

Asian Banking Implications from Crisis: Malaysian Commercial Banks' Income Smoothing Behaviour through Loan Loss Provisions

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Abstract: This paper used results of panel least squares regression model to study on income smoothing behaviour through loan loss provisions of commercial banks in Malaysia during the Asian finance and banking crisis covering from the Asian currency crisis 1997, the United States sub-prime crisis 2009, and the current Euro debt crisis. Income smoothing behaviour is defined as behaviour that earnings do not dip or rise according to actual performance, and thus shows little fluctuations. The findings showed the banks in Malaysia did not smooth their income through loan loss provisions. Some possible explanations were good governance with stringent conditions imposed by regulators instead of market discipline.

Key words: non-performing loans; income smoothing; loan loss provisioning practices **JEL code:** G21

1. Introduction

Among the Asian countries, Malaysia, Thailand and Indonesia are referred to as "the East Asian Miracle" or the newly industrialized economies (NIEs) by the World Bank (1993) policy report. The report makes this reference due to the countries' tremendous real economic growth rates recorded in 1960 to 1990. Antoine W. Van Agtmael, from capital markets department of World Bank's International Finance Corporation (IFC), coined the term "emerging markets" to refer to these Asian countries that experienced high economic growth attributed by the countries' net exports, principally, products of natural resources, agricultural base and manufacturing products. However, in July 1997 the economic growth of these countries came to a sudden halt accompanied by "a dramatic and (largely unpredicted)" (Liam, 2000, p. 802) currency crisis in Thailand, that soon after spread across Asia, affected countries like Indonesia, Malaysia, South Korea and the Philippine. In any finance and banking crisis, Rottke & Gentgen (2008) document the existence of "non-performing loan market, a temporary phenomenon" (p. 59) affecting the balance sheets of the commercial banks. Lin & Mei (2006) in their measurement of value-added approach to bank lending, wrote about many of the banks that went bankrupt because of the existence of large number of the non-performing loans. The United States experienced similar significant rise of non-performing loans during a distressed debt cycles from 1989 to 1994 due to savings and loans crisis; and again in 2009, due to problems of sub-prime lending. Goddard, Molyneux & Wilson (2009) in their writings of financial crisis that currently hitting on Europe, attribute it to events that originated from the United States. The present Euro debt crisis continues to deteriorate and drains the world of its funding requirements.

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According to Malaysian Law Journal, "non-performing loan (NPL)", is any loan to a person by a licensed institution, which has been in arrears for a period of times as may be determined by the bank. The precise definition of NPL differs across countries, where some refer it as any loan that is for more than a month in default, while others refer to "any loan that is delinquent for more than 30 days" (Angklomkliew, George & Packer, 2009, p. 70). When the banks cannot recover part or full amount of the loans that is classified as non-performing, the banks will make an appropriate provision for possible losses on the loans. Podder and Al Mamun (2004, p. 73), referred loan loss provisions as "a method that banks use to recognize a reduction in the realizable value of their loans".

This paper used panel data least square analysis combining observations of both, the banks ("cross-section"); and periods of time ("time series"), over the three crisis—the Asian currency, the US sub-prime and the Euro debt—and studied on the Malaysian commercial banks' income smoothing behaviour through loan loss provisions.

2. Income Smoothing

A series of banking literatures have documented pro-cyclical loan loss provisioning practices with higher provisioning during periods of economic downturn than during periods of economic growth. Ismail, Shaharudin and Samudhram (2005) in their studies on Malaysian banks earnings smoothing, define earnings smoothing behaviour as a behaviour that exhibits earnings do not dip and rise according to actual performance. As a result, the earnings exhibit little fluctuations from one year to another. Dermine and Carvalho (2006) drew on similar results from earlier studies of Laeven and Majnoni (2003), Hasan and Wall (2004), and Bikker and Metzemakers (2005), from across the globe, earnings smoothing practices. From the same studies, Dermine and Carvalho (2006) documented bank managers exercise freedom in provisioning for loan losses, in works of Wahlen (1994), Wetmore and Brick (1994), Collins et al. (1995), Beattie et al. (1995), Soares de Pinho (1996), Kim and Kross (1998); and Ahmed, Takeda & Thomas (1999).

