = NALLit + DALLit…………………………………………………….................................(7)

Which:

ALLit = total accruals of $company_i$ at $period_t$ (total allowance for losses on earnings assets)
NALLit = non-discretionary accruals of $company_i$ at $period_t$ (non-discretionary portion of total allowance)

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DALLit = discretionary accrual of company$_i$ at period$_t$ (discretionary portion of total allowance)

Then, the regression between the total accruals with the explanatory variables (the source of default risk) is needed because NALL cannot be directly observed (to find NALL, later on, the fitted coefficient from the regression of total accruals with explanatory variables will be used in equation (9)).

$$ALL_{it} = \gamma_0 + \gamma_1 CO_{it} + \gamma_2 LOAN_{it} + \gamma_3 NPA_{it} + \gamma_4 \Delta NPA_{it+1} + z_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(8)$$

$(z_{it} = DALL_{it} + u_{it})$

Which:

COit   = net loan charge-offs of company$_i$ at period$_t$ (gross charge-off less recoveries of previously written-off accounts)

LOANit = outstanding loans of company$_i$ at period$_t$

NPA$_{it}$ = non-performing assets of company$_i$ at period$_t$ (it consists of earning assets which classified as substandard, doubtful, and loss)

ΔNPA_{it+1} = one-period-ahead change in nonperforming assets of company$_i$

u_{it} = error of regression (8)

As stated, because NALL cannot be directly observed, then, NALL is calculated by using fitted coefficient from second regression above, the mathematical calculation as follow:

$$NALL_{it} = \gamma_{0'} + \gamma_{1'} CO_{it} + \gamma_{2'} LOAN_{it} + \gamma_{3'} NPA_{it} + \gamma_{4'} \Delta NPA_{it+1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(9)$$

Which: $\gamma_{0'}, \gamma_{1'}, \gamma_{2'}, \gamma_{3,} \gamma_{4'}$ = fitted coefficients

Finally, discretionary accruals simply is the difference between total accruals with non-discretionary accruals with mathematical calculation as follow:

$$DALLit = ALLit - NALLit \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(10)$$

As general notes, all variables need to be deflated by gross book value first before being used in calculation.

Independent variables in this research are the indicator of the soundness of banks that measured by CAELS ratios. To choose and calculate these ratios, this research refers to Circular Letter number 6/23/DPNP on May 31, 2004 concerning commercial banks rating and Setiawati and Na'im (2001).

The ratios calculations are as follow:

1. (X$_1$) = Capital Adequacy Ratio (CAR)

    CAR measures bank's capital adequacy to support assets containing risks.

$$\text{Capital Adequacy Ratio} = \frac{\text{Capital}}{\text{Risk Weighted Assets}} \qquad (11)$$

2. (X_2) = Classified Earning Assets to Earning Assets Ratio (CEA to EA)

    It measures earning asset quality by comparing classified earning assets to total earning assets.

$$\text{Classified Earning Asset to Earning Assets} = \frac{\text{Classified earning assets}}{\text{Earning assets}} \qquad (12)$$

3. (X_3) = Established Allowance for Earning Assets Losses to Compulsory Allowance for Earning Assets Losses Ratio (EALL to CALL)

    It measures the adequacy of allowance for losses on earnings assets.

$$\text{EALL to CALL} = \frac{\text{Established Allowance}}{\text{Compulsory Allowance}} \qquad (13)$$

4. (X_4) = Return on Asset

    It is used to measure the ability of bank's management in obtaining profit (earnings before tax) generating from average total assets.

$$\text{Return on Asset} = \frac{\text{Earnings before tax}}{\text{Average total assets}} \qquad (14)$$

5. $(X_{5.})$ = Return on Equity

    It is used to measure management performance in maintaining equity to generate profit (earnings after tax).

$$\text{Return on Equity} = \frac{\text{Earnings after tax}}{\text{Average core capital}} \qquad (15)$$

6. $(X_{6.})$ = Operating Ratio

    It is used to measured efficiency rate and the ability of bank in doing operating activities.

