Contributory determinants influencing total assets of commercial banks

Hasroleffendy Hassan, Maznah Wan Omar and Ramli Saad

Faculty of Business Management, Universiti Teknologi MARA (UiTM) Kedah, Malaysia.

ABSTRACT

In tandem with the impending full liberalization of global economy and Basel III requirements in 2015, most commercial banks worldwide might encounter the risks of being taken over by larger bank on account of full liberalization. Therefore, it is imperative for commercial banks to be in the know about the macroeconomic factors that might affect their total assets. In this dissertation, macroeconomic determinants of total assets volume for commercial banks in Malaysia was scrutinized in 2008 – 2010 intervals (post 2008 financial turmoil) via quarterly data through multi-variate single-equation regression method and correlation. Regression results advocate that all the macroeconomic determinants in this thesis have statistically significant impact on total assets of the banks except Foreign Direct Investment (FDI). The empirical findings demonstrate that Base Lending Rate (BLR) together with Foreign Exchange Rate (FER) are negatively interrelated to total assets of the banks whilst FDI has positive relationship with the same dependent variable (DV). The most influential factor against total assets of the banks is BLR. Albeit correlations techniques in this paper signify that BLR, FER as well as FDI have not significantly explained the variations in total assets of the Malaysian banking sector, it is noteworthy that the empirical findings produce similar results as regression methods.

Introduction

It is noteworthy that in a market directed economic system, money is the life-blood whilst banking and financial system functions as the heart. In other words, it is the banking and financial system that pumps money to the fundamental functions and places all over the economy (Bowden & Holbert, 1984). Our economy and daily lives cannot be separated away from banking sector. Choo (1995) stated that the financial services industry touches the lives of every individual, household and business within the economy of a country. Asset Management, Liability Management and Capital Adequacy Management are part of salient guidelines for banks in managing risks of their business operations. (Mishkin et al., 2009) reinforced that for profit maximization objectives, a bank must reduce risk and ensure adequate provisions for liquidity by holding only liquid assets in struggling for highest returns possible from their loans and securities. We could synthesize how best a bank performs by analyzing its balance sheet which is its statement of assets and liabilities. From the word 'balance', this statement explicates that

Total assets = Total liabilities + Capital (1)

Henceforth, thorough management of the aforementioned elements in a balance sheet is vital for a bank. The international risk-based capital rules i.e. Basel Committee on Banking Supervision (BCBS) are the most essential guidelines prescribed by the government regulators worldwide in order to mitigate bankruptcy risks for commercial banks. These rules were evolved from the so-called Basel Agreement which was signed by 12 industrialized nations in June 1988 under the auspices of the Bank for International Settlements (BIS) (Fraser, Gup & Kolari, 2001). The international risk-based capital rules necessitate a minimum threshold for all banks and classify assets of banks into four credit risk categories that have different capital requirements. Focusing on the assets, under Basel III

rules coming into force by 2015, banks must hold enough assets that can be converted into cash to meet their needs for 30 days in a sudden crisis (Basel Ruling Slashes Size, n.d.).

Problem Statement

Rose et al. (2002) observes that at present, banking is an industry which is in continuous change and revolution. Rather than being something in particular, it is continually becoming something new by offering new services and products, merging and consolidating into larger and much complex entity until becoming universal banks as well as applying new technologies that appear to transform faster than most of consumers can comprehend.

The financial crisis in 2008 has impacted global economies as well as financial sectors worldwide. Sub-prime mortgages crisis in United States banking sector had paved the way for the recent financial catastrophe and consequently, most of the banks worldwide has undertaken extra precautionary measures than before so as to decide the determinants as well as factors that contributing to the financial performance in order to ensure they able to meet their stakeholders' objectives as well as to ensure their survival in the industry.

Despite meeting their stakeholders' objectives, commercial banks also have to abide by regulations that generally prescribed by the central banks. In comparison, banking sector is one of the most profoundly regulated industries in a nation. It is worthwhile to note that the international risk-based capital rules i.e. Basel Committee on Banking Supervision (BCBS) are the most fundamental guidelines prescribed by the government regulators worldwide in order to mitigate bankruptcy risks for commercial banks. The international risk-based capital rules necessitate a minimum threshold for all banks and classify assets of banks into four credit risk categories that have different capital requirements. The banks have to make certain that they

Tele:
E-mail addresses: ramli107@kedah.uitm.edu.my

operates with satisfactory level of capital and since *Total assets = Total liabilities + Capital* (2)
Accordingly,
Capital = Total assets – Total liabilities (3)

Given invariable figure of total liabilities, the higher the total assets of a bank, the higher its capital would be and vice-versa. Hence, commercial banks have to determine that they have satisfactory level of total assets of which will subsequently affect their capital amount.

Bank's total assets is one of the major figures in determining lending and investment capacity of a bank. Moreover, capital strength of a bank is represented by the equity to assets ratio and size of a bank is also measured by its total assets.

Activities in banking sector affect personal wealth, performance and strategies of businesses as well as cyclical performance of the economy. Judging by the above, this paper is to probe as to whether the selected independent determinants namely Base Lending Rate (BLR), Foreign Direct Investment (FDI) and Foreign Exchange Rate (FER) have any influence against financial performance (total assets) of commercial banks in Malaysia. If any of the determinants have any influence on the total assets of the commercial banks in Malaysia, this dissertation is also to determine significance level of the determinants all over a selected period as the banks performed their business activities in competitive and challenging market.

Research Objective

This research endeavours to ascertain whether Base Lending Rate (BLR), Foreign Direct Investment (FDI) and Foreign Exchange Rate (FER) are contributory determinants affecting volume of total assets of the commercial banks in Malaysia from January 2008 until December 2010. The comprehensive objectives of this thesis can be specified as per followings:

To scrutinize whether there is positive or negative relationship between total assets of the commercial banks in Malaysia and the independent variables namely Base Lending Rate (BLR), Foreign Direct Investment (FDI) and Foreign Exchange Rate (FER).

To ascertain which independent variable(s) most influence total assets of the commercial banks in Malaysia.

To identify trend analysis of total assets volume of the commercial banks in Malaysia from January 2008 until December 2010(post 2008 financial catastrophe).

The theoretical framework demonstrates the relationship between dependent variable and independent variables in influencing total assets of the commercial banks in Malaysia.