Another group of researchers, Zoubi and Al-Khazali (2007) write on factors that affected loan loss provisions among regional banking groups of the Gulf Cooperation Council (GCC), were to achieve several objectives, most important, was to smooth earnings. This finding was consistence with earnings smoothing hypothesis. Using regional banks' data from 2000 to 2003 on provisioning of loan losses, Zoubi and Al-Khazali documented earnings smoothing hypothesis was common amongst "different regulatory requirements, economic conditions, and different accounting standards." (p. 6). Because of data availability, prior studies used data from United States, Japan and Europe; however, in their studies, Zoubi and Al-Khazali used data on loans and investment in murabah, musharkaha and mudarabah from the annual reports of banks in the GCC region and Institute of Banking Studies in Kuwait. From recent findings, Taktak, Zouari and Boudriga (2010) documented "Islamic banks probably use profit equalization reserve and investment risk reserve (in order) to maintain stable results." (p. 124).

Subsequently, Taktak (2011) extends the study on Islamic banks' smoothing practices. In this study, the author concludes the banks engage in income smoothing practices principally because of the nature of the Islamic financial products rather than intentional. In respect to the two types of income smoothing; natural and intentional, the author refers to Albrecht & Richardson (1990), "natural smoothing results from an income producing process while intentional smoothing results from the manager's deliberate will to minimize the variability of results over time" (p. 142). The Islamic financial products are based on Shariah principle of sharing of profit and loss. Further, an important effect on the way Islamic banks handle risks is "all investments are backed by physical asset and there cannot be pure speculation in money terms alone" (Hussain & Al-Ajmi, 2012, p. 237).

Zoubi and Al-Khazali (2007, p. 503), quote earlier findings of Hassan and Wall (2004) on determinants of allowance for loan loss in four major economies—United States, Europe, Canada and Japan during 1993-2000. The authors documented evidences "loan loss reserve ratio was a significant factor in explaining the allowance for loan losses" for banks in the United States but not for banks in other places like Europe, Canada and Japan.

Zoubi and Al-Khazali (2007) in their critical studies on loan loss provisioning practices in Islamic versus non-islamic loans among banks in the Gulf Cooperation Council (GCC) region during 2000 to 2003, write on reduced perceive credit risks that resulted in lower cost of borrowings among the banks. According to both authors, "Islamic and conventional banks behave in the same manner in dealing with (loan) loss provision." (p. 506). Zoubi and Al-Khazali (2007) refer to previous works of Greenwalt and Sinkey (1988) on implications on banks' income, from loan loss provisioning practices, discovered wide-spread practices among banks in using of loan loss provisions to smooth their earnings. Furthermore, Zoubi and Al-Khazali, refer to earlier findings by Bhat (1996) the trend was quite common among banks when they "experience low growth, low book-to-asset ratio, high loans-to-deposit (LD) ratio, high debt-to-asset ratio, low market-to-book value ratio, low return on assets, high loan-loss provisions to gross loans ratio, and low assets" (p. 501).

Any shortfall in loan loss provisions automatically leads to an overstatement in profits. The method to provide for any loans that are classified in default status is important, because it can hamper any recovery efforts, according to Siddiqui and Podder. Both authors used sample of banks operating in Bangladesh from 1997 to 2000 consisting of nine government-owned banks, 20 domestic private banks and 13 foreign banks. Anandarajan et al. (2005) document on use of loan loss provisions among Australian commercial banks during post-Basel period for earnings management discovered that managers have incentive to manipulate earnings. Their studies documented that its commercial banks, relative to other type of banks engaged actively in managing earnings using loan loss provisions. Anandarajan et al. (p. 9), concur with Ahmed et al. (1999) who defined "earning management as smoothing earnings", on basis of connections of loan loss provisions and earnings before taxes. Furthermore, Anandarajan et al. document bank managers have a motive to engage in earnings management as "reduced volatility is assumed to convey a signal of lower risk" (p. 9).

