

## Do Commercial Banks Use Loan Loss Provisions to Smooth Their Income? Empirical Evidence from Sri Lankan Commercial Banks

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### Abstract

Banking industry is one of the most profitable industries in Sri Lanka and lending operations constitute as the core banking business which is a highly risk area. As a tool to mitigate the credit risk that occurs in the banking business it involves in providing for loan losses which ultimately affect the profitability of the bank. This study therefore attempts to ascertain whether Sri Lankan Commercial banks use loan loss provisions to smooth their income. The time period considered for the study is 2003 to 2012 with a balanced set of panel data. Eight bank specific variables were used which are; capital adequacy ratio, change in total loans, change in non-performing loans, total loans, non-performing loans, earnings before tax and provisions, loans to deposit ratio and log value of total assets. First the whole sample was examined and later analysis was done to three major categories namely; public sector banks, systematically important private banks and small private banks. The findings reveal that private domestic licensed commercial banks use loan loss provisions to smooth the income while the public sector banks are not. Loan loss provisions of banks to a large extent is depend on four bank specific variables. It was further revealed that banks with high level of loan growth are associated with a reduced level of problem loans. Finally the study suggests important policy implications for bankers and regulators that might help to address income smoothing activities of financial sector in Sri Lanka.

**Keywords:** Income Smoothing; Loan Loss Provisions; Commercial Banks; Panel Regression

### 1. Background

Financial system of a country comprises with financial markets, financial instruments, financial institutions, financial infrastructure and regulatory authorities. Financial Institutions in Sri Lanka is composed with Licensed Commercial banks (LCBs), Licensed Specialized Banks (LSBs), Finance Companies, Leasing companies, Unit Trusts, Mutual Funds etc. Since Sri Lanka has a bank based economy, banking institutions such as LCBs and LSBs dominate the financial system and accounted for 55.8 percent of the total assets of the financial system and 91.9 percent deposits as at end of 2012. The banking sector mainly comprises with 24 LCBs and 9 LSBs. Even though a large number of licensed banks exist in the country, the stability of the financial system is primarily dependent on the performance and financial strength of the LCBs which accounts for 47.8 percent of total financial sector assets and 77.6 percent of the total deposits. The six largest LCBs, consisting of two state banks and four largest domestic private commercial banks is known as systematically important banks which represent 77 percent of the LCB sector assets and 66 percent of the banking sector assets. The LSB sector represented 8 per cent and 14 per cent of the entire financial system's assets and banking sector's assets, respectively. The importance of LSBs is relatively low in comparison to the LCBs (financial system stability review, 2012). Thus any shock with relate to the soundness of the LCBs would possess a significant threat to the stability of financial system.

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Fitch rating (2012) has identified major challenges facing by the Sri Lankan banking sector include: managing asset quality and accessing capital in the face of rapid expansion, enhancing risk management capability and managing the impact of global market instability. According to the Fitch, managing asset quality is an important challenge. The non-performing loans of the banking sector in Sri Lanka amounted to be 121 billion as at 2012 September (financial system stability review, 2012). Most of these non-performing loans has occurred mainly in tourist industry, consumption related lending and manufacturing and trading sectors. The Non Performing Assets (NPA) ratio of the banking sector is 3.4 percent in 2012 and it has shown a decreasing trend when compared with figures of 2011 and 2010 which is 3.5 percent and 5.1 percent respectively. Despite of the decreasing trend in the NPA ratio, commercial banks in Sri Lanka has shown a significant increase in loan growth in every bank during the last decade. The perceived risk of non-performing assets can be mitigated by the allocation of adequate capital in the form of Loan Loss Provision (LLP). The second version of the capital accord, known as Basel II, that provides regulatory framework for managing risks in banks which is still in force has recognizes the two tier-structure of regulatory capital, and still recommends general LLP to be freely available to cover unidentified losses to be eligible for the total qualifying regulatory capital (Basel Committee on Banking Supervision, 2006). Depending on the approach that banks used to manage their credit risk, LLP are treated differently within Basel II. Pillar I of the Basel II allows banks to choose between two approaches for determining their capital requirements; the Standardized approach, which introduces the use of external rating, leaving unchanged the capital charges for loans granted to unrated firms and the Internal Ratings-Based (IRB) approach, which allows banks to use their own internal estimates of the credit risk components (i.e. probability of default, loss given default, exposure at default and maturity). Standardized approach allows general provisions/loan loss reserves to be included in Tier 2 capital up to the limit of 1.25 percent of Risk Weighted Assets (RWAs). Banks adopting IRB approach should use LLP to cover expected losses, but must face unexpected losses raising adequate capital.

According to the prior literature, bank managers manage earnings, using LLPs to smooth income and send signals to the users of financial statements (Hassan & Hunter, 1994; Bhat 1996; Lobo & Yang, 2001; Hassan & wall, 2004). There are number of incentives that lead managers to manage their earnings in LCBs. Managers involve in earnings management to continue an increased pattern of earnings that will lead to higher stock prices for the firm as well as it provides higher compensation and security for the executives. If a bank misstated the LLP, it would result in misstatement of assets, earnings and capital. Therefore it will be worthwhile to examine this relationship between earnings management and LLP in the Sri Lankan commercial banking context.

The objectives of the current study are formulated as;

- To investigate whether loan loss provisions has a significant impact on income smoothing of LCBs
- To examine whether there any difference in the explanations of separate categories; public banks, systematically important private banks and small private banks to the earnings management than the results of the whole model
- To identify the influence of loans and advances on the magnitude of the earnings management

LLP is connected with banks main operating activity which is known as financial intermediation and it is a significant accrual in all commercial banks. How banks account for their loan losses may have a large impact on their reported earnings and capital. LLP are important for the soundness and stability of the bank; they are to be set aside in order to cover future deterioration of the credit portfolio quality. Nevertheless, bank managers may have the opportunity to take advantage of a certain level of discretion in determining the final amount of LLP. Empirical evidence shows that provisions do not used to reflect only the expected credit losses but also provisions can be used for other objectives.