The dependent variable that has been selected is total assets of all commercial banks in Malaysia from 2008 until 2010. The said dependent variable is assumed to be influenced by Foreign Direct Investment (FDI), Base Lending Rate (BLR) and Foreign Exchange Rate (FER) which are all comprised independent variables in this paper.

Figure 1 illustrates the correlation between dependent variable and independent variables of which the heart of analysis in this research. This dissertation focuses on the determinants of total assets of the commercial banks in Malaysia whilst there are several independent variables identified to have relationship with the total assets of the commercial banks in Malaysia specifically FDI, BLR and FER.

For data testing purposes, the researcher had taken all the above mentioned data from year 2008 until year 2010. This paper focuses on period post 2008 financial disaster given that the said crisis was the latest financial calamity and can be considered as the worst financial crisis after the Great Depression. Thus, using the data is much more applicable to present situation. The study that has been carried out by the researcher in this particular topic is anticipated to contain significances for the researcher specifically together with other prominent groups on the whole. The significances might vary in relation to each group.
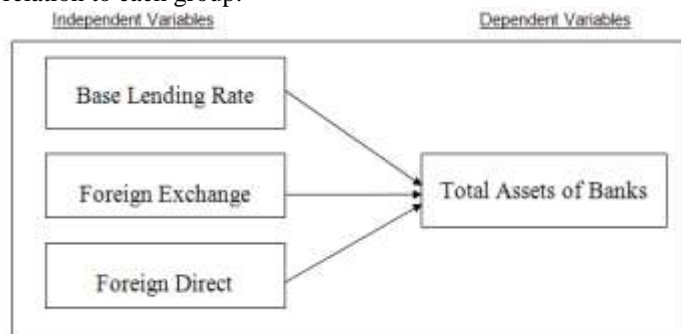

Figure 1

Significance of Study

Banks' Management and Stakeholders

Notwithstanding the banks' shareholders, their stakeholders also encompass their employees, depositors, borrowing customers as well as their directors and management. The government regulators explicitly central banks namely Bank Negara Malaysia (BNM) in the case for Malaysia, are also one of their imperative stakeholders. This study is anticipated to be guiding principles for the stakeholders (existing and prospective) in verifying which economic factors i.e. FDI, BLR and FER that would affect the banks' total assets.

Thus, they in particular the banks' shareholders along with the banks' management can strategize accordingly in accordance with the evolution of the economic determinants in order to improve their financial performances and eventually to be a more valued bank as against their local as well as foreign rivals. For instance, when there is a prolonged plunge in Malaysian FER, the banks' shareholders and management should execute the appropriate indispensable actions that have been designed beforehand so as to gain from the circumstances or to alleviate the risks from the plummet of Malaysian FER.

Public

This research will be an aid to the public to have better awareness as well as understanding of the banks' total assets performance for the period of 2008 until 2010. Moreover, the public will be exposed on the factors that influence volume of banks' total assets. Therefore, public as well as investors can apply the outcome of this research as one of the indications cum guidelines before investing in financial institutions and the interrelated avenues. Adequate knowledge on the determinants of banks financial performance is supreme given that they will be well-prepared should any devastation attacks finance and economy of a country.

Researcher and Academicians

The researcher has earned precious knowledge and understanding on the banks' total assets performance together with its determinants' consequences whilst conducting this dissertation. The opportunities to comprehend the information and data analysis have also developed the researcher's empirical skills. On top of that, this manuscript can be a reference for academicians and future researchers. It makes available useful data and outcome which are recent as well as applicable to the academicians for teaching and research purposes.

Literature Review

A number of empirical dissertations had been accomplished on factors that affect banks performance. Nonetheless, most of the papers covered banks profitability as the dependent variables whilst less study has been done on total assets of banks as the dependent variables. Furtherance, majority of the independent variables used in the previous papers encompass non-economic factors and the said papers mostly cover different types of sample banks and/or in different countries. The papers also took different periods as their time basis which is either before 2008 financial disaster or longer phase for data analysis. Majority of earlier literatures that analyzed factors affecting bank performance did not take into account FDI and FER as part of the independent determinants on the banks performance. Summary of the findings are as follows:

In 2010, Al-Tamimi investigates influential factors on United Arab Emirates (UAE) Islamic and conventional banks financial performance during 1996 till 2008 period. This paper analyzes both Islamic banks and conventional banks. Two dependent variables have been used i.e Return on Assets (ROA) and Return on Equity (ROE) whereas seven independent variables that are taken were Gross Domestic Product("GDP") per capita, banks' total assets, total assets / GDP, ratio of total loans to total deposits (liquidity), banks concentration, a measure of banks salaries to total assets and number of branches. A multicollinearity test is carried out to assess the degree of correlation among variables. It is revealed that all the independent variables (except for total assets / GDP determinant) had positive impact on both Islamic and conventional banking. In other words, all the increase in the said independent variables will lead to the surge of ROA and ROE of UAE Islamic banks as well as conventional banks. The results indicate that liquidity and concentration were the most significant determinants of conventional national banks' performance whereas cost and number of branches were the most substantial determinants of Islamic banks' performance in UAE.

Figure 2. Quarterly Summary for Total Assets of Commercial Banks in Malaysia (2008 – 2010)

Trend of Commercial Banks Total Assets in Malaysia (2008 - 2010) (RM 'Million)
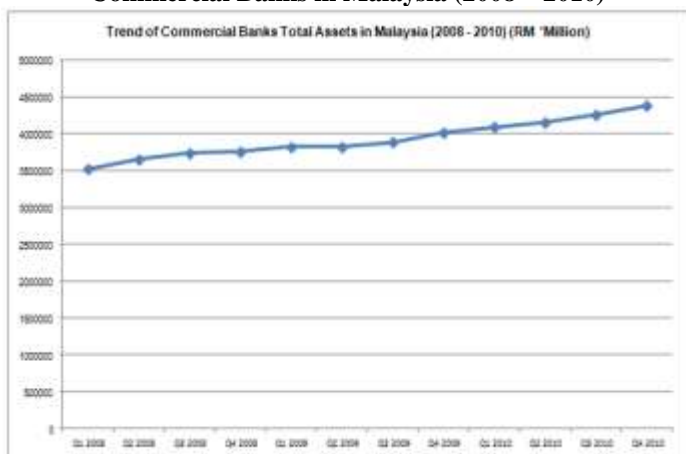
In a research by Abdul Rahaman (2008), the assessment on performance of Malaysian commercial banks had been performed but the dissertation only took three banks as sample banks namely Bank Islam Malaysia Berhad, Malayan Banking Berhad and Public Bank Berhad. It uses the three banks' profit as dependent variables whilst four determinants namely non-performing loan (NPL), base lending rate (BLR), per capita income (PCI) and Gross Domestic Product (GDP) were taken as independent variables. All the data taken is from 1997 until 2006. This paper was conducted to investigate which factors

contribute most to the banks' profit and this paper emphasised more on NPL factor. This research is performed to know the size of NPL in the selected banks which also offer Islamic products and services. Overall, results show that NPL, BLR, PCI and GDP had significant relationship with profits of the banks. NPL and BLR were negatively associated with profits of the bank whilst PCI and GDP positively influenced the bank's profitability.

