# The roles of earning management, capital management and banks specific factors in estimating loan loss provisions: Evidence from Malaysia and Indonesia

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**Abstract**

*A good banking system is principally very vital because it would facilitate the companies with financial resources and this system relies heavily on the performance of non-performing loan (NPL). Non-performing loan has become a main problem around the world as evidenced in recent experiences particularly in the United States and the European countries. Hence, much studies have been conducted LLPs as the central issue on amount to be allocated by the banks to control the credit risks. Thus, it is important for the banks to properly manage the loan loss provisions (LLP) to ensure the sufficient amounts are allocated to counterbalance the non-performing loan during financial turmoil and a flake from the crisis to the onwards and recent years. The issue of LLPs has captivated the interest of many researchers as to what extent the LLP has been affected by earning management, capital management. Thus, the main purpose of the study is to investigate the influence of earning management, capital management in affecting the provision decision of Malaysian and Indonesian commercial banks. The investigation aims to compare between Malaysia and Indonesia in detecting whether the provisions have been influenced by the earning management, capital management and certain banks specific factor such as return on asset, total loan, bank size and loan growth. The empirical findings of Malaysia and Indonesia based on Pooled Ordinary Least Square. Surprisingly, earning management and capital management have not significantly explained the variations in the loan loss provisions of Malaysia commercial banks, but recommend bank specific factors which is loan growth have a statistically significant impact on loan loss provisions. Indonesia show that earning management and return on assets have statistically significant impact on loan loss* provision.

## Introduction

Bank act as a financial intermediary where assisting every single of customer or the depositors taking their position through saving activities and reinvested it back by the bank, which is considered as the large aggregate loan, created to make profit. Despite that, the bank has to hold some risks from the loan portfolio investment when it involves low interest rate as well as excessive credit risk and losing the amount of principal investment which also known as a nonperforming loans (NPL). Initially, the successful loan applicants are subjected to comply the procedural repayment treatment set by the bank. However, due to certain circumstances borrowers fail to comply the schedule of payment for certain period and therefore lead to NPLs. It has been thought that, higher in the NPL will lead to the disruption of financial stability of the banking institutions. Thus, the increase of the NPL will increase the loan loss provision (LLP). LLP is an element that created by financial institution specifically to the commercial banks as a reserve to cover the NPL those customers who do not make payment within 90 days.

Numerous studies have been conducted on LLPs as the central issue on amount to be allocated by the banks to control the credit risks as the mandatory requirement by the central banks were insufficient to cover the losses. At certain extends the indicators used to estimate LLPs in the literature has no general consensus to explain its significant relationship. To date, many empirical papers relates the

LLPS with the earnings management and capital management but yet no consensus to generalize the findings in estimating the LLPs held by commercial banks. Hence, the main purpose of the study is to investigate the influence of earning management, capital management in affecting the provision decision of Malaysian and Indonesian commercial banks. Additionally, the study also incorporates the banks specific factor such as return on asset, total loan, bank size and loan growth as other factors that contributing to the provision decision.

The discussion of earning management, capital management and certain banks specific factors is still debated until today, due to the mixed findings produced by the previous studies whether positively or negatively in pertaining to the LLP behaviour (Abdullah, Bujang, Ahmad, April 2016)(Hansen, 2015)(Taktak, Boudriga, & Ajmi, 2010)(Zoubi & Al-Khazali, 2007)(Packer & Zhu, 2012)(Ben Othman & Mersni, 2014)(Leventis, Dimitropoulos, & Anandarajan, 2011). According to these studies, it also has done different factors influencing LLP decision by bank managers depends on the rules and policy implemented in the country, periods covered as well as the methodology of the research and the model. Nevertheless, most of the research conducted are relevant to European, Spanish, United States, Asian countries. The studies on LLPs are relatively limited and have produced mixed findings on the practice of earnings and capital management as well as bank specific factors. Therefore, the first question addressed is whether LLPs of Malaysian and Indonesian commercial banks are affected by earning management, capital management and certain bank specific factor during the period of 2009-2017. The motivation of this study is to extend the understanding of how internal factors such as earning management, capital management and certain bank specific factors of these banks influences the loan loss provisions during that particular period. The best of researcher knowledge, there is a limited evidence found with regards to the countries that having similar average percentage of NPL would lead to allocate similar LLPs using similar factors.