Prior literature indicates the main motives underlying the manipulation of LLP as follows;

- Income smoothing
- Capital management
- Signaling
- Taxes

Managers can use LLP in order to smooth income downward by increasing the provision and in contrast managers can delay or under provide loan losses to smooth income upward. There are two types of LLP. Those are specific provisions and general provision for loans.

The amount of specific provisions depends on credit losses and it increases specific reserves, which are deducted from the asset value. Specific provisions are also known as non-discretionary provisions and are used to cover expected losses in a bank's loan portfolio. General provisions are set aside against not yet identified losses and are added to general reserves on liabilities. In Sri Lankan context banks experience non-performing loans and are providing provisions to mitigate the credit risk associated with that. Therefore the process of managing asset quality includes provision for loan losses which ultimately leading to the volatility of earnings in Sri Lankan banks. LLP also used as a measurement of banks asset quality and also it reduce the significant portion of banks profitability. It will change the risk factor associated with the bank leading bank managers to engage in Income smoothing. Considering the regulators perspective, the purpose of the provisioning for loan losses is to adjust gross loans for credit quality. But the banking practice in other countries shows that, though banks' financial reporting system is highly regulated, managers still can take advantage of a certain degree of judgment in determining provisions, for example, whether a loan can be considered impaired or not. Sri Lanka as an emerging country in the world should have a transparent financial system and therefore it is important to identify this relationship.

## 2. Literature Review

Ma (1988) defines income smoothing as the intentional reduction of earnings fluctuations with respect to some normal level. Income smoothing also used can be used as a synonym to earnings management and Fudenberg and Jean (1995) defined earnings management as the process of manipulating the time profile of earnings or earnings reports to make the reported income stream less variable. Earnings management is subjective. It depends on management's discretionary decisions. Thus earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying performance of the company or to influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1995, as cited by Gray, 2004). Healy and Wahlen (1999), Dechow and Skinner (2000) (as cited in Reverte 2008) mentioned four proxies that is used to capture the range of income smoothing activities in European countries. These proxies are:

- The variability of operating income with respect to the variability of cashflow from operations
- The correlation between the change in accruals and the change in cashflow from operations
- The magnitude of total accruals
- The tendency of firms to avoid small losses

Managers mainly engage in income smoothing due to four kinds of incentives. Namely, external contract incentives, management compensation contract incentives, regulatory motivations and capital market motivations (Healy & Wahlen, 1999, as cited by Noronha, Zeng, & Vinten, 2008). Prior scholars explained the incentives for earnings management by using Transaction cost theory and Prospect theory. Transaction cost theory indicates that companies which reports decrease in earnings or losses would affected by higher transaction costs. In order to reduce transaction costs, companies have a propensity to report higher earnings. Therefore incentive to reduce the cost of external borrowing would lead them to earnings management. Prospect theory states that decision makers are far more concerned about losses than gains (loss aversion). Therefore if companies experience losses or earnings declines there will be a negative effect on credit ratings and shareholders will receive an unfavourable signal from the firms. Therefore stable earnings is a determinant for above factors. In addition to that, earnings management would depend on certain bank specific factors. Further the researchers have stated that the cost of borrowing would reflect the banks' perceived risk relating to that bank (Burgstahler & Dichev, 1997; Kanagaretnam, Lobo & Mathieu, 2004).

Large and small firms engage in earnings management with different objectives. Kim, Liu and Rhee (2003) conducted a study to explore the relationship between earnings management and size of the firm. In this the researchers exclude banks, financial institutions and highly regulated firms due to their capital structure and intensity of government regulations and detected that small firms' main objective of smoothing income is to avoid reporting earning losses while large and medium sized firms engage in more aggressively than the small firms with the objective of avoiding earnings decreases.

This is confirmed through a parametric analysis using a multivariate probit analysis. Kanagaretnam et al., (2004) suggest that the need for external financing, complying with regulatory capital requirement will act as motives for earnings management. Moyer (1990); Beatty et al. (2002); Beaver, Ryan and Wahlen (1997): support the view of managers smooth income to meet regulatory capital requirement. But DeGeorge, Patel & Zeckhauser (1999); Lamout (1998); Healy & Wahlen (1999) support the view that managers smooth their income due to financial reporting incentive. Also Greenwalt and Sinkey, Jr (1988) stated that earnings variability is a measure of risk and therefore managers could use earnings management as a way of reducing the risk. By reviewing the past scholarly articles researcher has recognized several methods that are used to manage earnings such as loan loss provisions, realized gains or losses from sale of securities and sale of long-term assets. Most of the researchers have mentioned LLP and the realized gains or losses from the sale of securities as the main methods of income smoothing. Since the LLP is the largest accrual in commercial banks it is mainly used as the main instrument of earnings smoothing. Bank managers can use gains or losses on the sale of securities as an alternative mechanism for earnings management. LLP and realized gains or losses from securities are substitutes to each other and they have negative relationship between them. In addition to that bank managers use LLP to smooth income in conjunction with realized securities gains and losses (Moyer, 1990; Beatty et al., 1995; Collins et al., 1995, Ahmed et al., 1999, as cited in Beatty et al., 2002, p.553; Kanagaretnam, Lobo & Mathieu, 2004; Scholes et al., 1990, as mentioned in Shahrudin, 2004, Shrieves & Dahl, 2003, as cited by Chang, Shen, & Fang 2008).