Kosmidou, Tanna and Pasiouras (2009) scrutinize the determinants of profitability for the United Kingdom (UK) domestic commercial banks from 1995 – 2002. This paper is deemed unique from other similar researches given that the sample banks taken are solely domestic commercial banks which were owned by the UK. The independent variables can be considered as comprehensive since it covered bank-specific characteristics, macroeconomic conditions and financial market structure. The independent variables are cost to income ratio (COST); ratio of liquid assets to customer and short term funding (LIQUID); ratio of loan loss reserves to gross loans (LOSRES); ratio of equity to total assets (EQAS); and the total assets of a bank representing its size (SIZE). The economic independent variables are GDP and inflation rate. The dependent factors are a combination of Return on Average Assets ("ROAA") and net interest margins (NIM). This literature proves that well-capitalized banks were in a better position to increase their profitability since capital strength, represented by the equity to assets ratio, is the main determinant of UK banks profits which has positive relationship. The other independent factors i.e liquidity (short term funding) is negatively related to NIM but positively related to ROAA. Both cost-to-income ratio and bank size have negative impact on UK owned banks' profits whereas ratio of loan loss reserves to gross loans is positively related to the said banks profits. Obviously, the external factors i.e macroeconomic conditions namely GDP and inflation had positively influenced the UK banks in the sample. Furthermore, based on this literature; all positive and/or negative events happen to the banks, UK macroeconomy and financial market structure will give signals to the bank management as well as public investors on future direction of the aforementioned banks.

Ilhomovich (2009) explore Malaysian commercial banks performance based on internal factors i.e CAMEL Model. The CAMEL Model encompasses Capital adequacy, Asset quality, Management, Earnings and Liquidity of the sample commercial banks as the independent variables. All the independent factors are internal factors which are basically financial ratios of the banks whilst dependent factors comprise ROA and ROE of the sample commercial banks. The sample banks include 20 local and foreign commercial banks in Malaysia. Saidov highlighted that two main issues to be analyzed in line with the rising number of foreign banks in Malaysia:

(1) the effect of this presence on domestic banking systems and
(2) the competition inequalities and difference in performance between foreign and domestic banks.

The capital adequacy ratio, total loans to total assets ratio, NPL to total assets ratio, interest expenses to total loans, total operating profit to revenue and loans to deposit ratio have significantly impacted the ROE and ROA of the commercial banks in Malaysia. This study produces results that overall, local banks had higher ROA but lower ROE compared to the foreign banks. The assets quality and capital adequacy of foreign banks are higher than domestic banks given that the commercial banks actively offering varieties of financial products and services in order to gain higher profit (high risk, high return concept) whilst

the foreign banks normally had strong capital support from their big parent companies.

In 2008, Alfaro, Kalemli-Ozcan and Sayek analyze complementary between FDI inflows and financial market performance. In their earlier work, they concluded that FDI is beneficial for growth only if the host country has well-developed financial institutions. In this paper, they investigate whether this effect operates through factor accumulation (physical and human capital) and/or improvements in total factor productivity (TFP). They conduct two sets of regressions whereby firstly, they assess whether the level of financial development in the host country affects the relationship between FDI and growth. Subsequently, they analyze further whether FDI give impacts through factor accumulation i.e. both physical and human capital or via TFP. They conclude that countries do not gain benefits from FDI via factor accumulation i.e physical and human capital. On the other hand, they find that countries with well-developed financial markets gain significantly from FDI vide TFP improvements. So much so, the authors find that FDI can play important functions in economic growth, most likely via enhancement of efficiency rather than by capital accumulation. Nevertheless, local conditions factors are also deemed essential and can limit the extent to which FDI benefits provide contributory factors to an economy.

Sufian and Habibullah (2010) examine the factors affecting Indonesian banks profitability during 1990 – 2005 intervals. In this paper, they utilize slightly different techniques whereby they evaluate the banks' performances against two types of determinants namely internal and external determinants. The internal determinants are liquidity level, provisioning policy, capital adequacy, expenses management, and bank size. In contrast, the external determinants are linked to both industry and macroeconomic levels that reflect economic and legal environments where the financial institution operates. They choose Gross Domestic Product (GDP) together with asset concentration ratio (ACR) of three Indonesian largest banks as the external determinants and the correlation of the banks' profitability and the said determinants are tested by using multivariate regression techniques. The dependent variables i.e. the bank's profitability are derived from the banks' Return on assets (ROA) ratios during the phase. They intend to analyze the banks' profitability trend during 1997 financial crisis plus pre and post the calamity. Their empirical findings reveal that for the internal determinants part, income diversification and capitalization are positively related to bank's profitability whereas overhead costs as well as size contributed negatively on the same. The paper also signifies positive connection between the banks' profitability and level of liquid assets held by them.

In other words, the more (less) liquid banks have a tendency to exhibit higher (lower) profitability levels. As for external determinants category, they discover that economic growth (GDP) and banking sector concentration (ACR) are positively correlated with the banks' profitability throughout the pre-crisis until the crisis periods. On the whole, the literature concludes that the Asian financial disaster negatively and significantly impacted the Indonesian banks' profitability but it is noteworthy that the aforesaid banks were comparatively more profitable during pre-crisis stage as against the post-crisis and during crisis phase.