The next sections of this paper explain the relevant literature review used in this study followed by the data and methodology and analysis of findings at section 3 and 4 respectively. Final section states the conclusion and recommendation.

## Literature Review

### Loan Loss Provision and Earning Management

There are various factors that have been identified by the previous literature as determinants of loan loss provisions in the banking sector as LLPs play an important role to absorb future losses. Earning management is the factor that might influence the LLP allocation to smooth the earning. In an investigation looking at the impact of loan loss provision as an element for earning management among others things (Ma, 1999) arrived at various conclusions.(Ma, 1999) demonstrated that the U.S. commercial banks utilized loan loss provision and charge-offs to smooth revealed income. In his investigation, he found no relationships between quality of loan portfolios and loan loss provision. At the end of the day, it will riskier portfolios did not seem to produce higher loan loss provision. Besides, the discussion of LLP and earning management is still debated until today, due to the mixed findings produced by the previous studies in detecting the presence of earning management behaviour. On other hand, (Laeven & Majnoni, 2003)(Leventis et al., 2011)(Zoubi & Al-Khazali, 2007)(Kim & Kross, 1998)(Floro, 2010)(Packer & Zhu, 2012) ( Abdullah, Bujang, Ahmad, April 2016) have confirmed a significant and positive relationships between LLPs and EBTP. In contrast, (Ahmed, Takeda, & Thomas, 1999; Taktak et al., 2010; Wetmore & Brick, 1994) do not detect any evidence of the association between earning before tax and provision EBTP and LLP. According to the previous study, earning management and LLP found that significant relationship at level 0.01 in emerging market. This is because corroborates the earning management and suggest that emerging market commercials banks have been practicing the countercyclical loan loss provisioning by putting aside extra cushion in high earning years and while in developed market also found that significant relationships at level 0.01 between earning management and LLP. (Abdullah, Bujang, Ahmad, April 2016).

### Loan Loss Provision and Capital Management

Capital management can be defining as an accounting strategy by an organization to maintain sufficient level of capital adequacy ratio by utilizing the accrual item loan loss provision. The bank

managers can control to decrease or increase the loan loss provision in order to ensure the minimum capital requirement is met. This activity is called managing the capital management. Capital management is the crucial factor that can influence the allocation of LLP whereby many previous researchers are conducted the study to examine the relationships between LLP and Capital management (Pérez, Salas-Fumás, & Saurina, 2008)(Asoka Anandarajan, Hasan, & McCarthy, 2007; Asokan Anandarajan, Hasan, & Lozano-Vivas, 2003). Besides, the previous study shows that the empirical findings negative relationships between LLP and capital management, it shows the bank with decrease in capital management, will lead to increase bank loan loss provision in order to cater the capital adequacy requirement (Moyer, 1990). Argument was arise continue in very recent year when Floro, (2010), Packer & Zhu, (2012) found that a significant and negative relationships capital ratio justified the variables which is a line with the capital management theory. Next, Packer & Zhu, (2012) found that the capital adequacy ratio for selected Asian banks overall has also shown the negative relationships between LLP and capital management. Additionally, Packer & Zhu, (2012) the regression analysis of the study used Pooled Ordinary Least Square (Pooled OLS) regression for all countries and Generalized Method of Moments (GMM) for the country identification. According to previous study found that insignificant relationship between capital management and LLP in emerging market countries. The analysis of capital management reveals that the capital ratio (CAP) for emerging markets in aggregate is statistically insignificant.

