International Business Management 10 (17): 3899-3905, 2016
ISSN: 1993-5250
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Do Commercial Banks of Malaysia Use Loan Loss Provision to Signal Their Earnings, Return and Cash Flow?

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Abstract: Loan-Loss Provisions (LLP) are used as a tool to control credit risk so are directly related to loan loss reserves. Managers use LLP to achieve certain objectives such as earnings and capital management and as a mechanism of signaling view to investors, shareholders and users of financial report. Recently, considerable attention has been paid to signaling view of LLP. Thus, it would be appropriate to examine the signaling view of LLP by examining the relationship between LLP and future earnings, return and cash flow in commercial banks of Malaysia. This study presented in this research investigated 12 commercial banks regulated by Bank Negara Malaysia for the period of 2004-2011, using a panel data approach. The result of this study indicates a significant positive relationship between the LLP and future returns. However, there is not enough evidence to support the positive relationship between LLP and future earnings and cash flow.

Key words: Loan loss provision, signaling, earnings and capital management, commercial banks, investors

INTRODUCTION

Banks have played an important entrepreneurial role in the economic sustainability of countries as intermediaries between lenders and borrowers. In doing so they expose themselves to two risk elements, namely, adverse selection and moral hazard as credit loans can lead to failure. The possibility of credit risk is always a threat to banks. However, there are policies and tools that can be put in place to manage these possible risks. One of these policies against credit losses is the Loan Loss Provision (LLP) which is an expense account kept in reserve for future losses from loan defaults.

Generally, managers use LLP to cover their loan loss which is an estimate based on nonperforming loan. However, sometimes they use the LLP to manage bank earnings and capital, for example as a mechanism of signaling view to investors, shareholders and users of financial statements. Managers use LLP to achieve the certain objectives that would provide the required signals for users of financial statements.

If the LLP is used for the designated purpose, banks should recoup the loss on a specific loan or portfolio of loan, when the loss is probable. It means that LLP can be the first-class tool for early detection and dealing with credit problems thus enabling the banks to absorb the losses and extend their credit. The loan loss provisions are set in a backward rather than forward-looking behavior.

During the economic cycle while economic is not good, banks increase their reserve early because they predict higher future losses and when the cycle turns positive, they predict lower future losses. Banks experience low ratio of loan loss reserves to total loans in the upturn economic cycle and when there is a downturn banks have to recognize losses and increase provisions for the loan loss reserve. In response to the most recent crisis, it is necessary to promote more forward-looking provisioning practices that would result in higher levels of reserves and reflect losses that are expected during the remaining life of the loan. The recent crisis has shown that the loan loss reserves for the economic growth period are not enough to cover the recession period.

This study intends to investigate the signaling aspect of LLP on future earning, return and cash flow within the commercial banks in Malaysia from 2004-2011 as one of the emerging countries. The focus is on the future in the signaling view so accordingly the results based on the signaling view can predict the future events. These results cannot be achieved via research on earning management and capital management. According to this study, managers, investors, owners and policy makers in

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Malaysia would be aware of the banks' perspective to take better decisions in the future. Examining the relationship between LLP and future earning, return and cash flow will describe if the change in LLP it is good or bad news for investors and shareholders. Empirical studies on signaling view of Malaysian banks, especially in the post-Accord period are rare. This study is a preliminary exploration of such signaling view in local banks, using empirical data and econometric modeling. The sections following the literature review present the methodology, results and finally, the conclusion.

Literature review: Studies on the discretionary component of LLP can be classified into three groups as follows: LLPs used for the signaling view, LLPs used for Eearnings Management and LLPs used for capital management in commercial banks.

Loan loss provision and earnings management: The their initial studies Greenawalt and Sinkey (1988) and Wahlen (1994) in examining the discretionary component of LLP found a positive relationship between LLP and bank earnings management. They suggest that when bank earnings are high LLPs are high and when bank earnings are low LLPs are low. There are many other studies, most of them focusing on US banks which support their results such as Ma (1988), Collins *et al.* (1995), Liu *et al.* (1997), Kanagaretnam *et al.* (2004) and DeBoskey and Jiang (2012). Some other studies using non-US banks data have also which reached a similar conclusion such as Anandarajan *et al.* (2003, 2007); Perez *et al.* (2008); Curcio and Hasan (2008) and Dong *et al.* (2012). In contrast, Beattie *et al.* (1995) and Ahmed *et al.* (1999) found no confirmation of earnings smoothing. Some studies also tested for the use of LLP using other components of financial statements in conjunction with LLP in earning management. Beattie *et al.* (1995) and Collins *et al.* (1995) examined whether strategic timing of realized loan losses can be a tool for earnings management. Generally, prior studies have provided mixed evidence regarding earning management via LLP as the results were not conclusive.