Likewise, Ali, Akhtar and Ahmed (2011) investigate correlations of banks' profitability against both internal and external determinants but they choose slightly different elements for both profitability factors as well as their determinants. Besides ROA, the paper also chooses ratios of ROE as the

independent variable which is identical to the manuscript of Al-Tamimi (2010). They divide their data analysis and findings into two parts; firstly ROA (Model I) and thereafter ROE (Model II) as profitability measurements. The internal determinants encompass bank-specific indicators i.e. bank size, operating efficiency, capital, credit risk, portfolio composition and asset management whilst the external determinants are GDP and Consumer Price Inflation (CPI). The thesis examines the profitability performance of public and private sector commercial banks of Pakistan for 2006-2009 phases. The study on Model I indicates that the banks' profitability is positively affected by their size, operating efficiency, portfolio composition and asset management. In contrast, capital and credit risk have negative consequences on their profitability. Asset management is the highly effective factor with positive effect for the banks specific indicators. On macroeconomic determinants, GDP has positive associations with their profitability whereas CPI has negatively affected the banks' profitability during the period under study. The Model II investigation which uses ROE as profitability measurement signifies that the banks' profitability is positively affected by capital, portfolio composition and asset management but it is negatively influenced by size, operating efficiency together with credit risk. Consistent to the Model I, asset management is also the most significant positive determinant in Model II and GDP has positive relations with the banks' profitability. These researchers observe that efficient asset management and economic growth (GDP) establish positive and significant correlation with the banks' profitability in both models.

Sayilgan and Yildirim (2009) scrutinized main micro and macro determinants of Turkish banking sector (deposit banks and development & investment banks) profitability in the period of 2002-2007 using a multi-variable, single-equation regression model. The empirical study was performed by using the Eviews software. In the research, ROA and ROE were the dependent profitability indicators whilst they chose ratios of equity, credits, securities, liquid assets and off-balance sheet assets to total assets as the micro independent determinants. The macro independent determinants consist of consumer price inflation, industrial production index and ratio of public budget balance to industrial production index. In accordance with results related to the micro independent variables, profitability appears to have been positively affected by capital adequacy in general and negatively by growing off-balance sheet assets. Credits growth had positively contributed to the banks' profitability during the period under study. On macro independent variables, the profitability of Turkish banking sector had increased in conjunction with declining inflation rate, constantly rising industrial production index and also improving budget balance. They found that the real interest rate in Turkish economy declined rapidly as the budget balance improved which in turn supported the non-inflationary economic escalation. They conclude that the other independent variables are not statistically significant but it is worthy to note that coefficient of securities is positive whilst coefficient of liquid assets is negative.

In 2009, Ramlall examined Taiwanese banks' profitability performance for 2002 – 2007 phases which has equivalent periods with the thesis of Sayilgan and Yildirim (2009). The paper analyzes the bank's profitability performance by using independent variables that is divided into three groups namely bank-specific (efficiency, capital, size and credit risk), industry-specific [Herschman Herfindahl Index (HHI)-Deposits, HHI-Credit and HHI-Assets] and macroeconomic factors (cyclical output, economic development, interest rate and stock market

capitalisation) under a quarterly dataset. The dissertation is different from other researches since it only concentrates on the banks' business activities in Taiwan and thus Taiwanese banks' Overseas Business Units profitability or profits from foreign-based activities were excluded given that his author expected their profitability level was influenced by other factors. Albeit there were many variables had been selected beforehand in this research, the final model only constitutes of efficiency, capital, credit risk and HHI-credit as independent variables. Empirical findings show that the key profitability determinant of Taiwanese banks was credit risk, captured by allowance for doubtful debts. Credit risk entails the highest effect not only in term of statistics but also in term of economic significance. The paper also transpires that capital positively impact on the banks' profits though the economic significance is significantly less than that of credit risk. The positive effect of capital in profitability shows that by having more capital, a bank can easily extend loans to thereby reap higher profits.

Sufian and Habibullah (2009) investigated the performance of Bangladeshi commercial banks between 1997 and 2004 which was post 1997 Asian financial catastrophe. They also evaluated the banks' performance against internal and external determinants of their profitability via multivariate regression analysis. Nonetheless, they chose three types of diverse indicators to represent the banks' profitability i.e. Return on Average Assets (ROAA), Return on Average Equity (ROAE) and/or Net Interest Margins (NIM). The bank-specific factors (internal) taken are total loans over total assets, total assets, loan loss provisions over total loans, non-interest income over total assets, non-interest expense over total assets and total book value of shareholders equity over total assets. They selected GDP and annual inflation rate as the bank-specific factors (external). The study empirically advocates that bank specific characteristics specifically loans intensity, credit risk, and cost have positive and significant impacts on bank performance, while non-interest income indicates negative relationship with bank profitability. The empirical findings propose that size had negative impact on return on ROAE whilst it positively affected ROAA and NIM. The dissertation implies mixed impact of the macroeconomic factors on bank performance. Inflation is negatively related to NIM which has negative relationship with Bangladeshi banks' profitability signifying that the level of inflation were unanticipated by Bangladeshi banks during period of the study. In contrast, the empirical findings suggest that economic growth i.e. GDP was not significantly related to bank profitability.

Sufian and Chong (2008) also scrutinized bank profitability against internal and external factors but the period is noticeably different because they based upon 1990 – 2005 data reference. By using multivariate regression analysis, they chose ROA as the dependent variable whereas the bank-specific (internal) determinants are total assets, loan loss provisions over total loans, non-interest income over total assets, non-interest expense over total assets and total shareholders' equity over total assets. The paper's external determinants are more comprehensive namely GDP, growth of money supply as measured by currency in circulation, inflation rate and stock market capitalisation. The study reveals that all the bank-specific determinant variables had a statistically significantly impact on the profitability of the Philippines banks. During the research period, it was empirically proven that size, credit risk, and overhead expenses were negatively related to bank profitability whereas non-interest income and capitalisation indicates positive impact. As for macroeconomic factors, the inflation rate was negatively related

to Philippines banks' profitability signifying that the level of inflation was unanticipated by banks during the period under study which is consistent to the dissertation by Sufian and Habibullah (2009) on the performance of Bangladeshi banks. The empirical findings put forward that the restructuring of the financial sector which comprise the consolidation of Philippines domestic banking sector had made the Philippines banks becoming too large but inefficient. However, the results would have to be interpreted with prudence as the coefficient of the variables is only significant in the baseline regression model and loses its explanatory power when controlled for macroeconomic and market conditions.