**Loan Loss Provision and Bank Specific Factors**

There are certain factors have been identified by the previous literature as determinants of loan loss provisions in the banking sector as determining the LLPs allocation to play an important role to absorb future losses. Among the factors are return on assets, total loan, bank size and loan growth ( Abdullah, Bujang, Ahmad, April 2016)(Misman, Bhatti, Lou, Samsudin, & Rahman, 2015)(Packer & Zhu, 2012)(Asokan Anandarajan et al., 2003)(Hansen, 2015)(Kim & Kross, 1998)(Zoubi & Al-Khazali, 2007) (Ozili, 2018)(Laeven & Majnoni, 2003). Based on the above research, the deliberation of LLP and bank specific factor is still debated until today, due to the mixed findings produced by the previous studies in detecting the presence of bank specific factor behaviour.

However, the mixed findings empirical evidence have a strong associate between bank size and loan loss provision that work on Islamic banking and it was gave higher contribution amount of loan loss provision allotment (Zoubi & Al-Khazali, 2007; Ben Othman & Mersni, 2014). Meanwhile, the expected positive relationship of size and LLP is suggested by Asokan Anandarajan *et al*., (2003). They estimated that large banks might involve in high volume of business transaction and tend to allocate higher LLP compared to smaller banks as expected by Zoubi & Al-Khazali, (2007). Next, from the previous study (Hansen, 2015) was discussed that the bank size have positive impact towards loan loss provision which are the large bank have huge of business transaction, large capital and will exposed to loan loss. In contradict, have the studies explained the size have negative impact towards loan loss provision whereby the large bank will tend to allocate small loan loss provision (Ozili, 2015). Accordingly, it is due to the financial stability and it can manage their earning smoothly.

**3. Research Methodology**

The data collected based on the variables used in this study namely Loan Loss Provision, Earning Management, Capital Management and Bank Specific Factor using data stretching from 2009 until 2017 the sample countries of commercial banks comprise of two countries which are Malaysia and Indonesia with 20 commercial banks and 39 commercial banks respectively. The justification to use Malaysia and Indonesia is due to similar average percentage of NPL which data extracted from World Bank. As an initial statistic requirement, a descriptive statistic is conducted to understand the characteristic of the data before proceeding the other statistical requirement. Besides, the Kurtosis and skewness are to show the data is normal or not normal. At the meantime, if the data not normal, the data will go for logarithms (Ln). This study employed static panel data techniques based on fixed effect and random effect models to determine the relationships. As the common procedure all variables were tested the presence of unit root using Levin, Lin and Chu (1994), Breitung (1996) and Im Pasaran and Shin (1998). The general result suggest that all variables was stationary at first order different. In the case of data cannot be pooled the

ordinary least square estimator through Newey West heterocedasticity and autocorrelation consistent (HSC) Newey and West 1990. Table 1 shows the list of variables used in this study based on the following empirical model.

$$\boldsymbol{Ln\ LLP_{it}} = \beta_0 + \beta_1 LnEBTP_{it} + \beta_2 LnCAP + \beta_3 LnROA_{it} + \beta_4 LnTL_{it} + \beta_5 LnSZ_{it} + \beta_6 LnLG_{it} + \varepsilon_{it}$$

Table 1: The variable used in the study and expected signs of the coeffcient.

| Variables | Description | Proxies | Expected sign Coefficient |
|---|---|---|---|
| Loan Loss Provision | Loan Loss Provision (LLP) | Total LLP/ Total assets (Anandarijan et al., 2005) | |
| Earning Management | Earnings before tax and provisions (EBTP) | EBTP/Total Assets (Frait & Komarkova, 2013) | Positive (+) |
| Capital Management | Capital Ratio (CAP) | Total Capital/Risk Weighted Assets (Packer & Zhu, 2012) | Negative (-) |
| Bank Specific Variables | Return on Assets (ROA) | Net Profit/Total Assets (Taktak et al 2010) | Negative (-) |
| | Total Loan (TL) | Total Loan/ Total assets (Packer & Zhu, 2012) | Positive (+) |
| | Bank Size (SZ) | Total Assets (Taktak et al, 2010) | Positive (+) |
| | Loan Growth (LG) | Gross Loan Balance Current Year-Gross Loan Balance previous year/Total Assets (Packer & Zhu, 2012) | Positive (+) |