In addition to the above mentioned methods, earnings can be managed using many other different techniques. Pinho (1997) highlighted that managers are able to keep LLP below the required level by "renewing" defaulted loans as a technique of earnings management. Pinho (1997) further stated that most of the banks use extra ordinary items and LLP as the main instruments of earnings management. Burgstahler and Dichev (1997) found that cashflows from operations and changes in working capital are used to manage income which was not mentioned previously. This finding is somewhat interesting because prior literature indicates that most of the earnings management techniques are related with accruals. LLP is a charge taken against the current earnings which reflects the possible loan losses in the next period. Therefore LLP are expected to reflect anticipated losses by bank managers. Moreover that the level of LLPs should be able to reflect the beliefs of bank management on the quality of the loan portfolio that they have. Also the provisions can be used as a measure of credit risk (Henderson, 1999; Anandarajan, Hasan, & McCarthy, 2007; Dugan, 2009, as cited in Mustafa, Ansari & Younis, 2012). Pinho (1997) carried out a study in Portugal to explore the determinants of LLP in Portuguese banks. The researcher found that the provision for loan losses would be affected by high net interest margins, high market share on loans and low loan to asset ratios. Contradict to the findings of Pinho (1997) GDP growth rate would not a significant contributor to the LLP (Taktak, Zouari, & Boudriga, 2010). In consistent with prior literature Taktak et al., (2010) identified non-performing loans, total loans are the variables that determine the amount of LLP.

Ma (1988) examined the earnings management practice in the United States banking industry with the main objective of determining whether United States commercial banks utilize the LLP to manage their reported earnings. He found that strong evidence that the United States commercial banks use LLP and loan charge offs to manage earnings. This finding support the view of Bhat (1996) who stated that banks with close relationship between LLP and earnings tend to manage their earnings. Banks in European Union also use provision for loan losses as a income smoothing tool (Leventis, Dimitropoulos, & Anandarajan, 2012). Reverte (2008) suggests that income smoothing practices are significantly lower in European union countries with an institutional framework that is more favorable to high quality financial reporting i.e. countries with stricter rules and regulation, lower ownership concentration, higher level of enforcement of rules and higher degree of investor protection. Taktak et al., (2010) conducted a study using regression analysis to test whether Islamic banks use LLP to manage their earnings. But they found that earnings management is not practiced using LLP in Islamic banks. Chipalkatti and Rishi (2007) to determine whether the weaker Indian banks has an incentive to under provide their LLP and understate gross non-performing assets in order to increase capital adequacy ratios. Weaker banks are defined in terms of low profitability and low capital ratios. They highlighted that weaker banks are not engage in under provisioning of loan losses but they found strong evidence for the second hypothesis that weaker banks understate their non-performing assets.

### 3. Research Design

#### 3.1. Data Collection and Sample Selection

In Sri Lanka by the end of 2012, commercial banking system comprised with 24 banks, twelve of which are domestic commercial banks and twelve of which are foreign commercial banks. The study considered ten year period from 2003 to 2012. Foreign LCBs were excluded from the study because of several reasons. First is the difference in the banking operations and accounting format compared with the domestic commercial banks mainly due to multi currency transactions. Second is the unavailability of the financial data of foreign commercial banks. From the twelve domestic LCBs, a sample of eleven domestic LCBs was selected for the study considering the uniform existence of banks throughout the considered period.

#### 3.2. Methodology and Hypothesis Development

Prior to running the regressions using the main models it is important to verify the suitability of data in terms of its fitness to be employed in the study. Thus, certain tests are used to ensure that the data set does not contain any irregularities which would cause the estimates to be less accurate and less reliable. Panel unit root test has been carried out to test stationarity (or non-stationarity) of the independent variables. To test the impact of financial and non-financial factors, especially the loan loss provisions and earnings before tax and provisions, the study estimates a linear regression model that is based on Taktak, Zouari and Boudriga (2010) which adopts the econometric model used by Perez et al. (2006) in their study to ascertain the earnings management practices in Islamic banks under certain changes. Also the empirical specification follows closely the models used in the literature to test the income smoothing hypothesis (Greenwalt & Sinkey, 1988; Kanagaretnam, Lobo, & Mathieu, 2003). The model is as follows:

$$LLP = \beta_1 + \beta_2 LNTA + \beta_3 TL + \beta_4 NPL + \beta_5 EBTP + \beta_6 CHGT_L + \beta_7 CHGNPL + \beta_8 CAR + \beta_9 LD + \epsilon$$

Where:

**Table 1. Definitions and Expected Signs of the Notations**

| Notation        | Empirical Definition  | Expected Sign |
|-----------------|---|---------------|
| $LLP_{it}$      | Specific and general LLP of bank $i$ in year $t$ normalized by the total assets             |               |
| $TA_{it}$       | Logarithm of Total Assets   | (+)           |
| $TL_{it}$       | Ratio of total loans normalized by the total assets of bank $i$ in year $t$                 | (+)           |
| $NPL_{it}$      | Nonperforming loans normalized by the total assets of bank $i$ in year $t$                  | (+)           |
| $EBTP_{it}$     | Earnings before taxes and provisions normalized by the total assets of bank $i$ in year $t$ | (+)           |
| $CHGT_{L_{it}}$ | Change in the total loans of bank $i$ in year $t$ normalized by total assets                | (+)           |
| $CHGNPL_{it}$   | Change in the nonperforming loans of bank $i$ in year $t$ normalized by total assets        | (+)           |
| $CAR_{it}$      | Capital adequacy ratio of bank $i$ in year $t$  | (+)           |
| $LD_{it}$       | Loans to deposit ratio of bank $i$ in year $t$  | (+)           |

In this study, LLPs are considered as the dependent variable. LLP in the model reflects the general and specific LLP in year  $t$  for bank  $i$ . The use of LLP for the purpose of income smoothing will be decided by the behaviour of the independent variables. The empirical literature shows that there are numerous variables which can explain loan loss provision of commercial banks. Non-performing loans (NPL), Total Loans (TL) can be used as variables to control the credit risk of the banks (Taktak, Zouari, & Boudriga, 2010). The variable NPL and TL both normalized by the total assets, represents the risk profile of the banks. The variable EBTP is the net operating income before tax and provisions of the bank  $i$  in period  $t$ , and this is normalized by the total assets of the bank. This is the variable that is usually used in prior literature as a proxy for earnings or the income of the bank for a certain period. The income smoothing hypothesis assumes that bank managers have incentive to smooth earnings, aimed at reducing the variability of the net profit over time. Moyer (1990); Beatty et al., (2002); Collins et al., (1995); Ahmed et al., (1999); Kanagaretnam et al., (2004) states that under income smoothing hypothesis, the direct effect parameters of EBTP is expected to be positive. The natural logarithm of total assets (TA) is used as another control variable which account for the size related economies and diseconomies of scale. In prior literature the logarithm of total assets is the most prominent proxy which is used to measure the size of the bank.