As a final point, various studies had been completed on the determinants that affecting performance of banks. Nevertheless, the scope of study is different. In this dissertation, the author seeks to investigate by focusing on total assets as the dependent variables with FDI and FER chosen as part of the independent variables. The time basis is also contradictory from other previous papers since this paper is envisaged to scrutinize the performance of banks (total assets) post-2008 financial crisis. Selection of FDI and FER as independent variables was rarely found in previous researches with regards to bank performance. Moreover, majority of previous dissertations focus more on bank-specific factors as the independent variables. Therefore, this thesis is different from the scope of studies that have been conducted by previous researchers.

Methodology

The analyzed data for this study is secondary data. Secondary data refer to the information that already exists in other sources such as Monthly Statistical Bulletins of Bank Negara Malaysia for year ended 2008 until 2010 and necessary reports from Department of Statistics, Malaysia for the corresponding periods. The data was collected in quarterly basis given that not all data available on monthly base. The period of 36 months were decided because it possibly could show trend performance of the volume of total assets of commercial banks in Malaysia. Data for total assets of commercial banks in Malaysia encompasses Islamic and foreign banking in the country. The interval of 2008 – 2010 was selected in order to analyze the performance trend of the banks' total assets post-2008 financial turbulence which is the latest and the most severe economic crisis since Great Depression. BLR is the average basic lending rate of all banks in Malaysia whilst FER is the exchange rate of one unit for United States of America Dollar against Ringgit Malaysia. Moreover, FDI is the total direct investment of foreign countries into Malaysia.

The collected data was analyzed using the Statistical Package for Social Science (SPSS) version 17.0 for Windows. This software used to test and process the quantitative data. Using SPSS, the data collected was inserted to examine the relationship between the dependent variable (total assets of commercial banks in Malaysia) with the independent variables (BLR, FER and FDI).

The research methodology was executed by:

(a) Analyzing the trend of total assets of commercial banks in Malaysia from 2008 to   2010 using line chart.

(b)Analyzing the trend of BLR, FDI and FER throughout similar intervals.

(c)Recognizing the relationship between the dependent variable (total assets) and independent variables (BLR, FDI and FER) using SPSS via following techniques:

Correlation

Correlation is a statistical method to determine whether a relationship between variables exists. In this dissertation, the

researcher applied correlation coefficient to determine whether two or more variables are related as well as to determine the strength of the relationship between dependent variables and independent variables. Should there be a strong positive linear relationship between the variables; the value of r will be close to +1. On the other hand, the value of r will be close to -1 if there be a strong negative linear relationship between the variables. If some IVs or DV is/are not normal via results of a Normality Test, to apply Spearman's Rho Correlation instead of Pearson Correlation.

Multiple Regression

Multiple Regressions is an extension of bivariate correlation. The result of an equation will present the best prediction of a dependent variable from several independent variables. Regressions analysis is used when independent variables are correlated with one another and with the dependent variable.

In this thesis, the researcher uses the Standard or Simultaneous Regressions. This is the most appropriate method because this paper constitutes more than one independent variables. The estimated regression model can be used to analyze the expected relationship between dependent variable namely volume of total assets of commercial banks in Malaysia with the independent variables i.e FDI, FER as well as BLR.

Regression Equation

The dependent variable in the regression equation is modelled as a function of independent variable and corresponding parameters (constant). Regression that utilized in this dissertation is linear regression. The regression equation can be written as follows:

$Y = \alpha + bX = e$

Y = is the value of the Dependent variable (Y),

α = Alpha, α constant and equal the value of Y when the value of X = 0

b = Beta, the coefficient of X

X = value of Independent variable (X) and it can explain the value of Y

e = is the error term where error predicting value of Y

Therefore, the equation of this research can be written as mentioned below:

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \qquad (4)$$

Where; y = Total assets of commercial banks in Malaysia (ASSETS)

α = Constant

X1 = Interest rate (BLR)

X2 = Foreign Exchange Rate (FER)

X3 = Foreign Direct Investment (FDI)

ε = Error

If the data has positive relationship between Independent Variables (IV) and Dependent Variable (DV), one unit increment in the IV such as BLR could increase the DV by $\beta 1$ units and vice versa. If there be negative relationship, IV for instance FER could contribute to the decrease of one unit in the DV by $\beta 2$ units and vice versa.

Coefficient of Determination (R-squared) (R²)

Coefficient of determination (R²) is the measure in percentage of a change in the DV that can be explained by the IV. The value of R² is in range between 0 and 1. If the value is 0, it shows that none of the IV explains the changes in the DV. If the value is 1, it signifies that all the changes in the DV are explained by the variation in IV used in the regression.

$$R^2 = \frac{\text{Total Explained Variation}}{\text{Total Variation}} \qquad (5)$$

ANNOVA Table

The ANOVA table represents a test of significance for the overall regression model. It can be tested by comparing a significant level of 0.05 with the model Sig. value from the ANOVA table. In order to determine whether the overall model is statistically significant or otherwise, the Sig value should be less than 0.05, thus it can be concluded that the regression equation is statically significant.

Regression Coefficient

The regression coefficient is a coefficient for each IV through DV. Large coefficient is good predictors and small coefficient is a weak predictors.

Priority Relationship

• The positive sign by the coefficient indicates that there is a positive relationship between DV and IV.

• The negative sign by the coefficient indicates that there is a negative relationship between DV and IV.

Value of Coefficient

• When the coefficient of the independent variable is a positive value for example 3, the DV will increase 3 units for every 1 unit increase in the IV.

• When the coefficient of the IV is negative value for example -3, the DV will increase 3 units for every 1 unit decrease in IV.

t Test

This test is adopted to determine whether there is a significant difference between two sets of scores. It is means the researcher wants to examine the null hypothesis whether there is a significant relationship between DV and each of the IV.

Using significance level:

If the t-statistic significance value is smaller than the significance level ($p < \alpha$);

Reject H_0 and Accept H_I

On the other hand, if the t-statistic significance value is greater than the significance level ($p > \alpha$); it means **fail to reject H_0.**

f Test

It is used to test the hypothesis that the variation in the independent variable explained a significant portion of the variation in the dependent variable. It is also used to test the significant of the overall model.

$$f \text{ test} = \frac{\text{Explained variation/ (k-1)}}{\text{Unexpected variation/ (n-k)}} \qquad (6)$$

If the calculated f value is higher than the Tabulated f value, it can be concluded that there is significant relationship between the independent variables and dependent variable. Therefore, the overall model is said to be significant. The opposite will apply if the calculated f value is lower than the Tabulated f value.