**Findings**
**Malaysia**

Table 2: Descriptive Statistic

| Variable | Mean | SD | Min | Max | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| LLP | 0.5165 | 1.021119 | -1.7300 | 7.5425 | 2.973807 | 17.34148 |
| EBTP | 0.53863 | 1.038929 | -1.7937 | 7.6346 | 2.964492 | 17.09711 |
| CAP | 28.70259 | 152.7634 | 1.6248 | 2064.016 | 13.24855 | 177.0167 |
| ROA | 2.853781 | 4.059324 | -0.77 | 19.6302 | 2.215867 | 7.108988 |
| TL | 1.036166 | 1.327817 | 0.0095 | 5.7389 | 2.665031 | 8.520614 |
| SZ | 109769.1 | 150981.8 | 485.1 | 765301.8 | 2.24768 | 8.144777 |
| LG | -0.9937189 | 2.007405 | -10.2005 | 0.3256 | -1.74026 | 5.131983 |

The descriptive statistic for all variables in Malaysia for period 2009 to 2017 are depicted in table 4.1 to show the characteristics of the data. The mean value of LLP to total assets equal to 0.5176, with the maximum value 7.5425. Other than that, the minimum value of LLP to total assets is equal to -1.7300. The value of standard deviation is 1.021119. The mean value for EBTP to total asset is 0.53863 with the maximum ratio of 7.6346. The mean value for capital to total asset is 28.70259 with the maximum value is 2064.016 and minimum value is 1.6248. The mean value of ROA IS equal to 2.853781, with the maximum value 19.6302. Other than that, the minimum value of ROA is equal to -0.77. The mean value for TL to total asset is 1.036166 with the maximum ratio of 5.7389. The mean value for SZ to total asset is 109769.1 with the maximum ratio of 765301.8. The mean value for LG to total asset is -0.9937189 with the maximum ratio of 0.3256. In addition, the skewness of LLP, EBTP, CAP, ROA, TL and SZ shows that not in the range normality (-/+2), but LG only in the range normality. Besides, the kurtosis of all variable shows that not in the normality range which are more than 2 but less than 3 (exact 3). Generally, all variable shows that not normal and its should be log (ln) to be a normal data.

**Indonesia**

Table 3: Descriptive Statistic

| Variable | Mean | SD | Min | Max | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| LLP | 1.3085 | 2.0326 | -5.33 | 20.63 | 3.7881 | 29.7451 |
| EBTP | 1.3237 | 2.0205 | -5.3098 | 20.4965 | 3.7635 | 29.5533 |
| CAP | 18.1176 | 7.3077 | -4.3306 | 49.7052 | 1.1307 | 5.3474 |
| ROA | 1.190091 | 1.808384 | -10.06 | 4.16 | -2.754761 | 14.51658 |
| TL | 0.6637282 | .0876451 | 0.0469 | 0.8453 | -1.842889 | 10.642 |
| SZ | 9.9800 | 1.9000 | 1425576 | 1.1300 | 3.151953 | 13.47366 |
| LG | 0.0737276 | .273789 | -4.6124 | 0.5986 | -14.32467 | 246.0894 |