In general larger banks may have higher levels of businesses and are expected to afford larger loan loss provisions than smaller banks (Anandarajan, Hasan, & McCarthy, 2007; Zoubi & Al-Khazali, 2007). Also Beatty et al., (1995) states that if larger and higher growth banks are increasingly more profitable they are more likely to manage earnings to avoid reporting a decline in earnings. Previous studies also control for the variable Capital Adequacy Ratio (CAR) effect on the loan loss provisions which uses in the above model (Kim & Kross, 1998, as cited in Taktak, Zouari and Boudriga, 2010; Ahmed et al. (1999). Reviewing prior literature it has found that banks with low capital declined significantly LLPs. Variables change in nonperforming loans (CHGNPL) and change in total loans (CHGTL) were used under the study to account for the non-discretionary component of the loan loss provisions (Kanagaretnam, Lobo, & Mathieu, 2003). Loans to deposit ratio measures the relationship between loans and deposits from the customer's deposits and higher the ratio more the need of external funds and to attract external funds the perceived risk will be adjusted by the loan loss provisions (Zoubi & Al-Khazali, 2007).

Consistent with the foregoing discussion, the researcher present the following hypotheses:

In this study, the researcher assumes that private listed commercial banks will have a vested interest in reporting stable income numbers due to the fact they obtain capital by issuing shares while the public sector unlisted commercial banks do not. Therefore the private commercial banks may have a much greater incentive to engage in income smoothing to convey a signal of stability to investors. Therefore the researcher will use the following hypothesis in the analysis:

H<sub>1</sub>: Systematically important private banks and small private banks are more aggressive in earnings management via LLPs than the state banks or the public sector banks.

The researcher would expect a positive relationship between EBTP and LLPs. Furthermore particularly the hypothesis suggests that LLPs are deliberately understated to mitigate the adverse effect of other factors on earnings in the case of poor performance and overstated in the case of good performance in order to reduce the variability of earnings.

H<sub>2</sub>: The relationship between LLPs and Earnings before Taxes and Provisions will be positive

A positive relationship between LLP and loans to deposit ratio will be expected because to attract external funds a bank must reduce the fluctuations of the earnings by increasing LLP if the earnings are high and decreasing LLP if the earnings are low. This leads the researcher to the following hypothesis:

H<sub>3</sub>: The extent of income smoothing through LLP is positively related to the ratio of loans to deposits

The sample period for the study covers the period within which the financial crisis took place. Therefore the effect of the variables on the econometric model may be different from the impact caused by the variables before the financial crisis. Therefore the researcher will follow the following hypothesis

H<sub>4</sub>: The impact of the variables on the model will be negative in the period 2008-2012, relative to the period 2003-2007.

## 4. Discussion of Findings

### 4.1 Descriptive Statistics

Descriptive statistics are used to analyze the use of loan loss provisions to income smoothing. It is useful in predicting the nature of the data and thereby helps to understand the trend over the period from 2003 to 2012. It provides a useful summary on measures of central tendency and dispersion of data. Table 2 represents the descriptive statistics of all the variables in the study. The mean NPL of all banks over the test period is 0.054. This suggests that banks could not collect 5.4 percent of every loan given. The highest NPLs is 20 percent (recorded by the Seylan Bank) while the lowest is 0.8 percent (recorded by the NDB Bank). The ratio of loan loss provision to total asset equals 0.64 percent on average with a maximum of 4.4 percent and a minimum of -1.1 percent. These results are more closed to the findings of the Perez et al. (2006) (as cited in Taktak et al., 2010) who found, on a Spanish sample, the ratio of loan loss provisions to lagged total assets is about 0.65 percent on average.

**Table 2: Descriptive Statistics of the whole Sample**

| Variables                                   | Mean   | Median | Maximum | Minimum | Std. Dev. |
|---|--------|--------|---------|---------|-----------|
| Capital adequacy ratio (CAR)                | 13.750 | 13.530 | 35.110  | -2.300  | 4.100     |
| Change in the non-performing loans (CHGNPL) | 0.004  | 0.003  | 0.071   | -0.070  | 0.017     |
| Change in the total loans (CHGTL)           | 0.109  | 0.104  | 0.493   | -0.222  | 0.097     |
| Loans to deposit ratio (LD)                 | 0.828  | 0.777  | 2.566   | 0.352   | 0.322     |
| Earnings before taxes and provisions (EBTP) | 0.021  | 0.023  | 0.087   | -0.084  | 0.014     |
| Loan loss provisions (LLP)                  | 0.006  | 0.004  | 0.044   | -0.011  | 0.008     |
| Log value of total assets (LNTA)            | 25.178 | 25.489 | 27.678  | 21.176  | 1.415     |
| Non-performing loans (NPL)                  | 0.054  | 0.042  | 0.201   | 0.008   | 0.038     |
| Total loans (TL)                            | 0.574  | 0.575  | 1.523   | 0.256   | 0.141     |

Loans to deposits ratio of the banks recorded nearly 82 percent of mean value. This suggests that from the total deposit value of banks, 82 percent has converted into loans and advances which indicate the higher risk taken by bank managers to boost the profits. Total assets which are denoted by LNTA measure the size of the banks. Standard deviation of 1.41 indicates that Size of the banks has a considerable variation. As shown in the table 2 total loans and advances are 57.4 per cent of assets in domestic LCBs in Sri Lanka. This suggests that from the total asset value of banks, 57.4 percent consists of with advances which indicate the high risk taken by bank managers to boost the profits. Varying between 25.6 percent to 152.3 percent with a standard deviation of 14.08 percent indicates a large dispersion in the level of the total loans collected in domestic LCBs The average earnings before taxes and provisions for all the LCBs is 2.13 percent. The highest EBTP average for a single bank is 3.3 percent (NDB Bank) while the lowest is 1.35 (Union Bank). But considering the EBTP to asset ratio it is clearly evident that private LCBs are more efficient than public LCBs. Mean value of CAR is 13.75 percent for the sample and it is well above the regulated amount as specified in the Basel II. Almost all the banks are met with the requirement while some banks recorded negative CAR in early period of the sample. The variables CHGNPL and CHGTL have recorded a mean value of 0.43 percent and 10.92 percent respectively. This highlights the fact that the total loans has changed positively and through a considerable amount. This fact is further confirmed through the maximum CHGTL which is amounting to 49.34 percent.