Coefficient of Beta

Beta is important because its measure about each predictor variable that influences the criterion variable. Besides that, Beta (standardized regression coefficient) is measure in unit of standard deviation. The highest value of Beta represents the strongest predictor variable (IV) in a model.

Trend Analysis

Trend analysis is the model that allows the researcher to plot aggregated response data over time. This is valuable if the researcher is conducting long running surveys and wants to determine the nature of the research by examining trends in data.

Hypothesis

A hypothesis can be defined as a logically conjectured relationship between two or more variables expressed in the form of testable statement. Relationship is conjectured on the basis of the network of associations established in the theoretical framework formulated for the research study.

Table 1. Correlation between Total Assets and Its Determinants

Independent Variables	Spearman's Rho Correlation Coefficient (r)	Significant (2-Tailed) (p-value)	N
BLR	-0.47	0.12	12
FER	-0.40	0.20	12
FDI	0.30	0.34	12

Table 2. Regression Coefficient Analysis

Model	B	Std. Error	Beta	Significance
(Constant)	10,160,000	1,756,797.40		0.00
BLR	-365,581.61	131,127.67	-0.72	0.02
FER	-1,196,137.11	396,280.34	-0.83	0.02
FDI	0.24	14.78	0.00	0.99

Table 3. Model Summary for Coefficient of Determination (R^2)

R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
0.79	0.63	0.49	185,448	0.79

Table 4. Result of ANOVA

	Sum of Squares	df	Mean Square	F	Significance
Regression	460,400,000,000	3	153,500,000,000	4.46	0.04
Residual	275,100,000,000	8	34,390,000,000		
Total	735,500,000,000	11			

Table 5. Result of t Test Analysis

Model	t	Significance (p-value)	N	df	Collinearity Statistics Tolerance	VIF
Constant	5.78	0.00				
BLR	-2.79	0.02	12	8	0.71	1.41
FER	-3.02	0.02	12	8	0.62	1.61
FDI	0.02	0.99	12	8	0.63	1.58

Table 6. Result of Beta Analysis

	Standardized Coefficients Beta
BLR	-0.72
FER	-0.83
FDI	0.00

Null Hypothesis

It is the conjecture that proved no difference or no relationship between variables.

Alternate Hypothesis

It is an educated conjecture that sets the parameters for one expert to find. The alternate hypothesis is tested to sell whether the null is to be rejected or not.

This thesis is founded on the following null and alternative hypothesis:

Hypothesis 1

H_1: There is a significant relationship between volume of total assets of commercial banks in Malaysia and BLR.

Hypothesis 2

H_1: There is a significant relationship between volume of total assets of commercial banks in Malaysia and FER.

Hypothesis 3

H_1: There is a significant relationship between volume of total assets of commercial banks in Malaysia and FDI.

Findings and Discussions

Correlation

Pertaining to the Table 1, a Spearman's Rank Order Correlation was executed to verify the relationship between the IVs and the DV and it is noteworthy that we employed an alpha level of 0.05 for all statistical tests. All the above Spearman's Correlation Coefficients (r) for the IVs against the DV are less than 1, r(10) = -0.47 (BLR), -0.4 (FER), 0.30 (FDI) which

signifies non-significant trend between the DV and the IVs but it is pertinent to note that Correlation Coefficient for BLR is very close to 0.5 that is in between significant and non-significant levels. Thus, performance of ASSETS is not strongly related to changes in BLR, FER and FDI.

Moreover, the above table shows that correlation coefficient (r) values for BLR and FER were negative which indicate negative relationship between the said IVs and Total Assets of Banks. When BLR and FER increase, ASSETS declines and vice-versa. Conversely, correlation value for FDI was positive which specify that when FDI grows (falls), Total Assets of Banks also grows (falls).

Additionally, the correlation between the IVs and the DV can be scrutinized whether significant or not by comparing the Significant (2 tailed) p-value against significant level (0.05). Since all Significant (2 tailed) p-values of the aforementioned IVs (0.12, 0.20 and 0.34) were greater than 0.05 (p > 0.05), there was no statistically significant correlation between the DV and the IVs. Nevertheless, it is noteworthy that occasionally, when a dissertation has small samples, for example only a few participants like this research, moderate correlations may misleadingly not reach significance.

These findings are in line with dissertation by Sufian and Habibullah (2009) whereby they investigated performance of banks in Bangladesh. They conclude that macroeconomic factor namely GDP was not significantly related to banks

performances whilst inflation negatively impacted bank's profitability. Sufian and Razali Chong (2008) also discover that bank-external factors i.e. economic growth, growth in money supply and level of stock market capitalisation had not significantly explained the variations in the profitability of Philippines banks. Nevertheless, the results would have to be interpreted with prudence as the coefficient of the variables is only significant in the baseline regression model and loses its explanatory power when controlled for macroeconomic and market conditions. Research of Ramlall (2008) on Taiwanese banks reveals that macroeconomic factors namely cyclical output, economic development, interest rate and stock market capitalisation were not key determinants for the banks' profitability.

Multiple Regressions

$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

With reference to the above, the regression equation is:

ASSETS = 10,160,000 − 365,581.608BLR - 1,196,137.11FER + 0.24FDI + ε   (7)

Where y = Total assets of commercial banks

    A = Constant

    X1 = BLR

    X2 = FER

    X3 = FDI

    ε = Error

We utilized an alpha level of 0.05 for all statistical tests.

Explanations on the Unstandardized Coefficients B BLR

As per the Table 2, BLR had negative relationship with ASSETS which signifies that for every one unit increase in BLR, there is a converse plunge of ASSETS by 365,581.61% and vice-versa.

A study by Abdul Rahman (2008) divulges that BLR and bank's profitability had significant negative correlation and the paper also selected Malaysian commercial banks as its sample. Nonetheless, the DV in the study is bank's profitability. Furthermore, both papers of Sufian and Habibullah (2009) together with Sufian and Razali Chong (2008) disclose that BLR had negative impact towards bank's performance via negative impact of inflation rate in a country. It depends on the relationship between the movements levels of costs of interest increased against interest revenues volatilities in banking industry. Correspondingly, Sayilgan and Yildirim (2009) also discovers negative effect of interest rate They found that the real interest rate in Turkish economy declined rapidly as the budget balance improved which in turn supported the non-inflationary economic escalation. Apparently, part of the growth was financed by bank credits and subsequently, the banks in Turkey also enjoyed more profits from the higher bank credits provided.

