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Analysis of Loan Loss Provisions: Malaysia and Gulf Corporation Countries (GCC) Islamic Banks

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Abstract

This paper examines the relationship between loan loss provisions (LLP) in connection with bank profitability, bank liquidity and bank capital. We investigate loan loss provisions (LLP) of Islamic banks in Malaysia and the Gulf Cooperation Council (GCC). This paper seeks to analyze a full-fledged Islamic banking system operating on a parallel basis with a full-fledged conventional system. The sample micro balance panel data analysis comprises a total of 196 Islamic banks covers the period 2006-2012. Analysis was carried out via Generalized Methods of Moments (GMM) model. The authors estimate Generalized Methods of Moments (GMM) models perfectly to overcome endogeneity problems. The evidence remains valid for all instrument used in this study, including loan loss provisions, total deposit ratio, equity loan ratio, and return on average equity and gross domestic products. The empirical result shows loan loss provisions (LLP) is found to be statistically significant for our full samples and GCC Islamic banks but not in the case of Malaysian Islamic banks.

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Keywords: Loan Loss Provisions, Income Smoothing, Generalized Methods of Moments

1. Introduction

Income smoothing hypothesis uses as earning quality indicators, managing capital, earning management aspect and a signaling device of bank performance (Olson and Zoubi, 2014; Taktak, 2011; Francis, LeFond, Olsson and Schipper, 2004). Bank managers have imposed income smoothing during an economic expansion or downturn through earning management or manipulation. As a result, higher share prices can be maintained and compensation targets of bank managers can be met (Balla et al., 2012). In determining income smoothing hypothesis portrayed by (Niswander & Swanson, 2000; Anandarajan et al., 2003, 2005).

On the contrary, little concern has been put by previous researchers in investigating income smoothing hypothesis to the extent of Islamic banks. Among the recent work, of income smoothing hypotheses was done by (Othman & Mersni; 2014). It was postulated that Islamic banks have a unique environment and specific framework for their operation. Such operational framework inclusive (i) *Shariah* principles that are used to govern such banks (ii) dynamic provisioning and (iii) stable return to reward depositors.

There are two empirical researches on earnings management using loan loss provisions (LLP) that had been done separately for Malaysia and GCC. Using a sample of Malaysia banks over the year 1997 to 1999, Ismail and Be Lay (2002) found that LLP is important for earnings management. Similarly, Zoubi et al., (2007) support income smoothing hypothesis exercise by banking institutions in the GCC. The study estimates 65 conventional and Islamic banks. The result of their study shows income smoothing hypothesis via Islamic banks is important even though Islamic banks are well known for their specific supervisory bodies and regulations to stabilize its financial outcomes.

This paper undertook an empirical analysis to evaluate income smoothing hypothesis by means of loan loss provisions (LLP) particularly in Malaysian and GCC Islamic banks. A total of 28 Islamic banks comprise of 196 bank-year observations from these countries was drawn from the list in Bankscope ranging from 2006 to 2012. The exercise is confined Malaysia and the Gulf Corporation Council (GCC) in

one study is interesting because it provides understandings on the use of loan loss provisions (LLP) between countries of different region and economic activities. It is also important to compare evidence on the use of income smoothing in these countries after 2008/2009 financial crisis, context are more recent than other studies. Our analysis highlighted the important recent data after crisis in explaining Islamic banks in the GCC signaling alarming condition of its profits since these countries badly affect by regional crisis.

2. Related Literature Review

We viewed two strand of related literature review on income smoothing hypothesis in terms of LLP among conventional banks and Islamic banks. Wide literatures are found to existing conventional banks. Our study contributes to existing income smoothing in the landscapes of Islamic banks. Conventional banks' activity is based on credits. Eventhough some specific risks can be diversified away by investors in banks, but this is not the case for earnings variability of individual bank. In the same vein, majority of literature evidence loan loss provisions to manage bank earnings. The results from previous literature support the use of LLP by bank managers to mitigate deterioration in the bank's credit portfolio (Fonseca & Gonzalez, 2008; Hasan & Wall, 2004).