Further the analysis has divided the total sample of eleven LCBs into three groups as; public LCBs, systematically important large private LCBs, small private LCBs. As to the descriptive statistics (Table 3), banks under the small private category have recorded the highest mean value of LLP to asset ratio that is 0.74 percent. The maximum LLP value of 4.39 percent also is recorded by small banks category. Mean value of LLPs of public banks are less than that of large private banks. Minimum LLP of -1.06 percent is with large private banks. But in contradictory to the LLP large private banks category have recorded the highest mean value of NPLs ratio of 5.96 percent as compared to 4.2 and 5.42 percents of public and small private banks respectively. However the maximum NPL value is of 20.05 percent is recorded by small banks category. Considering the NPL ratio, public banks are in a better position than the other categories. Banks under the large private banks category are maintaining around 55.72 percent of its total assets as loans and advances when compared to the 52.42 and 60.76 percent of public and small private banks respectively. This shows that the five small private banks in the sample are high risk takers. There is a high vulnerability for them to face with liquidity problems. Also the small private banks category records the highest loans to deposit ratio which is equal to 96.04 percent while public banks record 68.28 and large private banks records 74.23 percent. As the youngest banks in the banking industry, small private banks effort to capture the market is also evident by lending most of their deposits to the customers as advances.

**Table 3: Descriptive Statistical Summary for the three Groups of LCBs**

| Bank-specific variables | Public Banks (%) |        |        | Large Private Banks (%) |       |       | Small Private Banks (%) |        |       |
|-------------------------|------------------|--------|--------|-------------------------|-------|-------|-------------------------|--------|-------|
|                         | Mean             | Maxi.  | Mini.  | Mean                    | Maxi. | Mini. | Mean                    | Maxi.  | Mini. |
| CAR                     | 10.08            | 15.88  | -4.5   | 12.46                   | 16.6  | 8.06  | 16.00                   | 35.11  | 10.44 |
| CHGNPL                  | -0.12            | 0.73   | -1.22  | 0.28                    | 7.13  | -3.03 | 0.68                    | 6.24   | -6.97 |
| CHGTL                   | 8.37             | 35.07  | -22.18 | 7.57                    | 21.74 | -21.3 | 12.22                   | 49.34  | -5.58 |
| EBTP                    | 1.71             | 2.46   | 0.68   | 2.4                     | 3.48  | 1.34  | 2.10                    | 8.71   | -8.44 |
| LD                      | 68.28            | 103.09 | 35.23  | 74.23                   | 99.57 | 55.82 | 96.04                   | 256.61 | 51.99 |
| TL                      | 52.42            | 75.66  | 25.64  | 55.72                   | 71.27 | 40.65 | 60.76                   | 152.33 | 38.08 |
| LLP                     | 0.38             | 1.22   | -0.04  | 0.65                    | 1.89  | -1.06 | 0.74                    | 4.39   | -1.10 |
| LNTA                    | 26.79            | 27.68  | 26.03  | 25.91                   | 26.96 | 24.71 | 23.94                   | 25.81  | 21.18 |
| NPL                     | 4.2              | 10.82  | 1.99   | 5.96                    | 18.63 | 1.62  | 5.42                    | 20.05  | 0.84  |

Source: Resercher's construction

Considering the EBTP which is normalized by the total assets of the bank, public bank category recorded 1.71 percent which is the lowest while the large private bank category and small private bank category recorded 2.4 percent and 2.1 percent respectively. It is evident that large private bank sector has utilized their assets more efficiently to generate return comparing to other two categories. Furthermore the dominant position of two public banks is evident by the value of size variable that is LNTA. It is evident that the small banks are trying to maintain highest CAR above other two categories. But it can be said that small bank category is idling their capital by allocating higher amount of capital as CAR. This would increase the ability to meet the risk levels but it will have an opportunity cost also for the small banks. The highest value of CAR also indicated in the small bank category which is 35.1 percent.

#### 4.2 Regression Results

The regression model is developed by including bank specific variables; CAR, CHGTL, CHGNPL, TL, NPL, LNTA, and LD. The results of the model are depicted in table 4.

**Table 4: Regression Results – Whole Model with all Bank Specific Variables**

| Variable                              | Coefficient | Std. Error            | t-Statistic | Prob.  |
|---------------------------------------|-------------|-----------------------|-------------|--------|
| C                                     | -0.110120   | 0.103861              | -1.060267   | 0.2926 |
| CAR                                   | 0.000201    | 0.000143              | 1.411489    | 0.1624 |
| CHGNPL                                | 0.015332    | 0.025561              | 0.599807    | 0.5505 |
| CHGTL                                 | -0.017802   | 0.007052              | -2.524335   | 0.0138 |
| EBTP                                  | -0.028205   | 0.038829              | -0.726390   | 0.4700 |
| LNTA                                  | 0.004162    | 0.004085              | 1.018946    | 0.3116 |
| LD                                    | 0.005223    | 0.002289              | 2.282190    | 0.0254 |
| NPL                                   | 0.100308    | 0.026179              | 3.831662    | 0.0003 |
| DTL                                   | 0.011205    | 0.005774              | 1.940478    | 0.0562 |
| Effects Specification                 |             |                       |             |        |
| Cross-section fixed (dummy variables) |             |                       |             |        |
| Period fixed (dummy variables)        |             |                       |             |        |
| R-squared                             | 0.739428    | Mean dependent var    | 0.005508    |        |
| Adjusted R-squared                    | 0.645332    | S.D. dependent var    | 0.006652    |        |
| S.E. of regression                    | 0.003961    | Akaike info criterion | -7.997473   |        |
| Sum squared resid                     | 0.001130    | Schwarz criterion     | -7.289713   |        |
| Log likelihood                        | 422.8749    | Hannan-Quinn criter.  | -7.711112   |        |
| F-statistic                           | 7.858264    | Durbin-Watson stat    | 1.368428    |        |
| Prob(F-statistic)                     | 0.000000    |                       |             |        |

The statistics in table 4 shows the significance of individual regressors in explaining the relationship between earnings management and LLPs. This suggests bank-specific variables together explain 73.94 percent variation of the LLPs in LCBs. Results of regression indicates that LLPs of banks to a large extent are dependent on bank-specific variables such as CHGTL, LD, NPL and TL.