$$\text{Operating Ratio} = \frac{\text{Total operating expense}}{\text{Total operating revenue}} \qquad (16)$$

7. (X_7) = Loan to Deposit Ratio

    It measures liquidity of bank by dividing total loans with third parties' funds.

$$\text{Loan to Deposits Ratio} = \frac{\text{Loans}}{\text{Third parties' funds}} \qquad (17)$$

8. (X_8) = Interest Sensitivity Ratio (ISR)

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It reflects bank's management in maintaining gap between interest rate sensitive assets and interest rate sensitive liabilities.

$$\mathrm{Interest\,Sensitivity\,Ratio} = \frac{\mathrm{Interest\,rate\,sensitive\,assets}}{\mathrm{Interest\,rate\,sensitive\,liabilities}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(18)$$

Type and Source of Data

Data used in this research are secondary data from the following sources:

1. In calculating CAELS ratios and discretionary accruals, each company's financial statement is used.

2. In calculating ERC, the closing price of each company's stock, composite index, and the date of the issuing of company's financial statement are used.

All data are gathered from the Bank Indonesia's directory, the Indonesia Stock Exchange (IDX), and each company's website. Data are collected by making quotation and reduplicating data from the sources including Bank Indonesia's regulations, banks' general overview and banks' financial statements.

Population and Sampling

Population of this research is banking companies listed in the Indonesian Stock Exchange for year 2005-2008. Using the following criteria, population target can be considered:

1. Company is a banking company listed in the Indonesian Stock Exchange for year 2004 until 2008.

2. Company has complete data as needed.

3. Company is not exercise merger or other corporate actions.

Based on above criteria, seventeen banking companies are resulted, and all these 17 banking companies were taken as sample. Since the research period across four years, then, there will be 68 observations in this research. The research period is determined as above in order to arrive into the same regulation basis according asset quality and commercial banks ratings.

Data Analysis Technique

Steps that would be done to examine research analysis are following:

1. Calculate endogenous, intervening, and exogenous variables according to calculation procedures as stated in operational definition above.

2. Develop the conceptual framework along with research model so that the explanation regarding the research concept along with variable relationship as the basis to state the hypothesis can be clearly documented.

3. Do statistical procedure in testing the stated hypothesis.

   Since this research use path analysis, then the first procedure is to ensure that the assumptions in path model are already fulfilled; those assumptions along with its criteria are:

   a. The relationship among variables is linier, adaptive, and normal (pass normality test).

   b. The model should be a recursive model in which there is no reciprocal relationship among variables (one way causality relationship), no serial correlation (pass the non-autocorrelation test), and no un-similar variance of residual of one observation to another observation (pass the non-heteroskedasticity test)

   c. The scale of endogenous variable is interval / ratio.

   d. Observed variables are measured by valid and reliable instruments.

   e. Structural model is developed based on relevance and reliable theories.

   f. All regressions in substructure are fulfill classic linear regression assumption testing

   After the assumptions are fulfilled, then, the parameters are predicted. Further, there will be the direct relationship parameter (ρ_{ziyi} and ρ_{zixi}) and indirect relationship parameter as the result of (ρ_{yxi} x ρ_{ziyi}). When the parameters already predicted, then the path analysis to test the hypothesis can be conducted. The validity indicators in path analysis that will be used in this research are coefficients of the total determination (R^2m) and trimming theory.

General Review of Sample Banks

   Total banks listed in Indonesian Stock Exchange per December 2008 are 28 banks. Based on the criteria for sampling method, total sample banks are17 banks as stated on table 1

Table 1: Sample List

No.	Name of Banks	Code of Emiten
1.	Bank Bumiputera	BABP
2.	Bank Central Asia	BBCA
3.	Bank Danamon	BDMN
4.	Bank Eksekutif Internasional	BEKS
5.	Bank Internasional Indonesia	BNII