Most of the previous literature focuses on United States banks in an attempt to test income hypothesis through LLP to smooth earnings. For examples, Ma (1988) took a sample of 900 panel observations of United States banks between 1980 and 1984 and concluded that provisioning policy is used by United States banks to manage earnings. The same result supported by Bhat (1996) for a sample of 148 United States major banks using a longer time span from 1981 to 1991. A few studies had tested income smoothing hypothesis in other countries than United States (Naciri, 2002; Argawal et al., 2007). Specifically, Naciri (2002) indicates that earning management by the Canadian banks is not affected by the execution of the Basel Accord.

This study supplements the existing literature studies related to income smoothing potentially by Islamic banks is scarced. There are three different studies conducted on Islamic banks in Malaysia. The first study was by Ismail and Be Lay (2002) that support bank management, LLP smooth earnings from the sample 1997-1999. This evidence is also supported by Shahimi et al., (2006) in their study that selected 15 conventional banks offering products and services of Islamic banking. The study uses longer time frame which is between 1996 and 2003. Nevertheless, study by Ismail et al., (2005) provide different results in which income smoothing practices through LLP is not applicable in 10 Malaysian conventional banks offering Islamic banking products between 1998 to 2001. In the case of the GCC region, Zoubi and Al-Khazali (2007) support income smoothing hypothesis.

Recent evident loan loss provisions during financial crisis traced in work done by Curcio et al., (2014). The implied on banks provisioning behaviour test for income smoothing and capital management obtained from conventional Chinese banking system. They utilise a sample of unbalanced panel data from year 2007-2012. The conclusion drawn support the use of loan loss provision (LLP) for Chinese conventional banks to smooths their income but not in the case of capital management. From the previous literature, we accept as true that income smoothing practices is particularly important for Islamic banks just like their conventional counterparts. Alternatively, this study the gap in comparing income smoothing of Islamic banks from Malaysia and the GCC starting from 2009 onwards.

3. Data Sources

To address the questions raised above, we conduct our balance panel data analysis on a micro data set of established and emerging Islamic banks: Malaysia and Gulf Corporation Council (GCC) countries. The study sample comprises 196 bank-year observations. The sample reflects information over 28 banks for the period 2006-2012. The data were obtained from Bankscope.

3.1 Hypothesis Testing

This section describes the critical indicator for examining the effect of income smoothing hypothesis and signals about future losses and earnings, we denote exogenous variable as Loan Loss Provisions (LLP). Express as ratio of Loan Loss Provisions over gross loan. The empirical specification for LLP to measure income smoothing hypothesis is based on (Bouvatier and Lepetit, 2012). We expect there is positive relationships between Loan Loss Provisions (LLP) and bank profitability, bank liquidity and bank capital.

Hypothesis 1: LLP positively affects bank profitability.

Endogenous variables of our study focus on profitability ratio, liquidity ratio and capital ratio. Profitability ratio consists of ROA and ROE. ROA and ROE are proxies that influence bank management decision and policy (Sufian and Habibullah, 2010). Similarly, Hassan and Mollah (2014) explain that there is a positive impact of Loan Loss Provisions (LLP) and bank profitability. This evidence suggests ROA and ROE taken into account.

Hypothesis 2: LLP positively affects bank liquidity.

Customer deposits are the main funding source for Islamic banks. Liquidity ratio measured via total deposit ratio. Total deposit ratio compute of total customer deposits divided by total funding. Theoretically the higher total deposit ratio, the higher volume of loan is perceived (Masaru and Yukihiro, 2004). Our aim is to study the relationship of Loan Loss Provisions (LLP) and bank liquidity.

Hypothesis 3: LLP positively affects bank capital adequacy.

In addition to these variables, we employed capital ratio variables to examine the credit risk. According to study done by Ahmad (2013) there is a positive relationship between Loan Loss Provisions (LLP) and capital ratio. Higher capital ratio indicates capital strength to protect creditors from future losses arising from credit risk associated with bank's loan portfolio. Thus, verify the importance of financial motives for their investment decisions.

Hypothesis 4: LLP positively affects GDP.

One noticeable difference, there were also possible that there could be some unobservable variables effects both Islamic income smoothing hypothesis and Loan Loss Provisions (LLP), leading to spurious correlation. Therefore, to address these issues, we take the instrument variables approach to be added into our regression. Instrument variables evaluated as GDP. Previous studies found a positively strong and significantly Loan Loss Provisions (LLP) effects GDP (Abedifar et al., 2012).