It is important to note that EBTP is not indicating a significant relationship with LLP in the model which has a negative relationship but insignificant. Thus hypothesis 2; *the relationship between LLPs and earnings before taxes and provisions will be positive* is not confirmed. CHGTL shows a negative association with LLPs while the expected relationship was positive. It suggest that when the volume of total loans increasing, LLP is reducing. It therefore follows that commercial banks which extend relatively higher positive change in loans are likely to incur lower LLPs. It is important to note that our results are contrary to the international evidence which suggest a positive relationship between CHGTL and LLPs. The variable CHGNPL has a positive coefficient but the insignificance of the CHGNPL as reflected in the t value of CHGNPL as 0.5998 suggest that it does not have explanatory power over LLPs. Therefore the best model to explain the relationship between LLPs and Earnings management can be stated as follows:

$$LLP = \beta_1 - 0.0178 \text{ CHGTL} + 0.0052 \text{ LD} - 0.0282 \text{ EBTP} + 0.1003 \text{ NPL} + 0.0112 \text{ T}$$

The hypothesis which stated that *the impact of the variables on the model will be negative in the period 2008-2012, relative to the period 2003-2007* was confirmed through the analysis of period effect of the model (Table 5). This may be due to the financial crisis which was affected globally in 2008 and followed by the global economic recession.

**Table 5: Period Effect on the Model**

| Period     | Effect    |
|------------|-----------|
| 2004-01-01 | 0.003415  |
| 2005-01-01 | 0.004393  |
| 2006-01-01 | 0.001950  |
| 2007-01-01 | 0.001548  |
| 2008-01-01 | 0.001255  |
| 2009-01-01 | -0.001005 |
| 2010-01-01 | -0.001266 |
| 2011-01-01 | -0.004389 |
| 2012-01-01 | -0.005901 |

#### 4.3 Comparative Analysis of the Relationship between LLPs and Income Smoothing

With the objective of finding whether there is any difference in the explanations of separate categories to the earnings management than the results of the whole model, the researcher has used three panel regression models separately by dividing the whole sample into three namely: public LCBs, systematically important large private LCBs, and small private LCBs.

**Table 6: Regression Results – Public Licensed Commercial Banks**

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| C                  | 0.071276    | 0.055605              | 1.281824    | 0.2319    |
| CAR                | 0.000521    | 0.000224              | 2.325048    | 0.0451    |
| CHGNPL             | -0.031899   | 0.076443              | -0.417284   | 0.6862    |
| CHGTL              | -0.012326   | 0.005125              | -2.405239   | 0.0396    |
| EBTP               | 0.074888    | 0.157011              | 0.476961    | 0.6448    |
| LNTA               | -0.002963   | 0.002124              | -1.394942   | 0.1965    |
| LD                 | 0.020404    | 0.009056              | 2.253094    | 0.0507    |
| NPL                | 0.053944    | 0.050080              | 1.077144    | 0.3094    |
| TL                 | -0.019727   | 0.008601              | -2.293686   | 0.0475    |
| R-squared          | 0.859487    | Mean dependent var    |             | 0.002948  |
| Adjusted R-squared | 0.734587    | S.D. dependent var    |             | 0.002382  |
| S.E. of regression | 0.001227    | Akaike info criterion |             | -10.26149 |
| Sum squared resid  | 1.36E-05    | Schwarz criterion     |             | -9.816308 |
| Log likelihood     | 101.3534    | Hannan-Quinn criter.  |             | -10.20011 |
| F-statistic        | 6.881397    | Durbin-Watson stat    |             | 2.354856  |
| Prob(F-statistic)  | 0.004535    |                       |             |           |

Source: Researcher's construction

Regression model for the two state banks (Table 6) together explain 73.46 percent variations of the LLPs. Results indicate that LLPs of public banks to a large extent are dependent on bank-specific variables such as CAR, CHGTL, LD and TL. Comparing with the whole regression model which includes all the banks in the sample, CAR is not a significant variable but for public banks it has become a significant variable, while NPL is not. It is important to note that as same as the whole model sample EBTP is not indicating a significant relationship with LLP in the model which includes only the two state banks. The model used to describe the behavior of variables in relation with systematically important private banks (Table 7) has recorded a significance level of 64.9 percent which is reflected through R-squared. Results of regression indicate that LLPs of SIBs to a large extent are dependent on bank-specific variables such as CAR, NPL and EBTP. It is important to note that the results of the regression highlights that there is a significant relationship between EBTP and LLPs for the SIBs category. This is different when comparing with the sample as a whole and for the public banks category which do not possess a significant relationship between EBTP and LLPs. In other words it can be stated that systematically important banks are using loan loss provisions to smooth their income.