The descriptive statistic for all variables in Indonesia for period 2009 to 2017 are depicted in table 4.1 to show the characteristics of the data. The mean value of LLP to total assets equal to 1.3085, with the maximum value 20.63. Meanwhile, the minimum value of LLP to total assets is equal to -5.33. The value of standard deviation is 2. 0326.The mean value for EBTP to total asset is 1.3237 with the maximum ratio of 20.4965. The mean value for capital to total asset is 18.1176 with the maximum value is 49.7052 and minimum value is -4.3306. The mean value for ROA is 1.190091 with the maximum and minimum value is 4.16 and -10.06. The mean value for TL 0.6637282 and the maximum value is 0.8453, minimum value is 0.0469. The mean value for SZ and LG is 9.98e+07 and 0.0737276 respectively. In addition, the skewness of LLP, EBTP, ROA, SZ and LG shows that not in the range normality (-/+2), but CAP only in the range normality. Besides, the kurtosis of all variable shows that not in the normality range which are more than 2 but less than 3 (exact 3). Generally, all variable shows that not normal and its should be log (ln) to be a normal data.

**Malaysia**

Table 4: Regression

| Variables | Pooled OLS | RE | Pooled OLS with Robust |
|---|---|---|---|
| Constant | -1.0457 (0.5070) ** | -1.0457 (0.5070) ** | 0.0005 (0.0014) ** |
| EBTP | 0.3387 (0.2097) | 0.3387 (0.2097) | 0.3387 (0.3663) |
| CAP | 0 .0745 (0.1011) | 0.0745 (0.1011) | 0.0745 (0.0835) |
| ROA | -0.1637 (0.0917) | -0.1637 (0.0917) | -0.1637 (0.1046) |
| TL | 0.1003 (0.1739) | 0.1003 (0.1739) | 0.1003 (0.2441) |
| SZ | -0.2590 (0.1294) ** | -0.2590 (0.1294) ** | -0.2590 (0.1409) |
| LG | 0.3569 (0.1892) | 0.3569 (0.1892) ** | 0.3569 (0.1738) ** |
| $R^2$ | 0.1383 | 0.1193 | 0.1383 |
| Adj. $R^2$ | 0.1045 | | |
| F-statistic | 4.09 (0.0008) | | 4.78 (0.0002) |
| Wald Chi Square | | 24.56 (0.0004) | |
| BPLM test | 0.00 (1.0000) | | |
| Modified Wald (Heteroscedasticity) | 21835.31 (0.0000) | | |
| Wooldridge Test | 21.328 (0.0002) | | |

Based on the result of regression analysis specify in table 4, the BPLM test shows that the p-value is statistically not significant (0.01) which mean failed to reject null-hypothesis and it indicates that the result is Pooled OLS. By selecting the Pooled OLS with the robust standard error and equivalent with Newey West test, it remedies for heteroscedasticity and autocorrelation. The estimation output exhibits

that the coefficient of EBTP (0.3387) is positively associated with LLP and apparently it is insignificance at 0.05 significance level at the 0.01 significance level. The coefficient of CAP (0.0745) is positive relationship to LLP and subsequently not significance at 0.05 significance level, while ROA (-0.1637) is negatively relationship to LLP but not significant at 0.05 significance level. The coefficient of TL (0.1003) is positively relationship with LLP and apparently it is not significance at 0.05 significance level. The coefficient of SZ (-0.2590) is negatively relationship with LLP and subsequently it is not significance at 95 percent confidence level. The coefficient of LG (0.3569) is positively relationship with LLP and appears significance at 95 percent confidence level. The p-value of F-statistic pooled OLS with robust is significant (0.0002) and the variables shows fit to the model. Generally, it is concluded that the LLP decision in the Indonesia commercial banks are influenced by the loan growth.