6.	Bank Kesawan	BKSW
7.	Bank Mandiri	BMRI
8.	Bank Mayapada	MAYA
9.	Bank Mega	MEGA
10.	Bank Nasional Indonesia	BBNI
11.	Bank OCBC NISP	NISP
12.	Bank Nusantara Parahyangan	BBNP
13.	Bank Permata	BNLI
14.	Bank Pan Indonesia	PNBN
15.	Bank Rakyat Indonesia	BBRI
16.	Bank Swadesi	BSWD
17.	Bank Victoria Internasional	BVIC

Source: Appendix

Model Analysis

Since the objective of this research is to investigate the possibility of the existence of relationship between the soundness of the banks (represented by the CAELS ratios) and the market response (represented by earnings response coefficients) either directly or indirectly (through the existence of managerial discretion in establishing the allowance for earning assets losses which represented by discretionary accruals), then, the path analysis will be used as the pattern of data analysis.

As stated in previously, the first procedure that must be done in conducting the path analysis is to ensure that the assumptions in path model have already fulfilled. Basically, the results of assumption test met with the requirements, it can be seen in the appendix. Having completed with the assumption test, path analysis and hypotheses testing can be conducted.

Hypothesis Testing

There are two groups of hypothesis that will be tested in this section. The first group consists of hypothesis regarding the possibility of the existence of a direct impact of:

1. Each of CAELS ratios towards discretionary accruals (which referred to hypothesis 1 to hypothesis 5)

2. Each of CAELS ratios and discretionary accruals towards earnings response coefficients (which referred to hypothesis 6 to hypothesis 11)

The second group consists of hypothesis regarding the possibility of the existence of an indirect impact of each of CAELS ratios towards earnings response coefficient through the existence of discretionary accruals (which referred to hypothesis 12_a to hypothesis 12_h)

Based on the result's summary of path analysis above, then, the hypothesis-test results are as follow:

1. Hypothesis of the existence of a direct impact of each of CAELS ratios towards discretionary accruals (which referred to hypothesis 1 to hypothesis 5).

    Referring to table 2 below, CAR, EALL to CALL, and ROE are accepted since only those variables each has the significance value below α = 5 %, while CEA to EA, ROA, OR, LDR, and ISR are rejected since each of the significance value of is above α = 5 %. It means only CAR, EALL to CALL, and ROE that has impact towards discretionary accruals while CEA to EA, ROA, OR, LDR, and ISR has not.

Table 2: The Result of Path Analysis (First Substructure)

Paths	Path Coefficients	Significance Value
CAR (X_1) → DA (Y)	0.308	0.001
CEA to EA (X_2) → DA (Y)	0.040	0.615
EALL to CALL (X_3) → DA (Y)	0.282	0.002
ROA (X_4) → DA (Y)	0.110	0.203
ROE (X_5) → DA (Y)	0.513	0.000
OR (X_6) → DA (Y)	0.072	0.458
LDR (X_7) →DA (Y)	-0.068	0.413
ISR (X_8) → DA (Y)	0.023	0.783

2. Hypothesis regarding the possibility of the existence of a direct impact of each of CAELS ratios and discretionary accruals towards earnings response coefficients (which referred to hypothesis 6 to hypothesis 11).

Table 3: The Result of Path Analysis (Second Substructure)

Paths	Path Coefficients	Significance Value
CAR (X_1) → ERC (Z)	0.150	0.238
CEA to EA (X_2) → ERC (Z)	-0.271	0.012
EALL to CALL (X_3) → ERC (Z)	0.132	0.288
ROA (X_4) → ERC (Z)	-0.106	0.359
ROE (X_5) → ERC (Z)	-0.132	0.411
OR (X_6) → ERC (Z)	-0.125	0.333
LDR (X_7) → ERC (Z)	0.139	0.214
ISR (X_8) → ERC (Z)	0.065	0.557
DA (Y) → ERC (Z)	-0.516	0.004

Referring to table 3, only CEA to EA and DA are accepted since only that each has the significance value below $\alpha = 5\%$, meanwhile CAR, EALL to CALL, ROA, ROE, OR, LDR, and ISR are rejected, since each of the significance value of is above $\alpha = 5\%$, then, It means only CEA to EA and DA that has impact towards earnings response coefficients while CAR, EALL to CALL, ROA, ROE, OR, LDR, and ISR has not.