Although several studies document positive connections of loan loss provisions and earnings management, Anandarajan et al. (2005) refer to earlier works of Bhat (1996) who discovered "banks that engaged in aggressive income smoothing were in poorer financial health relative to others." (p. 7). Also, Anandarajan et al. report evidences documented by Ma (1998) and Collins et al. (1995), loan loss provisions are a means to convey lower volatility of earnings by banks. Furthermore, a positive association of loan loss provisions and earnings management was reported. However, for other tools, they were used only to manage capital. Anandarajan et al. (2005) report not all studies resulted in the same findings. An example was in earlier findings of Wetmore and Brick (1994) who documented "no evidence that LLPs are used as a tool for earnings management." (p. 7). In the same vein, Anandarajan et al. (2005) refer to previous works of Beatty et al. (1995) who discovered "no association between LLPs and earnings management by the banks in their sample." (p. 8).

In Australia, it was documented mainly its commercial banks, when compared to other types of banks, engaged more aggressively in earnings management using loan loss provisions. Lin & Mei (2006) refer to earlier findings of Rehm (2002) who documented criteria of Basel II framework resulted in bankers to "reserve for loss" (p. 272). In the framework, due to any movements in amounts of loan loss provisions could only make a limited contribution, Anandarajan et al. (2005) concluded "increasing or reducing the LLPs for the purpose of managing earnings has no effect on capital adequacy ratio." (p. 7). As a result, there was less restriction in using it to manage

earnings. In studies among Egyptian companies, Kamel and Elbanna (2010) document among more common technique in manipulating earnings is through loan loss provisions especially when their companies provide inadequate amounts of loan loss provisions in the previous period.

3. Research Methodology

In this study, traditional or classical methodology of econometrics is employed that uses observational data on bank-specifics and macroeconomic factor peculiar to Malaysia. The data on bank-specifics are secondary data (Loan loss provisions (LLP), Non performing loans (NPL), bad debt recoveries, interest income, net profit; and loans & advances) of nine locally-incorporated and three largest, in terms of assets, foreign-owned commercial banks in Malaysia.

The twelve (12) commercial banks are;

- (1) Maybank (Malaysia) Berhad
- (2) CIMB Bank (Malaysia) Berhad
- (3) Public Bank (Malaysia) Berhad
- (4) RHB Bank (Malaysia) Berhad
- (5) AmBank (Malaysia) Berhad
- (6) Hong Leong Bank (Malaysia) Berhad
- (7) EON Bank (Malaysia) Berhad
- (8) Affin Bank (Malaysia) Berhad; and
- (9) Alliance Bank (Malaysia) Berhad.
- (10) HSBC Bank (Malaysia) Berhad
- (11) Standard Chartered Bank (Malaysia) Berhad; and
- (12) Citibank (Malaysia) Berhad.

The dependent or regress and variable is "loan loss provisions (LLP)"; and the independent or regressor or predictor variables are "non performing loans(NPL)", "bad debts recoveries", "interest income", "net profit", "loan & advances"; and "Gross Domestic Product (GDP)". The independent variables are theorized to provide information on determinants of loan loss provisions (LLP) of commercial banks in Malaysia.

An estimate of "recoveries of bad debts" is one of the independent variable in view of an estimate of "recoveries" would be used in the calculation of loan loss provisions (LLP) "n" months in arrears. In calculation to determine any estimated losses in loan portfolios, would be affected by an expectation of "recoveries". For example, an expectation of recoveries of 80%—3 months and less than 6 months after the days in arrears—would require loan loss provisions (LLP) to be set at 20%. This is an amount to be set as loan loss provisions (LLP). It is an amount that is not estimated to be recovered. In studies by Podder and Al Mamun (2004), the authors use data on recovery status from settlement of suits in proving that making too much provisions, has no relation to bad debt recoveries. Dermine and Carvalho (2006) also use "past cumulative recovery rate" (p. 14) as one of explanatory variables in their econometric model in their studies on loan loss provisioning (LLP) practices among Portuguese commercial banks.