Table 2.0: Definition of Variables and Expected Sign

Variables	**Description**	**Formula**	**Sign**	**Ratio**
1. Exogenous				
LLP	Loan Loss Provision	Loan Loss Provision / Gross Loan		Income Smoothing
2. Endogenous				
LLP_{t-1}	Lag of Loan Loss Provision	$\frac{\Delta LLP_{t-1} - \Delta LLP_t}{\Delta LLP_t}$	+ ve	
TDR	Total Deposit Ratio	Total customer deposits / Total funding	+ ve	Bank Liquidity
CAR	Equity Loan Ratio	Total Equity / Total Loan	+ ve	Bank Capital
ROA	Return on Total Assets	Profits before tax / Average Total Assets	+ ve	Bank Profitability

ROE	Return on Total Equity	Profits before tax / Average Tax Equity	+ ve	Bank Profitability
3. Instrument				
GDP	Gross Domestic Product	Real Gross Domestic Product (%)	+ ve	Macro-economics

3.2 Descriptive Analysis

We began testing for normality test using mean, median, Jarque-Bera and kurtosis. Tables 3.0 and Table 4.0 provide descriptive statistics on the variables used in this study. The mean and median for LLP, CAP, ROA and GDP of GCC Islamic banks is slightly more than Malaysian Islamic banks, yet both are not more than 1%. This growth was mainly due to a significant amplification in the growth of LLP for GCC Islamic banks in previous year which is in year 1997-1998. The Jarque-Bera normality test provide in Tables 2 and Table 3 indicates data are normally distributed. In addition, we discover positive kurtosis for both samples indicates a "peaked" distribution.

Table 3.0: Descriptive Statistics for Malaysian Islamic Banks

	LLP	**LLP_lag**	**TDR**	**CAP**	**ROA**	**ROE**	**GDP**
Mean	3.680274	-0.048219	84.91877	11.84795	0.953425	14.44411	4.753425
Median	2.940000	-0.060000	84.99000	11.30000	0.970000	14.44000	6.000000
Maximum	16.08000	0.570000	99.63000	19.78000	1.780000	37.08000	7.000000
Minimum	1.110000	-0.440000	41.45000	4.970000	-0.860000	-13.33000	-2.000000
Std. Dev.	2.779075	0.195813	11.17684	2.994354	0.507831	8.318959	2.782788
Skewness	2.674580	0.634480	-0.981731	0.211549	-0.912860	-0.349095	-1.884898
Kurtosis	10.88341	4.268885	4.727231	2.933323	5.044619	4.636112	4.962628
Jarque-Bera	276.0667	9.795160	20.80047	0.558017	22.85422	9.624842	54.94246
Probability	0.000000	0.000000	0.000030	0.000000	0.000011	0.000000	0.000000
Sum	268.6600	-3.520000	6199.070	864.9000	69.60000	1054.420	347.0000
Sum Sq. Dev.	556.0746	2.760668	8994.371	645.5632	18.56824	4982.766	557.5616
Observations	73	73	73	73	73	73	73

Table 4.0: Descriptive Statistics for GCC Islamic Banks

	LLP	**LLP_lag**	**TDR**	**CAP**	**ROA**	**ROE**	**GDP**
Mean	4.890000	-0.006723	76.74815	36.84504	1.897227	10.37546	5.747899
Median	3.760000	0.000000	88.23000	25.69000	1.750000	10.97000	6.000000
Maximum	56.58000	2.120000	100.0000	170.0200	13.20000	54.58000	26.00000
Minimum	-1.580000	-8.330000	0.000000	9.380000	-5.760000	-45.90000	-7.000000
Std. Dev.	6.059445	0.926698	30.16176	33.94110	2.355703	13.61376	5.427829
Skewness	5.689464	-5.863718	-1.761661	2.427199	0.703240	-0.915006	0.893619
Kurtosis	46.61102	56.35994	4.716621	8.160143	8.010969	7.388420	6.003303
Jarque-Bera	10072.36	14799.71	76.16291	248.8699	134.3113	112.0939	60.56130
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	581.9100	-0.800000	9133.030	4384.560	225.7700	1234.680	684.0000
Sum Sq. Dev.	4332.592	101.3348	107348.3	135935.8	654.8220	21869.48	3476.437
Observations	123	123	123	123	123	123	123