**Table 7: Regression results – Systematically Important Licensed Commercial Banks**

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| C                  | 0.073217    | 0.049952              | 1.465748    | 0.1543    |
| CAR                | -0.001135   | 0.000503              | -2.258459   | 0.0322    |
| CHGNPL             | 0.013798    | 0.059518              | 0.231832    | 0.8184    |
| CHGTL              | 0.005366    | 0.020047              | 0.267686    | 0.7910    |
| EBTP               | 0.495879    | 0.163085              | 3.040617    | 0.0052    |
| LNTA               | -0.002842   | 0.002116              | -1.342959   | 0.1905    |
| LD                 | 0.026796    | 0.025688              | 1.043145    | 0.3061    |
| NPL                | 0.071310    | 0.041886              | 1.702486    | 0.1002    |
| TL                 | -0.028208   | 0.031019              | -0.909385   | 0.3712    |
| R-squared          | 0.649026    | Mean dependent var    |             | 0.005927  |
| Adjusted R-squared | 0.545033    | S.D. dependent var    |             | 0.005717  |
| S.E. of regression | 0.003856    | Akaike info criterion |             | -8.066115 |
| Sum squared resid  | 0.000401    | Schwarz criterion     |             | -7.670236 |
| Log likelihood     | 154.1901    | Hannan-Quinn criter.  |             | -7.927943 |
| F-statistic        | 6.241087    | Durbin-Watson stat    |             | 1.457345  |
| Prob(F-statistic)  | 0.000137    |                       |             |           |

Source: Researcher's construction

Model for the small private banks (Table 8) together explain 70.54 percent variations of the LLPs. Results of regression indicate that LLPs of small private banks to a large extent are dependent on bank-specific variables such as EBTP, LD and NPL. It is important to note that the results of the regression highlights that there is a significant relationship between EBTP and LLPs for the private small banks category. In other words it can be stated that private small banks are using loan loss provisions to manage their income. This proves that small banks category is taking high risk relative to other categories. As the youngest banks in the banking industry, small private banks effort to capture the market is also evident by mobilizing deposits to the customers as advances. Even though it is not evident that there is a relationship between LLPs and EBTP of the banks in the whole sample it is evident that both the large private banks as well as the small private banks use loan loss provisions to manage their income while public banks are not according to the empirical findings. This may be due to the impact that it is caused by the two state banks on the whole econometric model. Therefore hypothesis one was confirmed, which states that private banks engage in income smoothing activities through LLPs than the public banks in Sri Lanka.

**Table 8: Regression Results – Small Licensed Commercial Banks**

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| C                  | 0.019996    | 0.025533              | 0.783148    | 0.4387    |
| CAR                | -8.95E-05   | 0.000181              | -0.493806   | 0.6244    |
| CHGNPL             | 0.023029    | 0.041006              | 0.561603    | 0.5779    |
| CHGTL              | -0.006579   | 0.009367              | -0.702353   | 0.4870    |
| EBTP               | 0.238126    | 0.121119              | 1.966053    | 0.0570    |
| LNTA               | -0.001283   | 0.001002              | -1.280825   | 0.2084    |
| LD                 | 0.003790    | 0.001919              | 1.975101    | 0.0560    |
| NPL                | 0.064569    | 0.026489              | 2.437576    | 0.0199    |
| TL                 | 0.011176    | 0.008103              | 1.379275    | 0.1763    |
| R-squared          | 0.759026    | Mean dependent var    |             | 0.006197  |
| Adjusted R-squared | 0.705477    | S.D. dependent var    |             | 0.008188  |
| S.E. of regression | 0.004444    | Akaike info criterion |             | -7.817755 |
| Sum squared resid  | 0.000711    | Schwarz criterion     |             | -7.456422 |
| Log likelihood     | 184.8995    | Hannan-Quinn criter.  |             | -7.683054 |
| F-statistic        | 14.17424    | Durbin-Watson stat    |             | 1.196148  |
| Prob(F-statistic)  | 0.000000    |                       |             |           |

Source: Researcher's construction

## 5. Conclusion and Contribution

This paper analyses the use of loan loss provisions to smooth income by banks using panel data and applying the linear regression model. Similar to the studies of Zoubi and Al-Khazali (2007) and Taktak et al., (2010) results of the whole model suggest that NPL, LD, TL and CHGTL are significant variables while CAR, CHGNPL and EBTP are not significant variables. There is a difference in the explanations of separate categories which extracted from the whole model to the earnings management than the results of the whole model. The results of the whole model with regard to the relationship between EBTP and LLPs are significantly affected by the impact of the two state banks. The relationship between LLPs and earnings before taxes and provisions is positive for the small private banks and systematically important private banks. Thus it can be generalized that private banks in Sri Lanka engage in earnings management behavior while the state banks are not. This finding is in line with that of Beatty et al., (2002) who have discovered that private banks use the LLP and security gain realization to eliminate small earning decreases. The extent of income smoothing through LLP is positively related to the ratio of loans to deposits ratio. As the youngest banks in the banking industry, small private banks effort to capture the market is evident by lending most of their deposits to the customers as loans and advances. Pinho (1997) found that provision for loan losses would be greatly affected by the banks intention to capture high market share from loans and advances. Rapid credit expansion allows banks to concentrate more on the lending activities and increase the credit standards, thus it indicates a negative relationship with LLPs in the banks. However, LNTA and CHGNPL do not have any significant impact for any of the scenarios considered under the study.

Evidence of the study suggests that high risk taking behavior of bank management often leads to poor loan quality. Shareholders must exert appropriate monitoring on managers action and to implement suitable control devices to minimize possible agency conflicts. Earnings management deteriorates the quality of financial reporting and will mislead the stakeholders such as investors, shareholders, regulators, tax authorities as they rely on the numbers in the financial statements. Therefore this study raises the awareness among accounting information users about various earnings management techniques and the findings of the research will be important to regulators. It is recommended to implement a new way of disclosing provision for loan losses than the present reporting system such as to disclose the amount provided for each category namely: substandard, doubtful and loss to increase the transparency in financial reporting.

The study encourages the policy makers to rethink the loopholes of their policies because earnings can be managed using the loopholes of certain rules and regulations. Therefore implementation of appropriate legal frameworks should also be considered by the authorities.