Loan loss provision and capital management: There is a possibility that bank managers use LLP to manage the bank capital and violating capital requirements. They may use LLP to reduce expected regulatory costs. Prior to 1989, loan loss reserves were calculated as part of the numerator in computing capital adequacy ratios. Consequently, in theory, there was an incentive to manage capital using LLPs. After 1989 loan loss reserves were eliminated from the capital adequacy ratio and were only counted as part of total capital up to 1.25% of the risk weighted assets. There are some studies that examined the using of LLPs to manage capital but mostly using data prior to 1989 have concluded that LLPs were used as a tool for managing capital. For example, Moyer (1990) and Scholes *et al.* (1990) found a positive relationship between LLP and capital ratios. Collins *et al.* (1995) found that write offs were used as an instrument for managing capital ratios but LLPs were not. Beattie *et al.* (1995) discovered that both loan charge-offs and LLPs were used as mechanisms for capital management. Kim and Kross (1998) and Ahmed *et al.* (1999), using data after 1989, found no significant relationship between LLPs and bank capital.

Loan loss provision as a mechanism for signaling: Beaver *et al.* (1989) suggest that an increase in LLP can imply that the "management perceives the earnings power of the bank to be sufficiently strong that it can withstand a 'hit to earnings' in the form of additional LLP". They argued that an increase in LLP conveys good news and translates as a signal of strength in bank earnings. Liu and Ryan (1995) examined the changing in LLP on bank's financial condition and it could be a signal. They argued that an increase in LLPs is good news only for banks that the market identifies to have loan default problems. Beaver and Engel (1996) revealed that discretionary LLP is positively associated with stock returns of banks. Liu *et al.* (1997) showed that the good news signaled by discretionary LLP is most important for banks with low regulatory capital and potential loan default problems. Griffin and Wallach (1991) and Elliott *et al.* (1991) found that the stock market reacted positively to announcements of additional LLPs. Kanagaretnam *et al.* (2005) found that managers of undervalued banks use LLPs to signal their future earnings prospects. Chang *et al.* (2011) studied a sample of 164 companies listed in the Taiwan Stock Exchange over 1999-2004 and found positive relationship between discretionary LLP and the earnings before LLP, 1 year ahead earnings and non-performing loans. In contrary to the above finding Ahmed *et al.* (1999) in examining the association of LLPs with earnings management, capital ratio management and as a tool for signaling found a negative relationship between discretionary LLP and stock returns. Anandarajan *et al.* (2007) using a sample of Australian banks carried out a study on earnings management, capital management and signaling but did not find significant use of LLP for signaling future purpose of earnings to investors.

There has been extensive research in the area of positive correlation between future returns, future earnings and LLP. In a study by Collins *et al.* (1995) it was

found that there was a positive relationship between earnings and LLP which is in line with findings of smoothing earnings through LLP. Wahlen (1994) added that there is a positive relationship between future pre-loan loss earnings changes and contemporaneous returns with (unexpected) LLP. Moreover, Beaver and Engel (1996) provide evidence that the valuation coefficients based on the discretionary and non-discretionary parts of LLP are positive and negative respectively which is in line with the signaling hypothesis. On the other hand, studies conducted by Ahmed *et al.* (1999) found negative relationships between LLP and contemporaneous stock returns and future earnings changes, differing from the outcomes of past studies on signaling theory.

This study re-examined the hypothesis to determine if it is true for various time periods and in conditions where the crucial economic factors of LLP are controlled in an emerging country such as Malaysia. If signaling is indeed an essential motivator in selecting LLP, it is therefore, forecasted that a positive relationship between LLP and changes in future pre-loan loss earnings will be observed. It has been found that LLP is positively linked to one-year future changes in earnings (before LLP). Therefore, in general it is expected that there will be a positive association between LLP and future earnings, cash flow and return of asset.