Figure 1.0: Loan Loss Provision for Malaysian Islamic Banks

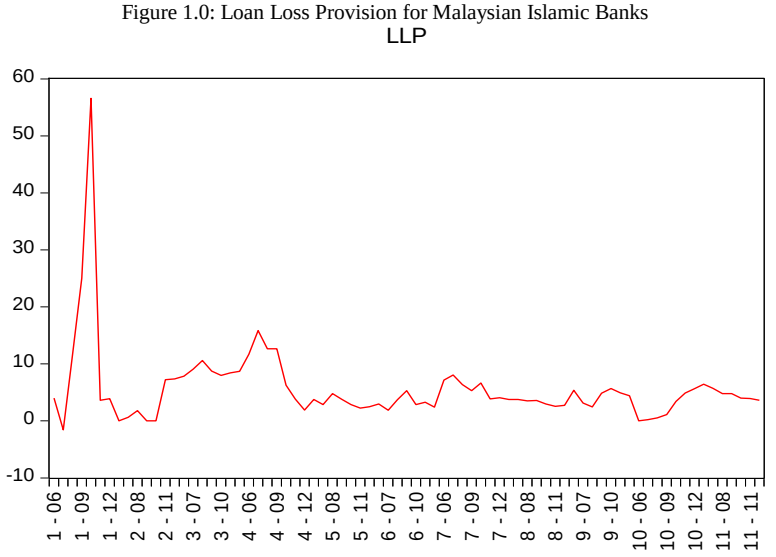
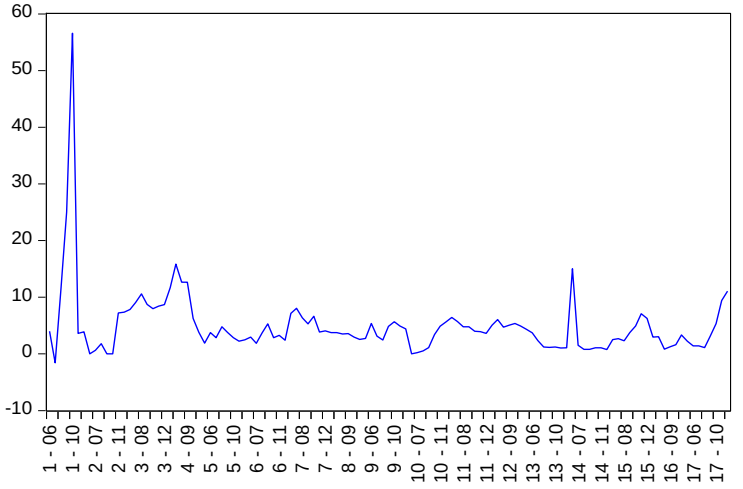


Figure 2.0: Loan Loss Provision for GCC Islamic Banks



Loan Loss Provisions (LLP), one of the accruals indicators that allow bank managers to pre-managed income smoothing. Managers will report high earning when LLP is low and report low earning as LLP high. LLP act to minimize the changes for banks and the same time calculate the expected future loan losses. Figure 1 and Figure 2 presents actual LLP for Malaysia and GCC Islamic banks. As indicated in Figure 1 and Figure 2, LLP for Malaysian Islamic banks slightly higher for Bank Islam Malaysia Berhad (BIMB), Maybank Islamic Berhad and Hong Leong Islamic Bank. Our research found income smoothing for Islamic bank across GCC were identified in Bahrain, Qatar and UAE. Higher LLP for Bahrain Islamic banks were attribute by (1) ABC Islamic (2) Al-Baraka Islamic Bank follow by Qatar (1) Qatar International Islamic Bank and finally in UAE, highly LLP attribute to the (1) United Arab Bank.