In banking crisis, when an economy experienced distressed debt cycles, Rottke and Gentgen (2008) find evidence the existence of non-performing loans (NPL) that are present in balance sheet of banks. In another study, Lin and Mei (2006) find evidence that large number of non performing loans (NPL) is main causes of bank failure.

Boudriga et al. (2009) in analysis on banks in several countries document bank failures mainly attributed to non-performing loans (NPL). The authors document large disparities between NPLs levels in developed and developing countries. Therefore, it is assumed a causal relationship between non performing loans (NPL) and loan loss provisions (LLP).

In their studies on Malaysia banks' earnings manipulation practice through loan loss provisions (LLP), Ismail et al. (2005) construct their econometric model that include "change in total non-performing loans (NPL) for bank i in the year t" (p. 44), as one of the independent variables. Furthermore, the level of non-performing loans (NPL) is has a negative relationship to economic growth. When an economy of a country is in distress, there is a chance that the level of non-performing loans (NPL) would increase. When loans become non-performing (NPL), all banks are expected by regulators to provide for any possible losses, according to Taktak (2010). Dermine and Carvalho (2006) identify, loan loss provisions (LLP) represents an expected losses on a portfolio of impaired loans." (p. 3).

Boudriga et al. (2009) regard loan loss provisions as a controlling mechanism over estimated losses. In this case, the authors refer to earlier findings of Hasan and Wall (2004), "higher levels of NPLs are associated to with high rates of provisioning." (p. 289). However, based on their own findings, the authors find evidence of negative relationships between NPLs and loan loss provisions (LLP). Their results indicate countries with higher levels of NPLs exhibit lower LLP; and "countries with low rates of NPLs adopt better provisioning policy (higher loan loss provisions)." (Boudriga et al., 2009, p. 298).

One of uses of loan loss provisions (LLP), Zoubi and Al-Khazali (2007) report, to smooth earnings to achieve certain objectives. The earnings smoothing is defined by Ahmed, Takeda and Thomas (1999), whose examination on relationships between loan loss provisions (LLP) and earnings before taxes, as an exercise to underestimate loss provisions (LLP) during low-year-earning, and overestimate loss provisions (LLP) in high-year-earning. In this way, banks move earnings among periods to smooth their income over periods of time. The banks have inclinations to achieve several objectives by doing this, and their willingness to provide for loan losses is regarded as a strong belief in their future performance. Hence, a causal relationship among interest income and net profit on loan loss provisions (LLP) is theorized to exist.

Also, banks profitability may determine the risk taking behaviour of their managers. "Banks with high profitability are less pressured to revenue creation and thus less constrained to engage in risky credit offerings" (Boudriga et al. 2009, p. 289) that could result in high NPLs; therefore, is theorized bank profitability is negatively associated with NPLs.

Balla and McKenna (2009) document cyclicality of loan loss provisioning practices, where "during periods of economic expansion, provisions fall (as a percentage of loans) and conversely, they rise during downturns." (p. 393). Dermine and Carvalho (2006) include among others "the size of loan, GDP growth" (p. 14) as explanatory variables in their econometric model in their studies on loan loss provisioning practices among Portuguese commercial banks.

Gross Domestic Product (GDP) has an influence on loan loss provisions is in agreement with by Balla and McKenna (2009), "from 1991-1999, Spain's correlation between loan loss provisioning levels and GDP was 0.97, the highest in the Organization for Economic Co-operation and Development (OECD)." (p. 399). It is during boom years when an economy experience growth in Gross Domestic Product is when there is also a tremendous growth in loan and advances among banks. In another studies, Balla and McKenna (2009) document procyclical

provisioning is event driven that is, to build up reserves during boom years when there is tremendous growth in loans and advances. Both authors study pro cyclical provisioning in Spain, illustrate timing of provisioning is more important than level of provisioning. According to Balla and McKenna in loss provisioning, "key difference is not the level of provisioning but the timing of the provisioning." (p. 386). Additionally, the use of Gross Domestic Product (GDP) as an indicator to determine loan loss provisions (LLP) is when both authors also observe "Spanish loan loss provisions historically demonstrated high pro cyclicality with the business cycle. From 1991-1999, Spain's correlation between loan loss provisioning levels and GDP was 0.97, the highest in the Organization for Economic Co-operation and Development (OECD)." (p. 399)

From European Central Bank's working paper on non-performing loan, Beck, Jakubik and Piloiu (2013) studying on economic cycle, claim "a drop in global economic activity as measured by GDP) remains the most important risk for bank asset quality" (p. 2).