FER

FER was also negatively related to ASSETS whereby a growth of one unit of FER will consequently lead to a decline in ASSETS by 1,196,137.11% and vice-versa.

FDI

Nonetheless, FDI had positive relationship with ASSETS which specifies that for every one unit growth in FDI, there is a corresponding plunge of ASSETS by 0.24% and vice-versa.

Likewise, Alfaro, Kalemli-Ozcan and Sayek (2008) analyzed complementary between FDI inflows and financial market performance. They discover that countries with well-developed financial markets gain significantly from FDI vide total factor productivity (TFP) improvements. Countries with well-functioning financial markets normally ensure capital is allocated to the projects that yield the highest returns and

therefore enhance growth rates by lowering the costs of conducting transactions.

Coefficient of Determination (R²)

The coefficient of determination (R^2) of this model is 0.63. Therefore, approximately 63% of the variation in the data of Total Assets of Banks (DV) was significantly explained by BLR, FER and FDI (IVs) whilst the remaining 37% of the variance was explained by other variables namely other external or macroeconomic factors that were not included in this study coupled with bank-specific (internal) factors to the commercial banks such as liquidity level, capital adequacy, credit risk and so forth. Although R^2 value was not really close to 1.0, it was greater than 0.5 which indicates that more than half of the variation in ASSETS was explained by the IVs in this paper. The regression equation appears to be fairly useful for making predictions in view of the value of R^2 is more than 0.6.

Adjusted R^2 adjusts for the fact that this research used a sample to make inferences about a population. Adjusted R² as per the above table was 0.49 which was close to 0.5 and this signifies about 50% variation of the DV was explained by the IVs. The Durbin-Watson statistic in this research was 0.79, which approaches 1 and it is more likely that the residuals were independent of each other, at least successively (Table 3).

ANOVA

The regression analysis which predicting ASSETS performance from changes in BLR, FER and FDI was statistically significant i.e $F_{(3,8)} = 4.46$,   p = 0.04.The significance level (p) should be less than 5% ($p < 0.05$) so as to conclude any significant relationship. With reference to the Table 4, the significant value (p) was 0.04. Since the significance value (p) was below 0.05 (0.04 < 0.05), the overall model of the regression equation was statistically significant and the data used in this research were strong evidence. Therefore, all the independent variables (BLR, FER, FDI) that had been used in this thesis significantly explained the variance of the dependent variable (ASSETS).

t Test

With refer to Table 5, significance (p-value) < 0.05 authenticates statistically significant effect of an IV against the DV (ASSETS) and vice-versa.

BLR

Results indicate a significant effect of BLR against ASSETS; $t(8) = -2.79$, $p = 0.02$ i.e. changes in BLR significantly influence volume of ASSETS.

FDR

There was a significant impact of FDR on ASSETS; $t(8) = -3.02$, $p = 0.02$ i.e. volume of ASSETS is significantly impacted by changes in FDR.

FDI

Results signify non-significant relationship between FDI and ASSETS; $t(8) = 0.02$, $p = 0.10$ i.e. changes in FDI does not significantly influence volume of ASSETS.

These outcomes are consistent to the dissertations of Kosmidou, Tanna and Pasiouras (2009), Alfaro, Kalemli-Ozcan and Sayek (2008), Abdul Rahman (2008), Sufian and Habibullah (2010), Ali, Akhtar and Ahmed (2011), Sayilgan and Yildirim (2009), Sufian and Habibullah (2009 as well as Sufian and Razali Chong (2008) which discover that either all or part of bank-external factors (mostly macroeconomic determinants) that they ascertained against bank's performance had statistically significant correlations against the bank's performance together with profitability. Diverse sample banks coupled with different methodologies produced varied end results from their

researches. It is vital to note that divergent time frame or period taken was also one of the factors for variety of findings.

Coefficient of Beta

Table 6 show result of Beta analysis for BLR was 0.83 of which the highest Beta amongst the Beta for all the DVs. This validates that BLR was the determinant that mostly influence total assets of commercial banks in Malaysia. Subsequently, the second effectual factor was BLR with Beta of 0.72. The lowest efficient determinant on total assets of commercial banks in Malaysia was FDI and the Beta was 0.00.

The previous thesis of Kosmidou, Tanna and Pasiouras (2009), Alfaro, Kalemli-Ozcan and Sayek (2008), Abdul Rahman (2008), Sufian and Habibullah (2010), Ali, Akhtar and Ahmed (2011), Sayilgan and Yildirim (2009), Sufian and Habibullah (2009 plus Sufian and Razali Chong (2008) conclude other macroeconomic factors as the main determinants given that the papers did not investigate FER as one of the main macroeconomic factors towards bank performance.

Trend Analysis

Figure 2 exhibits the trend of commercial banks' total assets in Malaysia from 2008 until 2010 based on quarterly data. On the whole, the banks' total assets were on escalating development during period under review but the rising trend was not constant and changed based on general industry circumstances. The largest increase on quarter-on-quarter basis was from quarter 1 2008 to quarter 2 2008 which shows that the total assets surged by 3.65% between the two phases. However, the rate of increase on quarter-on-quarter basis was on declining tendency starting from quarter 3 2008 until quarter 4 2008 by 2.27% and 0.58% respectively. The spill over effects of the global financial catastrophe which occurred in 2008 and started in the United States of America might be resulting in the deteriorating total assets of the banks.

Nevertheless, the volume of total assets slightly recovered to enhance in quarter 1 2009 which recorded an increase of 1.69% from the preceding quarter. This was owing to the regulatory controls implemented by the Central Bank of Malaysia to ensure resilience of Malaysian banking and financial industry post the aforesaid financial crisis. Unfortunately, the recovery was not continuous since the total assets registered almost similar figure in the next quarter i.e. quarter 2 2009 but the total assets were better in quarter 3 and quarter 4 2009 which elevated by 1.78% and 3.29% respectively.

In 2008, the total assets was increasing continuously from quarter 2 2008 onwards on the back of minor global financial recovery as well as enhanced economic performance of Malaysia in that year. The rate of growth for the total assets in 2008 was on expanding trend that keep growing from quarter-to-quarter. The total assets surged by 1.46% in quarter 2 2008, by 2.53% in quarter 3 2008 and by 2.96% in quarter 4 2008.