4. Empirical Specification

Consistent with previous research, this study modify the methodology similar to Bouvatier and Curcio et al., (2014), Othman and Mersni (2014), Lepetit (2012), and Ismail and Be Lay (2002) who determined loan loss provisions on conventional, cooperative, mutual, saving bank and Islamic banks. To test the relationship of LLP on bank profitability, liquidity and capital, we estimate the dynamic panel regression models in the following form:

$$LLP = \alpha_0 + \beta_1 \Delta LLP_{i,t-1} + \beta_2 TDR_{i,t} + \beta_3 CAR_{i,t} + \beta_4 ROA_{i,t} + \beta_5 ROE_{i,t} + \beta_6 GDP_{i,t} + u_{i,t}$$

Equation (1)

Where denotes $LLP_{i,t}$ proxy for the income smoothing of bank *i* at time *t*, $LLP_{i,t-1}$ dynamic adjustment for income smoothing of bank *i* at time *t*. $TDR_{i,t}$ liquidity ratio of bank *i* at time *t*. $CAP_{i,t}$ capital ratio of bank *i* at time *t*. ROA $_{i,t}$ profitability ratio of bank *i* at time *t*. ROE $_{i,t}$ profitability ratio of bank *i* at time *t*. GDP $_{i,t}$ instrument variables of bank *i* at time *t*. $u_{i,t}$ error term decomposed into μ_i and v_{it} where μ_i is the Islamic bank individual specific effect and v_{it} is the disturbance. All explanatory variables are strictly exogenous. *i* = Islamic bank individual specific effect and *t*= time effect. All explanatory variables are strictly exogenous. *i* = Islamic bank individual specific effect and *t*= time effect.

4.1 Result and Discussion

In order to obtain robust result, we used GMM estimation techniques to test above empirical specification model. Much of the literatures were based on pooled OLS estimator, multivariate analysis, stochastic frontier and dynamic stochastic general equilibrium (DSGE) models. In this paper, we consider the estimation of the Anderson and Hsiao (1981) estimator, Arellano and Bond (1991) and Blundell Bover System GMM (1995, 1998) GMM estimator.

Our model, in equation (1) is the equation before estimation. The first different transformation of equation (1) allows us to eliminate the bank specific effect which to avoid the problem of endogeneity and the correlation of bank specific effect with the error term. Instrument variables using GMM are exercised to examine one-step and two-step estimator with robustness checks. We apply GMM estimator as proposed by Arellano and Bond (1991) under the assumptions (i) error term is not serially correlated and (ii) lag of explanatory variables assumed to be uncorrelated with future error term.

Table 5.0 provides the Anderson and Hsiao (1981) estimator. Anderson and Hsiao (1981) estimator best to investigate whether instrument variables in the study valid or invalid. Hansen (1981) derives the necessary condition to obtain asymptotically efficient estimates for the coefficients. To further examine, we test all the instrument variables at Lag 2 and Lag 3. This finding indicates all instruments are valid, since they are correlated with *it-1, it-2 yy* and uncorrelated with *it-it-1 εε*. Column (1) reports instrumental variables estimators using the "full set" data. The empirical confirms all instruments variables of instruments TDR, CAR, ROA, ROE, GDP, LLP of Lag 2 and Lag 3 is valid with instrumented variables LLP_lag. Although Anderson and Hsiao (1981) estimator is consistent but it still inefficient. The reason is because it does not use available moment conditions. Consequently, we further precede the process of one-step GMM estimator and two-step GMM estimator.

Table 6.0 highlights the full sample of Malaysian Islamic banks and GCC Islamic banks. Arellano and Bond (1991) (1998) propose a generalized method of moments (GMM) estimator. An advantage of using GMM in this study is to solve nonlinear estimation apart of obtaining robust estimation. As shown in Column (1) and Column (2), reports estimates associated with the endogenous model. In all estimators, the null hypothesis the instruments used are valid cannot be rejected at 1%, 5% and 10% significant level. Notes that number in brackets are t-statistics ∗∗∗, ∗∗, and ∗ are statistically significant, respectively at 1%, 5%, and 10% levels Reported standard errors are heteroskedasticity robust. In order to determine whether one-step GMM estimator and two-step GMM estimator models are consistent and efficient, we conduct Sargan test. The p-value of the Sargan test for endogeneity of LLP using full set of instrument. AB test result shows *p-value* more *than t-statistics* value. Additionally, we fail to reject the null hypothesis (the instruments used are valid). This finding implies that two-step GMM estimator models shows stronger impact than one-step GMM estimator. Therefore, in the subsequent analysis, models are estimated using two-step GMM estimator is very likely to be models. Also, the suggested overall two-step GMM estimator is very likely to be robust. To address some uncertainty as to whether the variables, we constructed fit the estimate, by adding dummies variables. Reports the main robustness checks report the similar findings, indicate there is significant result obtained with the time dummies in Model (4). AB test reports there is no second-order serial correlation for the disturbance equation. In both cases the results are unchanged. The relevance of this finding is that it explains the significant effect of the loan loss provisions (LLP) on bank profitability, bank liquidity and bank capital response to stabilize monetary policy in Malaysia and GCC.