The Moderating variable that has contingent effect on the independent variable-dependent variable relationship is banks' policy objectives in respect to Non-performing loans (NPL), bad debts recoveries, interest income, net profit, loans & advances, and GDP. Banks' policy objectives in regards to Non-performing loans (NPL), bad debts recoveries, interest income, net profit, loans & advances, and GDP. Banks' policy objectives in regards to Non-performing loans (NPL), bad debts recoveries, interest income, net profit, loans & advances, and GDP, moderate the relationships between the independent variables and banks' reporting of their loan loss provisions (LLP).

The Intervening variable that surfaces at the time independent variables start operating to influence the dependent variable and surfaces as a function of independent variables is relevance and faithful representation in financial reporting. This variable has a temporal quality or time dimension.

Today, information contents provided in financial reports of banks have been improved to include information in addition to what is found in a traditional set of financial statements. The financial reports today have become more focus on informational needs of existing and potential investors, lenders and creditors as highlighted by McConnell (2011) of International Financial Reporting Standards (IFRS). The Standards listed two qualitative characteristics of financial information: (1) fundamental; and (2) enhancing.

In determining of loan loss provisions (LLP), the reporting needs today is that, it has to be relevance, that any recovery expected in provisioning process must have predictive value of how much of the defaulted loans is expected to be recovered; and confirmatory value that it provides feedback to banks about their previous estimated amounts of recoveries.

Furthermore, reporting needs have been improved in that the amount of provisions for losses on loans (LLP) is not be overstated, understated, emphasized or de-emphasized; and free from errors that the amount of provisions for losses on loans need not be perfectly accurate, but adequate and reasonable. Kamel and Elbanna (2010) refer to earlier findings of Levitt (1998) on quality of financial reporting declines due the rise in earnings manipulation. The latter declares that "earning management is on the rise and the quality of financial reporting is on the decline." (p. 33)

4. Framework

In a schematic diagram below is the conceptual of research framework that visualizes the network of associations among the variables discussed above.

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Figure 1 The Conceptual of Research Framework

5. Hypothesis Development

The study hypothesizes due to implications from Asian finance and banking crisis, Malaysian commercial banks use loan loss provisions to smooth their income.

The hypothesis, in its null and alternate form, is stated as follows:

H₀: Banks use loan loss provisions to smooth their income.

H_A: Banks do not use loan loss provisions to smooth their income.

If banks use loan loss provisions to smooth their income, a *positive* relationship is expected between loan loss provisions (dependent variable) and net profit (one of the independent variables). In better years, when profits are higher, banks could afford higher loan loss provisions, and inversely, in bad years when profits are lower, banks could afford lower loan loss provisions. Thus, a *positive* relationship between loan loss provisions and net profits indicates banks' use of loan loss provisions to smooth their income. This argument is supported by Packer & Zhu (2012) in their studies on loan loss provisioning practices among Asian banks, "if banks use provisions to smooth earnings, there should be a *positive* relationship between provisions and earnings." (2)

6. Estimation of Panel Data Multiple Regression Models

In this analysis, a single stage equation panel data multiple regression model is used, Ismail et al. (2005) refer in previous studies on earnings management of banks by Ahmed et al. (1999), and Lobo & Yang (2001), the model "avoids under estimation of variable." (p. 43). However, a classical linear regression model (CLRM) that assumes homoscedasticity, i.e., constant or equal variance among the banks is not fulfilled in this study. This is due to the data on different banks that "cuts across different time periods." Ismail et al. (p. 44). For larger banks, for instance, on average may report higher loan loss provisions than that of smaller banks. Therefore, from Ismail et al.'s findings on Malaysian banks' earnings management through loan loss provisions, based on the characteristics of the data obtained, a Generalized Least Squares (GLS) method is deemed more appropriate in examining the relationships among variables that are theorized to exist. In the same vein, Gujarati & Porter (2009) document in their book on development of theory and practice of econometrics, in the Generalized Least Squares (GLS) "observations coming from populations with greater variability are given less weight than those coming from populations with smaller variability." (p. 371). It takes into account information such as, unequal variability, and is capable of producing estimators that are BLUE (Best Linear Unbiased Estimator).