Conclusion and Recommendation

Financial catastrophe in 2008 has not concluded definitely and the world is in the midst of immense uncertainty in recuperating for healthier financial industry which coincides with full liberalization process in finance and economy worldwide. It is commonly acknowledged that banks play vital roles in an economy as the backbone for a state and resilience of banking industry will greatly ensure a state's financial and economic strength. Size of a bank is founded on the volume of its total assets; hence it is imperative for commercial banks to be in the know about the macroeconomic factors that might affect their total assets besides mastering bank-specific (internal) factors. This strategy is vital in view of global economic

uncertainty together with imminent full liberalization of banking industry which would require local banks to strategize the best so as to ensure that the banks can withstand competition from foreign banks which are normally larger and more prominent in term of performance.

Overall, the banks' total assets were on escalating development during period under review but the mounting trend was not continuous and changed based on general economic and industry circumstances. The data imply that constructive economic conditions would generally certify high volume of total assets for the banks.

Albeit correlations techniques in this dissertation signify that BLR, FER as well as FDI have not significantly explained the variations in total assets of the Malaysian banking sector, it is noteworthy that the empirical findings produce similar results as regression methods whereby BLR and FER are negatively correlated to total assets whereas FDI has positive relationship with total assets. It is also pertinent to note that occasionally, when a dissertation has small samples, for example only a few participants like this research, moderate correlations may misleadingly not reach significance.

The results of this paper have substantial relevance to policies and strategies of commercial banks as well as central banks. Apart from strategizing plans based on bank-specific factors such as liquidity, credit risks, net interest margins and many more, the said banks should also be alert of changes in macroeconomic conditions in intensifying the robustness and stability of banking sector. Consequently, bank managements and other stakeholders should have more comprehensive strategies that cover both bank-specific and macroeconomic factors. Management of total assets is vital apart from profitability concentration by banks. Although banks with larger total assets do not at all times register relatively higher profits, the banks are in more competitive positions as against their peers in term of market confidence, capital requirement management concurrently with the impending implementation of Basel III requirements in 2015 and also ease of recovery management during insolvency threats.

Future dissertations could include more macroeconomic variables namely taxation, balance of payments, investments by local governments as well as debt or bond issuance of the governments. The period of study could also be lengthened so as to ensure more statistically significant findings especially for correlation methods.

References:

[1] Abdul Rahaman, Z. M. (2008). *An Analysis of Selected Determinants of Bank's Profit: A Case Study of BIMB, Maybank and Public Bank (1997-2006).* Paper submitted for Degree Programme at MARA University of Technology, Kedah, Malaysia.

[2] Alfaro, L., Kalemli-Ozcan, S., & Sayek, S. (2008). Foreign Direct Investment, Productivity, and Financial Development: An Empirical Analysis of Complementarities and Channels. *The World Economy*, 1-34. Retrieved October 27, 2010

[3] http://www.people.hbs.edu/lalfaro/FDI_world_economy_20080130.pdf

[4] Ali, K., Akhtar, M. F., & Ahmed, H. Z. (2011). Bank-Specific and Macroeconomic Indicators of Profitability - Empirical Evidence from the Commercial Banks of Pakistan. *International Journal of Business and Social Science*, 2(6), 235-242.

[5] Al-Tamimi,H. H., (2010). Factors Influencing Performance of The UAE Islamic and Conventional National Banks. *Global Journal of Business Research*, 4(2), 1-9.

[6] Antl, B. (1989). *Management of Currency Risk* (Vol. II). London: Euromoney Publications PLC.

[7] Bourden, E. V., & Holbert, J. L. (1984). *Revolution in Banking* (2nd ed.). United States of America: Reston Publishing Company Inc.

[8] Choo, H., (1995). *Bank Lending Assessment and Management* (1st ed.). Kuala Lumpur: Association of Banks in Malaysia (ABM).

[9] Copeland, L. S. (2000). *Exchange Rates and International Finance* (3rd ed.). Essex: Financial Times-Prentice Hall.

[10] Fraser, D. R., Gup, B. E., & Kolari, J. W. (2001). *Commercial Banking: The Management of Risk* (2nd ed.). United States of America: South-Western College Publishing

[11] Ilhomovich, S. E. (2009). *Factors Affecting the Performance of Foreign Banks in Malaysia*. Paper submitted for Master Programme at College of Business (Finance and Banking), Northern University of Malaysia, Kedah, Malaysia.

[12] Kosmidou, K., Tanna, S., & Pasiouras, F. (2009). Determinants of Profitability of Domestic UK Commercial Banks: Panel Evidence from The Period 1995-2002. *Economics, Finance and Accounting, Applied Research Working Paper Series*, Coventry University Business School, Coventry, United Kingdom.

[13] McDonald, S. (n.d.). *Basel Ruling Slashes Size*. Retrieved from http://www.bloomberg.com/news/2011-05-15/basel-ruling-slashes-size-of-kangaroo-bond-sales-by-50-australia-credit.html

[14] Mishkin, F. S., & Eakins, S. G. (2009). *Financial Market and Institutions* (6th ed.). New York: Pearson Prentice Hall.

[15] Ramlall, I. (2009). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in Taiwanese Banking System: Under Panel Data Estimation. *International Research Journal of Finance and Economics*, *1*(34), 160-167.

[16] Rose, P. S. (2002). *Commercial Bank Management* (5th ed.). New York: McGraw-Hill Higher Education.

[17] Ruin, J. E. (2004). *Financial and Banking Services in Malaysia* (1st ed.). Kuala Lumpur: Leeds Publications.

[18] Sayilgan, G., & Yildirim, O. (2009). Determinants of Profitability in Turkish Banking Sector: 2002-2007. *International Research Journal of Finance and Economics*, *1*(28), 207-214.

[19] Sufian, F., & Habibullah, M. S. (2009). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from Bangladesh. *Journal of Business Economics and Management*, *10*(3), 207-217.

[20] Sufian, F., & Habibullah, M. S. (2010). Assessing the Impact of Financial Crisis on Bank Performance: Empirical Evidence from Indonesia. *ASEAN Economic Bulletin*, *27*(3), 245-262.

[21] Sufian, F., & Chong, R. R. (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines. *Asian Academy of Management Journal of Accounting and Finance*, *4*(2), 91-112.