We further continue with same procedure, two additional tests were conducted separately, to check if there is any different result for Malaysia and GCC. Model (3) examines the effect of loan loss provisions (LLP) in GCC Islamic bank. The results are quite similar with result in Table 6.0. This result demonstrates two-step difference GMM produce better and significant result as compare to one-step and two-step with robust SE. Sargan test were apply of over-identification of restrictions to test model specification validity. This test examines the lack of correlation between the instruments and the error term. AB test statistics measure first and second order serial correlations. First-difference transformations do not invalidate our results. However, the presence of second-order serial correlation does signal omitted variables. Thus, the diagnostic checking results suggest that the models are relatively well specified. In some sense this is consistent with our first hypothesis. Table 6.0 repeats the analysis using the same method; however, the loan loss provisions (LLP) are tested only for Malaysian Islamic banks (Model 2). Interestingly, the notable difference is that all instrument variables are reported insignificant except for LLP_lag variables. This implies that loan loss provision is confirmed to influence by the previous year loan loss provision values. It is clearly the theories better explaining the loan loss provision effect across Malaysian Islamic banks than GCC Islamic banks. Unsurprisingly, all hypotheses were rejected.

In order to address the robustness of the main evidence, Table 7.0 reports the effect of pre-determined variables. In our study we assume that GDP as a pre-determined variables. The result is similar to full sample that obtained in Table 6.0. These results are consistent with hypothesis four. Real GDP variables are statistically significant in all models. Sargan test result shows *p-value* more than *t-statistics*, we fail to reject the null hypothesis where the instruments used are valid. Again, AB test reports no second-order serial correlation for the disturbance equation. This finding supported that the assumption of when there is an increase of GDP in one country, bank will tend to increase loan to customer and create higher loan growth in future. The impacts of GDP variables have showed a positive and significant for GCC Islamic bank rather than Malaysian Islamic bank. The higher real GDP growth rate, greater a bank's loan loss provisions recorded. The significant positive coefficients are in line with the prior studies (Balla & Rose, 2015; Abedifar et al., 2012).

5. Conclusion and Recommendation

The evidence presented utilizing micro balance panel data analysis of established and emerging Islamic banks: Malaysia and GCC countries. The evidence remains valid for all instrument used in this study, including loan loss provision, total deposit ratio, equity loan ratio, return on average assets, and return on average equity and gross domestic products. It is clearly shows that the theories better explaining the loan loss provision effect across GCC Islamic banks more willingly than Malaysian Islamic banks.

Our findings also suggest that pre-determined variables, which are GDP, reported significant result for full sample and GCC Islamic banks but show different scenario for Malaysian Islamic banks. We also find that ROAA is not significantly influence loan loss provisions (LLP). In term of policy implication, our findings suggest that policy makers and Islamic banking institutions at least try to monitor their loan activities in order to reduce the loan growth from loan loss provision.

This study has its own limitations. First, we have considered Malaysia and GCC Islamic banks significant influences on the loan loss provisions. Apart from these two samples, future research may consider to use data of developed or developing countries. This may assists in identifying the key existence of Islamic banks income smoothing hypothesis. Second, we have limited our sample to Islamic banks which relatively small. To address the possibility, in future analysis should increase the sample size.