## 6. Limitations of the Study

Although several empirical academic studies have analyzed credit risk on the banking sector, very few studies have been applied for earnings management in the banking sector. The study has focused only on the domestic LCBs in Sri Lanka. Foreign LCBs which are conducting their operations in Sri Lanka have been excluded. Therefore the research would not address the effect of the earnings management of foreign LCBs in Sri Lanka. The change in the Sri Lanka Accounting Standards with regard to the LLPs introduced a new concept known as *impairment* and under the new Accounting Standards there is no provisioning for loan losses. Therefore the 2012 figure of LLP is an unaudited and unpublished value obtained from the unaudited annual reports to ensure consistency because if impairment figure used from the published report then there will be two different bases. Beyond the scope and limitations of this study, considerable sets of opportunities are available for potential researchers in the area of LLPs and earnings management. In general, this study attempted to identify the relationship between LLPs and EBTP of domestic LCBs in Sri Lankan banking sector. For future researchers this study can be extended by taking other important financial institutions in the economy such as Licensed Specialized Banks, Finance and Leasing companies. Also the research can be further extended to see whether there is any difference in single year explanation to the income smoothing than the whole model. In other words significant results for the income smoothing hypothesis can be robust to the time sub-periods. Another opportunity for future research exists in comparative analysis on the relationship between LLPs and EBTP among the domestic LCBs and foreign LCBs in Sri Lanka because in above the researcher has examined only the domestic LCBs. In addition to that it can be further expanded for a cross country analysis among Asian countries.

## References

- Annual reports, Central Bank of Sri Lanka (2011 & 2012)
- Ahmed, A. S., Takeda, C., & Thomas, S. (1999). Bank LLP: A reexamination of capital management, earnings management and signaling effects. *Journal of accounting and economics* , 1-25.
- Anandarajan, A., Hasan, I., & McCarthy, C. (2007). The use of LLP for earnings, capital management and signalling by Australian banks. *Journal of Accounting and finance* , 357-379.
- Beatty, A. L., Ke, B., & Petroni, K. R. (2002). Earnings Management to Avoid Earnings Declines across Publicly and Privately Held Banks. *The Accounting Review* , 547-570.
- Beaver, W. H., Ryan, S. G., & Wahlen, J. M. (1997). When Is "Bad News" Viewed as "Good News"? *Financial Analysts Journal* , 45-54.
- Bhat, V. N. (1996). Banks and income smoothing: an empirical analysis. *Applied Financial Economics* , 505-510.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* , 99-126.
- Chang, R.-D., Shen, W.-H., & Fang, C.-J. (2008). Discretionary LLP And Earnings Management For The Banking Industry. *International Business & Economics Research Journal* , 9-20.
- Chipalkatti, N., & Rishi, M. (2007). Do Indian Banks Understate Their Bad Loans? *The Journal of Developing Areas* , 75-91.
- Financial system stability review, Central Bank of Sri Lanka (2011 & 2012)
- Fitch rating report (2012)
- Fudenberg, D., & Jean, T. (1995). A theory of income and dividend smoothing based on incumbency rents. *Journal of Political Economy* , 75-93.
- Gray, R. P. (2004). The Allowance for Loan Losses and Earnings Management. workin paper, University of Sydney .
- Greenwalt, M. B., & Sinkey, JR, J. F. (1988). Bank loan-loss provisions and the income-smoothing hypothesis: An empirical analysis, 1976-1984. *Journal of financial services research* , 301-318.
- Hasan, I., & Wall, L. D. (2004). Determinants of the Loan Loss Allowance: Some Cross-Country Comparisons. *The Financial Review* , 129-152.
- Henderson, C. C. (1999). The Economic Performance of African-American-Owned Banks: The Role of Loan LossProvisions. *The American Economic Review* , 372-376.

- Kanagaretnam, K., Lobo, G. J., & Mathieu, R. (2003). Managerial Incentives for Income Smoothing Through Bank LLP. *Review of Quantitative Finance and Accounting* , 63–80.
- Kanagaretnam, K., Lobo, G. J., & Robert, M. (2004). Earnings Management to Reduce Earnings Variability: Evidence from Bank LLP. *Review of Accounting & Finance* , 128-148.
- Kanagaretnam, K., Lobo, G. J., & Yang, D.-H. (2004). Joint Tests of Signaling and Income Smoothing through Bank LLP. *Contemporary accounting research* , 843-884.
- Kim, Y., Liu, C., & Rhee, S. G. (2003). The effect of firm size on earnings management. working paper .
- Leventis, S., & Dimitropoulos, P. (2012). The role of corporate governance in earnings management: experience from US banks. *Journal of Applied Accounting research* , 161-177.
- Leventis, S., Dimitropoulos, P. E., & Anandarajan, A. (2012). Signalling by banks using LLP: the case of the European Union. *Journal of Economic Studies* , 604-618.
- Ma, C. K. (1988). Loan loss reserves and income smoothing: The experience in the U.S. banking industry. *Journal of Business Finance & Accounting* , 487-497.
- Mustafa, A. R., Ansari, R. H., & Younis, M. U. (2012). Does the loan losas provision affect the banking profitability case of Pakistan? *Asian Economic and Financial Review* , 772-783.
- Noronha, C., Zeng, Y., & Vinten, G. (2008). Earnings management in China: an exploratory study. *Managerial Auditing Journal* , 367-385.
- Pinho, P. S. (1997). An empirical analysis of the determinants of provisions for loan losses in Portugueses banks. working paper .
- Reverte, C. (2008). Institutional differences in EU countries and their relationship with earnings management differences: Implications for the pan-European stock market. *Journal of Accounting & Organizational Change* , 182-200.
- Shaharudin, R. S. (2004). A Review on Accounts Manipulation Via LLP to Manage Regulatory Capital and Earnings Along Business Cycle. *Jurnal Ekonomy Malaysia* , 99-123.
- Taktak, N. B., Zouari, S. B., & Boudriga, A. (2010). Do islamic banks use LLP to smooth their results? *Journal of Islamic Accounting and business research* , 114-127.
- Wahlen, J. M. (1994). The Nature of Information in Commercial Bank Loan Loss Disclosures. *The Accounting Review* , 455-478.
- Zoubi, T. A., & Al-Khazali, O. (2007). Empirical testing of the loss provisions of banks in the GCC region. *Managerial Finance* , 500-511.