3. Hypothesis regarding the possibility of the existence of indirect impact of each of CAELS ratios towards earnings response coefficient through the existence of discretionary accruals (which referred to hypothesis 12_a to hypothesis 12_h)

As stated previously to investigate the existence of an indirect impact between each of CAELS ratios towards earnings response coefficient through the existence of discretionary accruals, then, the comparison between the direct impact (ρ_{zixi}) and the indirect impact (ρ_{yxi} x ρ_{ziyi}) is needed.

Table 4: The Comparison between Direct and Indirect Relationship

Variables	Direct relationship (ρ_{zixi})	Indirect relationship (ρ_{yxi} x ρ_{ziyi})
CAR (X_1)	0.150	-0.159
CEA to EA (X_2)	-0.271	-0.021
EALL to CALL (X_3)	0.132	-0.145
ROA (X_4)	-0.106	-0.057
ROE (X_5)	-0.132	-0.264
OR (X_6)	-0.125	-0.037
LDR (X_7)	0.139	0.035
ISR (X_8)	0.065	-0.012

Referring to the table 4, then, only Ho of hypothesis 12a, c, and e which is rejected, therefore, Ha of those hypotheses is accepted since only CAR, EALL to CALL, and ROE that each has an indirect impact towards earnings response coefficients which is greater than its direct impact. Since each of a direct impact of CEA to EA, ROA, OR, LDR, and ISR towards ERC is greater than its indirect impact, then, Ho of hypothesis 12b, d, f, g, h is not rejected, therefore, Ha of those hypothesis is rejected. It means only CAR, EALL to CALL, and ROE that has impact towards the earnings response coefficients through the existence of discretionary accruals while CEA to EA, ROA, OR, LDR, and ISR has not.

Figure 23: The Path Substructures
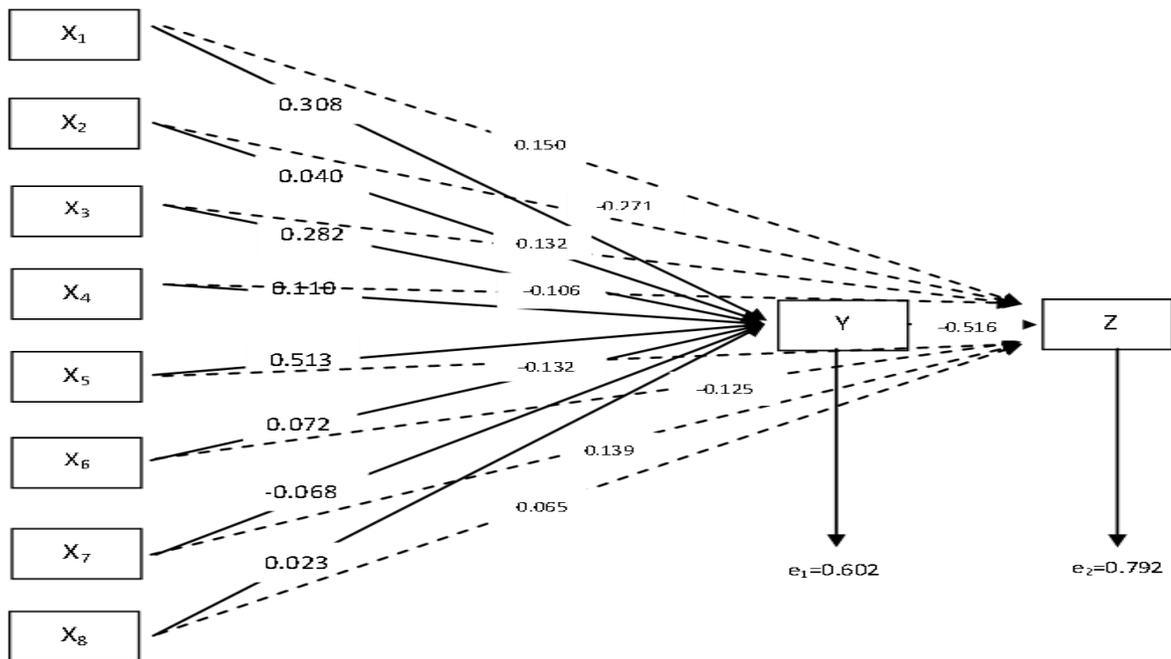
The Validity of Model