Table 5.0: The Anderson and Hsiao (1981) Estimator

	Full Sample		Malaysian Islamic Bank		GCC Islamic Bank	
	Dependent Variable: LLP		Dependent Variable: LLP		Dependent Variable: LLP	
	Lag 3	Lag 2	Lag 3	Lag 2	Lag 3	Lag 2
Constant	-0.4614733 (-0.51)	-0.2011496 (-0.33)	-0.4695163 (-2.03)	-0.4503227 (-2.70)	-0.4645391 (-0.31)	0.0130696 (0.01)
LLP_lag	omitted	omitted	omitted	omitted	omitted	omitted
TDP	0.0055697 (0.09)	0.00016 (0.00)	0.0134252 (0.37)	0.0347959 (1.08)	0.0068526 (0.08)	-0.0036777 (-0.05)
CAR	0.0871298 (0.46)	0.0125137 (0.23)	-0.0289127 (-0.25)	-0.0327382 (-0.35)	0.0970139 (0.37)	0.0164533 (0.23)
ROAA	-1.051489 (-0.46)	0.0850496 (0.07)	0.0656647 (0.04)	0.2723305 (0.21)	-1.334224 (-0.38)	0 .3034725 (0.16)
ROAE	0.0618249 (0.23)	-0.0627547 (-0.37)	-0.012272 (-0.14)	-0.0011653 (-0.01)	0.0931265 (0.21)	-0.0960066 (-0.38)
GDP	0 .1062342 (0.575)	0.0352753 (0.758)	0.0167709 (0.38)	0.0138826 (0.49)	0.218056 (0.62)	0.0634339 (0.30)
Instrumented	LLP_lag	LLP_lag	LLP_lag	LLP_lag	LLP_lag	LLP_lag
Instruments	TDP, CAP, ROAA, ROAE, GDP, L3.LLP	TDP, CAP, ROAA, ROAE, GDP, L2.LLP	TDP, CAP, ROAA, ROAE, GDP, L3.LLP	TDP, CAP, ROAA, ROAE, GDP, L2.LLP	TDP, CAP, ROAA, ROAE, GDP, L3.LLP	TDP, CAP, ROAA, ROAE, GDP, L2.LLP
N	196	196	77	77	119	119

Notes: Figures in the parentheses are the t-statistics, ***, ** and * denotes significant at 1%, 5% and 10%.

Table 6.0: Summary of Results

	Model 1			**Model 2**			**Model 3**			**Model 4**		
	Full Sample			Malaysian Islamic banks			GCC Islamic banks			Full Sample Time Dummies		
	Dependent Variable: LLP			Dependent Variable: LLP			Dependent Variable: LLP			Dependent Variable: LLP		
	One-Step GMM	Two-Step GMM	Two-Step GMM with Robust SE	One-Step GMM	Two-Step GMM	Two-Step GMM with Robust SE	One-Step GMM	Two-Step GMM	Two-Step GMM with Robust SE	One-Step GMM	Two-Step GMM	Two-Step GMM with Robust SE
Intercept	7.947768 (2.32)**	7.142494 (11.53)***	7.142494 (2.19)**	3.485266 (2.18)**	1.169597 (0.85)	1.169597 (0.43)	18.14083 (5.72)***	18.19968 (40.39)***	18.19968 (1.58)	14.57988 (5.64)***	14.55219 (54.09)***	16.44784 (3.05)***
LLP_lag	-0.053503 (-0.53)	-0.0530209 (37.90)***	-0.0530209 (-0.53)	0.8083424 (14.87)***	0.7964493 (7.01)***	0.7964493 (2.75)**	0.0028333 (0.03)	0.0027589 (0.48)	0.0027589 (0.03)	0.0528891 (0.73)	0.050694 (14.05)***	-0.00424 (-0.03)
TDP	-0.0488288 (-1.22)	-0.0388618 (-5.76)***	-0.0388618 (-1.31)	-0.0277115 (-1.61)	-0.0006464 (-0.05)	-0.0006464 (-0.03)	-0.1768414 (-4.86)***	-0.1756465 (-19.61)***	-0.1756465 (-1.29)	-0.1523642 (-5.71)***	-0.1471069 (24.03)***	-0.1675732 (-2.34)**
CAR	0.0584109 (1.33)	0.0507855 (8.59)***	0.0507855 (1.78)	0.0017178 (0.03)	0.0366171 (0.78)	0.0366171 (0.20)	0.0460839 (0.88)	0.0455997 (11.90)***	0.0455997 (0.77)	0.0797813 (1.77)	0.0798927 (21.04)***	0.0710508 (1.51)
ROAA	0.1431305 (0.16)	0.0409239 (0.30)	0.0409239 (0.05)	-1.361364 (-1.50)	-2.256861 (-1.56)	-2.256861 (-0.66)	-0.0912529 (-0.07)	0.2738465 (0.66)	0.2738465 (0.04)	0.2993216 (0.33)	0.1154641 (0.58)	0.1590008 (0.18)
ROAE	-0.0818402 (-0.65)	-0.0631148 -(4.10)***	-0.0631148 (-1.14)	0.043848 (0.83)	0.0806248 (0.92)	0.0806248 (0.38)	-0.0988112 (-0.47)	-0.1469285 (-2.93)**	-0.1469285 (-0.12)	-0.1986637 (-1.50)	-0.1788158 (-7.68)***	-0.1279306 (-1.31)
GDP	-0.0387256 (-0.34)	-0.0280827 -(3.00)***	-0.0280827 (-1.11)	-0.0004435 (-0.02)	-0.0098236 (-0.55)	-0.0098236 (-0.34)	-0.0229678 (-0.12)	-0.0440527 (-1.39)	-0.0440527 (-0.21)	0.1757991 (0.93)	0.1391603 (4.05)***	0.1095041 (0.77)
Sargan Test	0.0000	0.2016	-	0.0001	0.9999	-	0.0000	0.7030	-	0.0000	0.1622	-
AR (1)	-	0.3295	0.3734	-	0.2419	0.5453	-	0.3129	0.3339	-	0.2438	0.3190
AR (2)	-	0.3178	0.3380	-	0.3371	0.3559	-	0.1924	0.2245	-	0.2059	0.2421
N	196	196	196	77	77	77	119	119	119	196	196	196