A regression model is:

 $LLP_{it} = B_{1i} + B_2NPL_{it} + B_3RC_{it} + B_4II_{it} + B_5NP_{it} + B_6LA_{it} + B_7GDP_{it} + u_{it},$

LLP = loan loss provisions, a dependent variable

Where,

i = 1, 2, 3, 12 (i.e., "i"= identity for 12 banks)

t = 1,2,3,....14 (i.e., "t"= time for 14 years, i.e., from 1996 to 2009)

 B_{1i} =intercept that is mean or average value of Y (i.e., loan loss provisions) when NPL, bad debts recoveries, interest income, net profit, loans & advances, and GDP, are equal to zero

 B_2 = partial regression coefficient that measures the mean value of LLP per unit change in NPL holding the values of bad debts recoveries, interest income, net profit, loans & advances and GDP constant

NPL = Non Performing Loan (NPL)

 B_3 = partial regression coefficient that measures the mean value of LLP per unit change in bad debts recoveries holding the values of NPL, interest income, net profit, loans & advances and GDP constant

RC = bad debts recoveries

 B_4 = partial regression coefficient that measures the mean value of LLP per unit change in interest income holding the values of NPL, bad debts recoveries, net profit, loans & advances, and GDP constant

II = Interest Income

 B_5 = partial regression coefficient that measures the mean value of LLP per unit change in net profit holding the values of NPL, bad debt recoveries, interest income, loans & advances and GDP constant

NP = Net profit

 B_6 = partial regression coefficient that measures the mean value of LLP per unit change in loans & advances holding the values of NPL, bad debt recoveries, interest income, net profit and GDP constant

LA = Loans & Advances

 B_7 = partial regression coefficient that measures the mean value of LLP per unit change in GDP holding the values of NPL, recoveries, interest income, net profit and loans & advances constant

GDP = Gross Domestic Product (GDP) where GDP = 1 if the GDP for the year is higher than that of the previous year; GDP = 0, otherwise

 $u_{bt} = random \ error$

7. Findings

7.1 Descriptive Statistics

In the Table 1 below is the descriptive statistics for all the variables.

Over 15 years of observations from 1996 to 2011, Loan loss provisions has a mean of 314, 380.80, for all 12 commercial banks, and a maximum of 2,137,753 reported by Maybank in 1998, and minimum of -5,263.0 reported by Alliance Bank in 2009. The Loan loss provisions, as a dependent variable has a standard deviation of 349,729.1.

The Non-performing loans, as one of independent variables, has a mean of 1,974,975.0 and a standard deviation of 2,04,453.7 in the 15 years of observations from 1996 to 2011 for all the 12 commercial banks in the

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study, and a maximum of 11,698,495 reported by Maybank in 2001, and minimum of 12,884.0 reported by AmBank in 1996. The recoveries for all the 12 commercial banks, has a mean of 132,859.30, and a maximum recoveries of 1,420,027 reported in 2010 by Maybank. The standard deviation for recoveries is 204,453.7 and the mean for recoveries is 132,859.3. The Interest income has a standard deviation of 2,116,613 for all the 12 commercial banks in the study, and a maximum of 10,913,975 reported by Maybank in 2008, and minimum of 233,719.0 reported by EON Bank in 1996.