As stated previously, after the hypothesis testing, then, the validity of model is stated. Two indicators of the model's validity are following:

1. Coefficient of Total Determination

Based on the above results summary of path analysis and referring to the complete appendix, then, the equation of both substructures are following:

First substructure equation:

$Y = \rho_{yx1} x_1 + \rho_{yx2} x_2 + \rho_{yx3} x_3 + \rho_{yx4} x_4 + \rho_{yx5} x_5 + \rho_{yx6} x_6 + \rho_{yx7} x_7 + \rho_{yx8} x_{8+} \rho_y$

e_1..(1)

$R^2 = 0.638$; $e_1 = \sqrt{1 - 0.638} = 0.602$

Therefore, the complete equation:

$Y = 0.308\ X_1 + 0.040\ X_2 + 0.282\ X_3 + 0.110\ X_4 + 0.513\ X_5 + 0.072\ X_6 - 0.068\ X_7 +$

$0.023\ X_8 + 0.602$..(2)

Second substructure equation:

$Z = \rho_{zx1}\ X_1 + \rho_{zx2}\ X_2 + \rho_{zx3}\ X_3 + \rho_{zx4}\ X_4 + \rho_{zx5}\ X_5 + \rho_{zx6}\ X_6 + \rho_{z7}\ X_7 + \rho_{zx8}\ X_8 + \rho_{zy}\ y +$

$\rho_z e_2$..(3)

$R^2 = 0.373$; $e_2 = \sqrt{1 - 0.373} = 0.792$

Therefore, the complete equation:

$Z = 0.150\ X_1 - 0.271\ X_2 + 0.132\ X_3 - 0.106\ X_4 - 0.132\ X_5 - 0.125\ X_6 + 0.139\ X_7 + 0.065$

$X_8 - 0.516\ Y + 0.792$...(4)

The coefficient of total determination shows the total variance which can be explained through the established model. The formula to determine that total variance:

$R^2 m = 1 - (Pe1^2 x Pe2^2)$...(5)

Thus, the coefficient of total determination can be calculated as following:

$R^2 m = 1 - (Pe1^2 x Pe2^2)$

$= 1 - (0.602^2 x 0.792^2)$

$= 0.773$

The coefficient of total determination value informs that the total variance which can be explained through the path model is 77.3%. In another word, the model contains 77.3% of information while 22.7% of information is referred to other variables (which are not exist in the model) and error.

2. Trimming Theory

Based on the trimming theory, the significant paths are reconfirmed so that the model which supported by the empirical data as the research result can be known.

Referring to the result of hypothesis testing, then, the significant paths are referred to each of an indirect impact of CAR, EALL to CALL, and ROE towards earnings response coefficients through the existence of discretional accruals.

Result Discussion

According to the hypothesis-test result, then, the discussion in this section will consist of three parts as following:

1. The possibility of the existence of a direct impact of each of CAELS ratios towards discretionary accruals.

   As the result of hypothesis-test, only CAR, EALL to CALL, and ROE which have significance impact towards discretionary accruals. Referring to the research done by Rahmawati (2006), the balance of allowance for earnings asset losses is established for regulatory purpose also (to fulfill capital adequacy through increasing the complementary capital and established allowance adequacy). Thus, the result is partially positive relationship between CAR and EALL to CALL with discretionary accruals becomes plausible since the higher the adequacy level (both in capital requirement and allowance for earnings assets losses), then, the higher allowance for earning assets losses is needed which means the higher discretionary accruals will occur.