Table 7.0: Difference GMM with pre-determined variables.

	Arellano-Bond (1991) Difference GMM	**Arellano-Bond (1998) System GMM**	**Arellano-Bond (1991) Difference GMM**	**Arellano-Bond (1998) System GMM**	**Arellano-Bond (1991) Difference GMM**	**Arellano-Bond (1998) System GMM**
	Full Sample	Full Sample	GCC Islamic bank	GCC Islamic bank	Malaysian Islamic bank	Malaysian Islamic bank
Intercept	5.062185 (11.28)***	15.05539 (57.77)***	4.4067 (4.71)***	15.45865 (5.37)***	0.2179749 (0.32)	1.11751 (1.59)
LLP_lag	0.0181477 (2.75)**	0.071717 (3.61)***	-0.0837203 (-1.88)*	0.1464842 (2.67)**	0.8504538 (9.47)***	0.7964905 (4.57)***
TDP	-0.0197444 (-5.81)***	-0.1371764 (-45.19)***	-0.0114592 (-1.27)	-0.150311 (-4.74)***	0.0115697 (0.92)	0.0011593 (0.11)
CAR	0.0593869 (7.27)***	0.0624762 (21.30)***	0.0461616 (4.62)***	0.0403003 (3.68)***	0.0386951 (0.58)	0.0469409 (0.85)
ROAA	-0.4619793 (-2.52)**	-0.4687793 (-2.00)**	-0.3027242 (-0.57)	-0.5691501 (-1.35)	-3.503342 (-2.62)**	-3.171295 (-2.43)**
ROAE	-0.031489 (-1.66)*	-0.0697464 (0.048)**	-0.0151232 (-0.21)	-0.0103545 (-0.21)	0.1472696 (1.84)*	0.1277312 (1.55)
GDP	0.0522912 (6.97)***	0.0385395 (3.13)**	0.1088623 (3.57)***	0.0879455 (2.34)**	0.0028538 (0.19)	-0.0003835 (-0.02)
Sargan Test	0.9013	0.9949	1.0000	1.0000	1.0000	1.0000
AR (1)	0.3108	0.2828	0.4495	0.1930	0.1459	0.3509
AR (2)	0.3133	0.2041	0.2219	0.3144	0.3711	0.3620
N	196	196	77	77	119	119

Notes: t-statistics ***, ** and * denotes significant at 1%, 5% and 10%.

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