Table 1 Descriptive Statistics						
Variable	Mean	Median	Maximum	Minimum	Std. Dev.	
LLP	314380.8	177151.5	2137753	-5263.0	349729.1	
NPL	1974975.0	1297086.0	11698495	12884.00	204453.7	
Recovery	132859.3	58673.50	1420027.0	4.00	204453.7	
INTINCOME	2415586	1602341.0	10913975	233719.0	2116613	
NPROFIT	575015.7	326414.5	3809643	-747505	7477505	
LOANADV	30299590	19046965	182000000	2659027	30867921	

Over 15 years of observations from 1996 to 2011, Net Profit has a mean of 575,015.7 for all 12 commercial banks, and a maximum of 3,809,643 reported by Maybank in 2005, and minimum of -747,505, a net loss reported by Affin Bank in 2001. The Net Profit, as one of independent variables has a standard deviation of 7,477,505. The loan & advances reported in the 15 years of observations from 1996 to 2011 for all the 12 commercial banks in the study has a mean of 30,299,590, and minimum loan & advances of 2,659,027 registered in 1996 by EON Bank. The standard deviation for loans & advances for all the 12 commercial banks is 30,867,921.

7.2 Normality and Linearity Tests

In construction of the model, there are two assumptions: (1) normality distribution; and (2) linearity assumption that are needed to be established. If failure to satisfy these two assumptions, it may result in a less-than-satisfactory model.

7.3 Normality Distribution Test

Normality distribution test can be checked through normal distribution of data and is always been associated with the feel for data analysis. In this research, data is studied to determine whether they are normally distributed, henceforth capable of satisfying parametric assumptions and modelling process. The measurements that are being used to assess the normality distribution are Jarque-Bera, Skewness and Kurtosis. This test was applied for each variable which use ratio scale as tabulated below.

Variable	SKEWNESS KURTOSIS		JARQUE-BERA (P-VALUE)		
LLP	2.00	2.00	641.00	0.000	
NPL	2.00	11.00	349.00	0.000	
RECOVERY	3.00	8.00	1250.00	0.000	
INTINCOME	2.00	14.00	184.00	0.000	
NET PROFIT	2.00	6.00	322.00	0.000	
LOANS ADVANCES	2.00	8.00	345.00	0.000	

Table 2 Skewness and Kurtosi

In order to examine the skewness and kurtosis, values must be between ± 2 , and for Jarque-Bera (P-value) must be greater than 0.05, otherwise, data is not normal.

Since the skewess and kurtosis for all variables above were not between ± 2 and Jarque-Bera (P-value) less than 0.05, the normality assumption was not met. Due to this, a transformation technique was employed in order to achieve the normality data, and continued with a square root technique to transform the data. The result of normality after transformation is as below.

Variable	SKEWNESS	SKEWNESS KURTOSIS		JARQUE-BERA (P-VALUE)	
LLP	1.0633	1.3073	5.13373	0.0642	
NPL	0.9542	0.8533	2.04338	0.0894	
RECOVERY	1.3061	1.9382	6.85228	0.7613	
INTINCOME	1.0970	0.7574	9.8289	0.8173	
NET PROFIT	1.1153	1.2191	4.57446	0.0929	
LOANS ADVANCES	1.2612	1.2872	8.79473	0.9883	

Table 3 After Transformation Technique (By Square Root Technique)

Since the skewess and kurtosis for all variables above were between ± 2 and Jarque-Bera (P-value) were more than 0.05, the normality distribution assumption was established.

	LLP	NPL	RECOVER	INTINOME	NPROFIT	LOAN	GDP
LLP	1	0.68275	0.125229	0.599253	0.264069	0.568361	0.038199
NPL		1	0.287615	0.542108	0.357481	0.630538	0.256012
RECOVER			1	0.495809	0.535308	0.595219	-0.11026
INTINCOME				1	0.754543	0.905826	-0.09088
NPROFIT					1	0.833608	-0.01777
LOAN						1	-0.03426
GDP							1

Table 4 Linearity Assumption Test

The linearity assumption test is to ensure that the dependent variable (LLP) is a linear function of set independent variables. This is, to mean that at least one of independent variables has a significant relationship towards the dependent variable (LLP). A perfect correlation of 1 or -1 indicates that the value of the variable can be determined exactly by knowing the value of the other variable. On the other hand, a correlation of 0 indicates no relationships between the two variables. The size of the absolute value (ignoring the sign) provides an indication of the strength of the relationships. In this research, the correlation coefficient will be used to explore the strength of relationships for each variable. The strength to explore the relationship among the variables is as per tabulated below:

Table 5	The Strength	of Relationship
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No.	Correlation coefficient	Type of strength
1.	0.1 to 0.29 or -0.1 to -0.29	Weak
2.	0.30 to 0.49 or -0.30 to -0.49	Moderate
3.	0.50 to 1.0 or -0.50 to -1.0	Strong

Based on the above, there exist strong relationships between loan loss provisions (LLP), and non-performing loans (NPL) and interest income. And, there exist weak relationships between loan loss provisions (LLP), and recoveries and net profit.