MATERIALS AND METHODS

This study used Panel data which consists of both cross-sectional and time series dataset. Three most popular estimation techniques which are the Random Effects Model (REM), Fixed Effects Model (FEM) and pooled OLS model (Constant Coefficients Model) and also the LM test and Hausman test have used for statistical analysis.

$$LLP_{it} = a0_i + a1_i LCO_{it} + a2i\ LLA_{it-1} + a3i\ CHNPL_{it} + \delta i\ EBTP_{it} + UiCHCF_{it} + y_i CAP_{it} + y_i CAP_{it} * REG + \varepsilon_{it}$$

The models introduced by Kanagaretnam *et al.* (2004) along with the variables have been adapted in order to measure the impact of LLP behavior among commercial banks in Malaysia. These were used to analyze the LLP according to the changes in non-performing loans, earning and change in earning, capital, loan charge offs, and beginning loan loss allowance. The model represents the relation between LLP and the variables mentioned above.

Kanagaretnam *et al.* (2004) examined if managers in banks utilized their discretion to estimate LLP to relate information regarding the prospects of their banks in the future. In this study, in order to measure the impact of LLP behavior among commercial banks in Malaysia, the model along with the controlled variables included the following:

$$LLP = f(LCO, LLA, CHNPL, EBTP, CHEBTP, CHROA, CHCF, CAP, GDP, INF)$$

Where:

LLP = Specific and general loan loss provisions of bank i in year t normalized by the total assets
LC0 = The net charge-offs normalized by the total assets
LLA = Beginning Loan Loss Allowance normalized by the total assets
CHNPL = Change from year before to year t in Non-Performing Loans normalized by the total assets
EBTP = Earnings Before Taxes and Provisions normalized by the total assets
CHEBTP = The Change from year t to 1 year ahead Earning Before Tax and Provision normalized by the total assets
CH ROA = Change from year t to 1 year ahead Return of Asset ratio
CHCF = Change from year t to 1 year ahead Cash Flow normalized by the total assets
CAP = Capital ratio
GDP = The Gross Domestic Product of Malaysia on an annual basis and
INF = Inflation, consumer prices on an annual basis

Capital ratio and earnings before tax and provision are included to control the possible effects on discretionary LLP of incentives linked to capital management and income smoothing. If bank managers use discretionary components of unexpected provisions to smooth earnings, then the expected income smoothing parameter (δi) would be positive. According to the capital management hypothesis, bank managers with a regulatory capital that is low are motivated to increase the LLP since the loan loss reserve is included in the primary capital. This also implies that the coefficient of primary capital (yi) will be negative. Net loan charge-offs, beginning loan loss allowance and change in non-performing loans are included in the model to clearly take into account the non-discretionary part of LLP. Net loan charge-offs are constructed in relation to LLP. The changes in non-performing loans will affect LLP in a positive manner

while beginning loan loss allowance affects LLP negatively. Beginning allowances that are larger will need a smaller requirement for the period concerned while the opposite is true. These variables are chosen for estimating nondiscretionary LLP based on past studies by Beaver and Engel, Kim and Kross, Wahlen. The models and their equations are as:

Model 1:

$$LLP_{it} = a0_i + a1_i\ LCO_{it} + a2i\ LLA_{it}\text{-}1 + a3i\ CHNPL_{it} + \delta i\ EBTP_{it} + \lambda_i t\ CHEBTP_{it+1} + y_i\ CAP_{it}\ KtGDP_t + \mu tINFt + \varepsilon_{it}$$

Model 2:

$$LLP_{it} = a0_i + a1_i\ LCO_{it} + a2i\ LLA_{it-1} + a3i\ CHNPL_{it} + \delta i\ EBTP_{it} + OiCHROA_{it+1} + yi\ CAP_{it} + KtGDP_t + \mu tINF_t + \varepsilon_{it}$$

Model 3:

$$LLP_{it} = a0_i + a1_i\ LCO_{it} + a2i\ LLA_{it-1} + a3i\ CHNPL_{it} + \delta i\ EBTP_{it} + UiCHCF_{it+1} + yi\ CAP_{it} + KtGDP_t + \mu tINF_t + \varepsilon_{it}$$

The current study investigated 12 domestic commercial banks regulated by Bank Negara Malaysia for the period of 2004-2011. This study only focused on commercial banks as the amounts of loans in these banks are higher than other financial institutions and they have more default loans and their LLP is more crucial. The data is obtained from the BANKSCOPE database.

RESULTS AND DISCUSSION

Descriptive statistics: Table 1 is a summary of the descriptive statistics of the data set over an 8 year period. The statistics are estimated from close to 96 observations. It is quite evident that the means are typical of the 10 year crisis-ridden years with low growth. For example, the mean for change in LLP is about 0.002% and the change of CHEBTP is muted being at about <2%.

Correlations: The various correlations are given in Table 2 and 3.