   Referring to Rose and Hudgins (2005) and Kuncoro and Suhardjono (2002), the higher ROE can indicate the occurrence of capital risk through the existence of equity multiplier beside the higher return may follow by the higher risk also. Therefore, the positive relationship between ROE and discretionary accruals is plausible since the higher ROE can lead to the higher established allowance as the step to overcome all the risk that may occur according to both capital risk and risk that follow the return. The higher established allowance also means the higher discretionary accruals.

   The result of hypothesis-test, CEA to EA, ROA, OR, LDR, and ISR, partially has no impact towards the discretionary accruals. In practical, the associated risks caused by the level of CEA to EA, ROA, OR, LDR, and ISR can be handled by other alternatives instead of exercising discretionary accruals in forming allowance for earning assets losses. The associated risk of high CEA to EA level can be overcome by loan restructuring which could prevent classified earning assets become non-performing assets while associated risk of ROA, OR, LDR, and ISR level can be overcome by exercising due care manner in managing earnings assets-portfolio.

2. The possibility of the existence of a direct impact of each of CAELS ratios and discretionary accruals towards earnings response coefficients

   The result of hypothesis-test shows only CEA to EA and DA which partially has significant impact towards ERC. Referring to Pasiouras et al. (2006) and Rinaldy (2008), bad asset quality

may have a negative impact on bank profitability, by reducing interest income and by increasing the provisioning costs thus decreasing net profits. Therefore, not surprisingly, analysts put particular emphasis on the examination of bank's asset quality. According to the negative relationship between CEA to EA level and ERC value, since the lower CEA to EA level indicate the lower risk of earnings assets, then, it will lead to the stronger market response because that condition indicate the lower risk which associated with future earnings. This result is congruence with the theory as stated in Scott (2009) which showed that the risk level of return has the negative relationship with the market reactions to a given amount of unexpected earnings will be.

Regarding the negative relationship between DA and ERC, according to Scott (2009), the higher discretionary accruals indicate the lower accrual quality that in return will be lowering the earning quality. The lower earning quality will be lowering the market response, hence, lowering the ERC value. This research result is not accordance with previous result research which stated that the market perceived the discretionary accruals. The difference result may exist since this research do not classify the sample either as risk or no risk banks beside this research also not take account the existence of non-discretionary accruals in finding the impact of discretionary accruals towards earnings response coefficients as the previous research did.

Referring to the result of hypothesis-test, CAR, EALL to CALL, ROA, ROE, OR, LDR, and ISR partially has no impact towards ERC. Since the adequacy level of capital is well regulated, then, it becomes insignificantly affecting the market response. According to the result description, in average, the sample banks has EALL to CALL around one that can be interpreted as adequate enough, therefore, the market does not response it significantly. Regarding ROA, ROE, OR, and LDR, the result shows their value year by year during research period showed them in relatively steady condition; therefore the significance market response has not found. In average, the ISR of sample which its value is nearly to one, indicate that the earnings is not strongly affected by the fluctuation of interest rate, thus, market does not response it significantly.

3. The possibility of the existence of indirect impact of each of CAELS ratios towards earnings response coefficient through the existence of discretionary accruals

According to the result of hypothesis-test, partially, only CAR, EALL to CALL, and ROE which has an indirect impact that greater than its direct impact towards ERC. Partially, CAR,

EALL to CALL, and ROE has impact towards DA with positive relationship while DA has impact towards ERC with negative relationship, therefore, CAR, EALL to CALL, and ROE becomes has impact towards ERC with negative relationship through the existence of DA. Since CAR, EALL to CALL, and ROE is increasing the DA level which means lowering the earning quality, then, the market response it weaker when it becomes higher (vice versa). Thus, the negative relationship which exists becomes plausible.

According the other variables which has no impact towards ERC through the existence of DA; ROA, OR, LDR, and ISR has no impact towards both DA and ERC, thus, it has no impact towards ERC even with the existence of DA while CEA to EA has impact towards ERC without the existence of DA which means that it has a direct impact towards ERC.