8. Results & Discussions

Panel Least Squares

Dependent Variable: LLP Method: Panel Least Squares Sample: 1996-2013 Periods included: 15 Cross-sections included: 12 Total panel (balanced) observations: 2160

Variable	Coefficient	Std. Error	t-Statistic	P-value
С	47.559420	36.475430	1.303875	0.194100
NPL	0.175779	0.029309	5.997414	0.000000
RECOVERY	-0.251943	0.068956	-3.653700	0.000300
INTINCOME	0.203114	0.049558	4.098523	0.000100
NETPROFIT	-0.273155	0.062467	-4.372756	0.000000
LOANADV	0.037588	0.018139	2.072278	0.039800
GDP	-26.068220	26.839710	-0.971255	0.332900
R-squared	0.635563	Mean dependent var		483.8581
Adjusted R-squared	0.622066	S.D. dependent var		256.6877
S.E. of regression	157.8023	F-statistics		47.0871
Sum squared resid	4034052	Prob (F-statistic)		0.000000

As seen from the table above, non-performing loans (NPL) is positively related to loan loss provisions (LLP); it is statistically significant, with a strong relationship with a t-statistic of 5.997414. Loan loss provisions (LLP), has a negative relationship with bad debt recoveries (Recovery), and it is statistically significant (p = 0.000300).

For these variables, the interpretation is that, for every \$1,000 increase in non-performing loans (NPL), it is estimated about \$0.175779 increase in loan loss provisions (LLP). And, for every \$1,000 increase in bad debts recoveries (Recovery), it is estimated about \$0.251943 decrease in loan loss provisions (LLP).

Both, interest income, and loans & advances have positive relationships with loan loss provisions (LLP). For interest income, the interpretation is, for every \$1,000 increase in interest income, it is estimated about \$0.203114 increase in loan loss provisions (LLP). For loan & advances, the interpretation is, for every \$1,000 increase in loan & advances, estimated about \$0.037588 increase in loan loss provisions (LLP). On the other hand, net profit has a negative relationship with loan loss provisions (LLP), so that for every \$1,000 increase in net profit, it is estimated about \$0.273155 decrease in loan loss provisions (LLP). Also, loan loss provisions (LLP) has a negative relationship with Gross Domestic Product (GDP), but not significant (p = 0.332900). A high F-statistics at 47.0871, and results are statistically significant (p-value = 0.0000) less than $\alpha = 0.005$. Regression coefficients of R² value 0.635563 showed fit of the regression model to data, indicating 63.6% of the variance of loan loss provisions is explained by non performing loan, recovery, interest income, net profit, and loan & advances.

If banks use loan loss provisions to smooth their income, a positive relationship is expected between loan loss provisions (dependent variable) and net profit (one of the independent variables). In better years, when profits are higher, banks would afford higher loan loss provisions, and likewise, in bad years when profits are lower, banks would afford lower loan loss provisions. Thus, a positive relationship between net profits and loan loss provisions indicates banks use loan loss provisions to smooth their income.

However, in the table above, there is a *negative* relationship between net profit and loan loss provisions. This is to mean that banks *do not use loan loss provisions to smooth their income*. Henceforth, the hypothesis that banks use loan loss provisions to smooth their income is *rejected*.

9. Concluding Remarks

This finding that Malaysian commercial banks do not, during the crisis periods, smooth their income through loan loss provisions is in tune with previous studies on Malaysia banks' earnings manipulation practice through loan loss provisions, Ismail et al. (2005) write possible explanations, are good governance with stringent conditions imposed by regulators instead of market discipline.

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