Result of panel data analysis: Table 4 presents the findings from the use of panel data regression analysis. Some general comments can be made about the test results. First, results in our regression are very stable. Second, the F-statistic test is statistically significant in different regression models at the 1% probability which means that the model fit is significant. Third, R^2 values of about 0.62 (62%) is a strong indicates the variation in LLP. Finally a check on the VIF (Table 3) shows that there is no multicollinearity problem.

Pooled OLS versus Random Effect (RE) were tested to find whether RE or Pooled OLS was necessary. After that test Random Effect (RE) versus Fixed Effect (FE) was carried out to find whether FE or RE was necessary. The LM test and Hausman test were used for statistical analysis. The Breusch and Pagan Lagrangian Multiplier (LM) test was utilized for determining the use of the Random effect model or the pooled model and Hausman test is generally utilized to decide if the fixed or random effect method is suitable. The result of Breaush and

Table 1: Descriptive statistics

Variable	Mean	SD	Min.	Max.
LLP	0.254	0.399	-0.842	2.606
LCO	0.027	0.566	-3.450	2.486
LLA	1.740	1.477	0.011	9.301
CHNPL	-0.264	1.099	-6.935	2.033
EBTP	1.799	0.544	0.542	3.796
CHEBTP	0.179	0.611	-1.606	3.121
CHROA	0.002	0.462	-1.770	1.340
CHCF	5.173	17.467	-42.953	89.595
CAP	24.889	26.208	9.180	128.950
GDPG	4.984	2.604	-1.514	7.425
INF	4.721	4.597	-5.992	10.388

LLP = Loan Loss Provision; LCO is net charge off of loan; LLA = Loan Loss Allowance; CHNPL = Change in Non-Performing Loan; EBTP = Earning Before Tax and Provision; CHEBTP = 1 year ahead Change in Earning Before Tax and Provision; CHROA = 1ne year ahead Change in Return on Asset; CHCF = 1 year ahead Change in Cash Flow; CAP = Total Capital; GDPG = GDP growth (annual %) and INF = Inflation, end of period consumer prices (% change)

Table 2: Correlations matrix-(NxT = 96)

Matrix	LLP	LCO	LLA	CHNPL	EBTP	CHEBTP	CAP	GDPG	INF
LLP	1.000								
LCO	-0.208	1.000							
LLA	0.572	-0.277	1.000						
CHNPL	0.100	0.293	-0.498	1.000					
EBTP	0.102	-0.030	-0.058	0.094	1.000				
CHE BTP	0.053	-0.036	0.107	-0.123	-0.424	1.000			
CAP	-0.431	0.069	-0.205	-0.035	-0.090	-0.010	1.000		
GDPG	0.008	-0.156	0.064	0.024	-0.002	-0.005	0.004	1.000	
INF	0.004	-0.098	0.099	-0.118	0.018	-0.022	-0.029	0.749	1.000

Table 3: Variance inflation factor

Variable	VIF	1/VIF
GDPG	2.45	0.408
INF	2.42	0.413
CHNPL	1.52	0.659
LLA	1.47	0.681
EBTP	1.24	0.806
CHEBTP	1.24	0.808
LCO	1.17	0.855
CAP	1.09	0.916
Mean VIF	-	1.570

Table 4: Result of panel data analysis

	Model 1-CHEBTP			Model 2-CHROA			Model 3-CHCF		
Variables	COEF	t-value	p-value	COEF	t-value	p-value	COEF	t-value	p-value
LCO	-0.10	-1.72	0.11	-0.12	-1.56	0.15	-0.10	-1.78	0.10
LLA	0.20	5.90	0.00	0.19	6.22	0.00	0.20	5.98	0.00
CHNPL	0.19	3.08	0.01	0.16	3.74	0.00	0.18	3.08	0.01
EBTP	0.07	1.86	0.09	0.14	2.59	0.03	0.05	1.65	0.13
CHEBTP	0.05	1.14	0.28						
CHROA				0.23	2.42	0.03			
CHCF							0.00	0.27	0.79
CAP	0.00	-2.00	0.07	0.00	-2.01	0.07	0.00	-2.15	0.06
GDPG	-0.02	-1.46	0.17	-0.02	-1.59	0.14	-0.02	-1.39	0.19
INF	0.00	0.53	0.61	0.01	0.74	0.48	0.00	0.51	0.62
Constant	-0.03	-0.19	0.85	-0.14	-0.87	0.40	0.02	0.18	0.86

F-statistic = 63.67***; 34.76***; 18.32***; R^2 = 0.619; 0.666; 0.615

Pagan LM test showed that the Pooled OLS Model fit our data so Hausman test was not required. Furthermore, Table 4 presents the findings from the use of panel data regression analysis rectifying with heteroskedasticity and serial correlation robust standard error.