5.1. Conclusion

1. The objective of this research is to investigate the existence of the banks soundness impact towards the market response (either directly or indirectly through the existence of managerial discretion in forming allowance for earnings asset losses) using banking companies listed in Indonesian Stock Exchange for year 2005-2008 as the sample. The coefficient of total determination is 77.3 %; it means it informs that the total variance which can be explained through the path model is 77.3%, and the rest is referred to other variables (which not exist in the model) and error.

2. The research results are:

   a. The direct impact towards the discretionary accruals:

   Only Capital Adequacy Ratio (CAR) as the proxy of Capital, Established Allowance for Earnings Asset Losses to Compulsory Allowance for Earnings Asset Losses (EALL to CALL) as one of the proxy of asset quality, and Return on Equity (ROE) as one of the proxy of earnings which has a direct impact towards the discretionary accruals. Each of them has the positive relationship with the discretionary accruals. For the other variables; Classified Earnings Asset to Earnings Assets (CEA to EA) as another proxy of asset quality, Return on Assets (ROA) and Operating Ratio (OR) as the other proxies of earnings, Loan to Deposit Ratio (LDR) as the proxy of liquidity, and Interest Sensitivity Ratio (ISR) as the proxy of sensitivity to market risk has no impact towards the discretionary accruals.

   b. The direct impact towards the earnings response coefficients:

Only Classified Earnings Asset to Earnings Assets (CEA to EA) as one of the proxy of asset quality and Discretionary Accruals (DA) as the proxy of managerial discretion has a direct impact towards the earnings response coefficients. Each of them has the negative relationship with the earnings response coefficients. For the other variables; Capital Adequacy Ratio (CAR) as the proxy of Capital, Established Allowance for Earnings Asset Losses to Compulsory Allowance for Earnings Asset Losses (EALL to CALL) as another proxy of asset quality, Return on Equity (ROE), Return on Assets (ROA), and Operating Ratio (OR) as the proxies of earnings, Loan to Deposit Ratio (LDR) as the proxy of liquidity, and Interest Sensitivity Ratio (ISR) as the proxy of sensitivity to market risk has no impact towards the earnings response coefficients.

c. The indirect impact towards the earnings response coefficients through the existence of the discretionary accruals:

Only Capital Adequacy Ratio (CAR) as the proxy of Capital, Established Allowance for Earnings Asset Losses to Compulsory Allowance for Earnings Asset Losses (EALL to CALL) as one of the proxy of asset quality, and Return on Equity (ROE) as one of the proxy of earnings which has an indirect impact towards the earnings response coefficients through the existence of the discretionary accruals. Each of them has the negative relationship with the earnings response coefficients through the existence of the discretionary accruals. For other variables; Classified Earnings Asset to Earnings Assets (CEA to EA) as another proxy of asset quality, Return on Assets (ROA) and Operating Ratio (OR) as the other proxies of earnings, Loan to Deposit Ratio (LDR) as the proxy of liquidity, and Interest Sensitivity Ratio (ISR) as the proxy of sensitivity to market risk has no indirect impact towards the earnings response coefficients through the existence of the discretionary accruals.

5.2. Suggestion

1. For the Bank Indonesia as regulator:

Regarding the existence of discretionary accrual as the result of managerial discretion in forming allowance for losses on earning assets that the purpose is not only for keeping the soundness of banks but may also derived from other motivations, then, the Bank Indonesia need to be more careful in examining the adequacy level of allowance for earning assets losses. Therefore, there is a need to keep on balance between off-site examination and on-site examination.

2.   For the investors:

 Regarding the existence of discretionary accrual as the result of managerial discretion in forming allowance for losses on earning assets that may bias the real financial condition of banks that further may bias any related information that will be used by investors in making investment decisions, then, the investors need to be more careful in analyzing the fundamental performance of banking companies.

3.   For the next researcher:

Regarding the limitation reference in certain important part, hopefully, the next researcher can find the improvement in the measurement of earnings response coefficients which can make that variable has a different value not only for each bank but also for each year of each bank. To corroborate the result of the research within this topic, the next researcher can use the other proxies of CAMELS ratio which is not used yet within this research so that the comparison result can be known.

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