**Indonesia**

Table 5: Regression

| Variables | Pooled OLS | RE | Pooled OLS with Robust |
|---|---|---|---|
| Constant | 0.8016 | 0.8016 | 0.8016 |
| | (0.1506) | (0.1506) *** | (0.3657) ** |
| EBTP | 0.9454 | 0.9454 | 0.9454 |
| | (0.0081) *** | (0.0081) *** | (0.0247) *** |
| CAP | -0.0407 | -0.0407 | -0.0407 |
| | (0.0079) *** | (0.0079) *** | (0.0243) |
| ROA | -0.0557 | -0.0557 | -0.0557 |
| | (0.0136) *** | (0.0136) *** | (0.0204) *** |
| TL | 0.0074 | 0.0074 | 0.0074 |
| | (0.0131) | (0.0131) | (0.0150) |
| SZ | 0.0234 | 0.0234 | 0.0234 |
| | (0.0069) *** | (0.0069) *** | (0.0196) |
| LG | -0.3437 | -0.3437 | -0.3437 |
| | (0.0929) *** | (0.0929) *** | (0.2077) |
| $R^2$ | 0.9804 | 0.9724 | 0.9804 |
| Adj. $R^2$ | 0.9774 | - | |
| F-statistic | 2544.64 | | 404.78 |
| | (0.0000) | | (0.0000) |
| Wald Chi Square | - | 15267.82 | |
| | | (0.0000) | |
| BPLM test | 0.00 | | |
| | (1.0000) | | |
| Modified Wald test | 59861.72 | | |
| | (0.0000) | | |
| Wooldridge Test | 6.180 | | |
| | (0.0174) | | |

Based on the result of regression analysis specify in table 5, the BPLM test shows that the p-value is statistically not significant (0.01) which mean failed to reject null-hypothesis and it indicates that the result is Pooled OLS. By selecting the Pooled OLS with the robust standard error, it remedies for heteroscedasticity and autocorrelation. The estimation output exhibits that the coefficient of EBTP (0.9454) is positively associated with LLP at the 0.01 significance level and the coefficient of ROA (-0.0557) is negatively relationship to LLP and at 0.05 significance level while CAP (-0.0407) is negatively relationship to LLP but not significant. The coefficient of TL (0.0074) is positively relationship with LLP and apparently it is not significance at 0.05 significance level. The coefficient of SZ (0.0234) is positively relationship with LLP and subsequently it is not significance at 95 percent confidence level. The coefficient of LG (-0.3437) is negative relationship with LLP and appears insignificance at 95 percent confidence level. The p-value of F-statistic pooled OLS with robust is significant (0.01) and the variables shows fit to the model. Generally, it is concluded that the LLP decision in the Indonesia commercial banks are influenced by the motivation to manage the earning management and return on assets.

**Discussion and Conclusions**

In a nutshell, loan growth only has the significant positive impact on LLPs in Malaysia. While, in Indonesia shows that earning management has significant positive impact towards LLPs and return on assets has the significant negative impact on LLPs. Accordingly, Malaysia shows that loan growth has to influence the allocation of LLPs and other variables insignificant. Thus, Malaysia have a backup from the government to restructuring back the economy of country. While, in Indonesia the banking institution should manage more factor to spending their allocation of LLPs by bank itself rather than Malaysia.

In Indonesia shows that the earning management has positive impact on allocation of LLPs, it depicted that the result is consistent to the theory of earning management ( Abdullah, Bujang, Ahmad, April 2016)(Ben Othman & Mersni, 2014)(Packer & Zhu, 2012). While, in Malaysia reveal that the earning management has insignificant relationship towards LLPs and it convey that the result not follow to the theory of earning management but appear supported by (Wetmore & Brick, 1994;Taktak et al., 2010)(Ahmed et al., 1999).

In Indonesia, return on asset is significant negative impact on LLPs decision which is return on asset give impact on allocation of LLPs in Indonesia supported by (F.A. Misman, W. Ahmed, 2011) ( Abdullah, Bujang, Ahmad, April 2016). While, In Malaysia return on assets is not significant which are in Malaysia have a backup from the government to cover up the losses.

**Limitation and Recommendation**

The limitation of this study is the data constraint which reduction number of banks selected that have inconsistent data would be eliminated, the data has been expired by the company or being block in the website, excluding macroeconomic variables and excluding the policy and rules regulation n of each country. This study recommends for the future researcher to include the external factor and held segregation based on portfolio size policy.

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