Results of the first model showed that there is a positive and significant relationship between LLP and the independent variables, namely, LLA, CHNPL, EBTP and CAP. Result of this model showed positive and statistically non-significant relationship between LLP and CHEBTP. This result is antithetical to study of Kanagaretnam *et al*. (2005) and Chang *et al.* (2008) but it is consistent to finding of Ahmed *et al*. (1999) and Anandarajan *et al.* (2007). Results of the second model indicate that there is a significant and positive relationship between LLP and CHROA. In other words, LLP is a good signaling view of change for future returns. It is in line with the Wahlen (1994) and Beaver and Engel (1996) studies. The results show that there is a significant relationship between LLP and independent variables, namely, LLA, CHNPL and CAP. This results show that the LLP is a prominent factor that affects bank profitability. It can also be seen as a good measurement of signaling view of future returns. In other words, a well-managed bank is perceived to have lower LLP resulting in higher profitability.

The results of the third model showed that the signaling view measure of LLP that is changing cash flow is not significant. It is in line with finding of Wahlen (1994). The result of CHCF can be interpreted as it being representative of the amount of cash in certain date in inverse to CHEBTP and CHROA that are representative of the financial activity of bank during the fiscal year. From the positive and significant relationship between LLP and EBTP it can concluded that the Malaysian commercial bank managers are more interested with meeting regulatory requirements set by the Malaysian Monetary Authority, Than window dressing accounting figures such as smoothing income than. This conclusion is consistent with the conclusion reached by Ghafar *et al*. (2005) for the Malaysian banking industry which is tightly regulated. Results also indicate a feeble coefficient of CAP. It means there is a weak effect of capital on LLP and it rejects the idea of capital management in commercial banks of Malaysia. Finally, the results show that there is no statistically significant relationship between LLP and the macroeconomic variables, namely, GDP and INF.

More ever, results of these three regression models show that LLP is negatively and not significantly correlated to LCO. As losses are realized, the bank takes charge-offs which represent the value of loans removed from the books and deducted from the allowance for loan losses. Banks can recover some of the value of loans previously charged off. The difference between a bank's charge-offs and recoveries is its net charge-offs. Therefore, banks projecting losses and making provisions based on past experience would have severely underestimated the losses that eventually materialized. The negative relation of LLP and LCO show that the banks managers of commercial banks of Malaysia in determining LLP for non-performing loan did not consider past experience of net charge off. In other words, estimation of loan loss provision does not involve net charge off. Therefore, we can conclude that net charge off is less and LLP properly estimated match with non-performing loan. Results of this study are consistent with the argument that one of the main factors contributing to the resilience of Asian banks is regulatory environment changes that occurred after Asian financial crisis and practicing sound risk management.

CONCLUSION

The results from this study on signaling variables revealed that there is a statistically significant positive relationship between the loan loss provision and change

in return while the change in earning and change in cash flow do not have a significant relationship with the loan loss provision. In contrast, an analysis of the data does not support the positive relationship between the LLP and cash flow. The empirical findings from the Pooled OLS, in particular, shows that an increase of one-percent in the change in return, if other variables are constant, led to the increase in the LLP by 0.23%. The results under the Pooled OLS model showed that LLP has a significant positive relationship with LLA, CHNPL, EBTP and CAP. Interestingly, an analysis of the data does not support a significant relation between LLP and LCO. The coefficient of CAP shows a weak effect of capital on LLP from which it can be concluded that the capital management is not supported in commercial banks of Malaysia. Furthermore, empirical findings (from the Pooled OLS model) show that the results are specific and there is a weak time effect. The bank specific results reflect the variation in commercial banks of Malaysia.

Overall, the results of this study indicate that the LLP is a good indicator for future returns. Furthermore, this positive relationship can be considered as good news for the users of bank statements. Since this study found a significant positive relationship between the LLP and future returns so, implicitly, it can be concluded that there is positive relationship between the LLP and stock price and that loan loss is a good measure for investors, shareholders and other users of financial statement. Further investigations are needed to better understand the interactions and relationships between the different business and institutional factors and their respective impact on loan loss provision. Although, the results of this study are based on local commercial banks, another avenue for future research would be to examine the difference in behavior of loan loss provision between local commercial banks and foreign commercial banks.

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