DETERMINANTS OF CONVENTIONAL BANKING PROFITABILITY IN MALAYSIA

MARCUS YONG CHEE KUAN

MASTER OF BUSINESS ADMINISTRATION

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT

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Marcus Yong Chee Kuan

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By

Marcus Yong Chee Kuan

This research project supervised by

Dr. Lee Siew Peng
Assistant Professor
Department of Economics
Faculty of Accountancy and Management

DECLARATION

I hereby declared that:

1) This MKMA25106 Research Project is the end result of my own work and
    that due acknowledgement has been given in the references to all sources of
    information be they printed, electronic, or personal.

2) No portion of this research project has been submitted in supporting of any
    application for any other degree or qualification of this or any other university.

3) The word count of this research report is ___18479___ words

Name of Student   : Marcus Yong Chee Kuan
Student ID   : 12UKM03890
Signature   : _____
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DEDICATION

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LIST OF ABBREVIATIONS

ABM   Association of Bank Malaysia

AGM   Annual General Meeting

BAFIA   Banking and Financial Institution Act

BLR   Basic Lending Rate

BNM   Bank Negara Malaysia

CEO   Chief Executive Officer

CG   Corporate Governance

CRM   Customer Relationship Management

ESOS   Employee Stock Option Scheme

FEM   Fixed Effect Model

FEM   Fixed Effect Model

FRF   Financial Reporting Foundation

GAAP   Generalized Accepted Accounting Principle

GDP   Gross Domestic Products

GGDP   Growth of Domestic Producs

GMM   Generalized Method of Moments

GP1   Guideline on Directorship in Banking Institutions

GP8   Guideline on Specimen Financial Statement on Banking Industry

IFRS   International Financial Reporting Standard

LM   Lagrange Multiplier

M&A   Merger and Acquisitions

MASB	Malaysian Accounting Standard Board
MCCG	Malaysian on Corporate Governance
MICG	Malaysian Institute of Corporate Governance
NED	Non-Executive Officer
NPL	Non-Performing Loan
Obs	Observations
OLS	Ordinary Least Square
P-value	Probability Values
REM	Random Effect Model
RM	Ringgit Malaysia
ROCE	Return on Capital Employed
RWCR	Risks Weighted Capital Ratio
SC	Securities Commissions
SEA	South East Asian
SME	Small-Medium Enterprise
US	United States
WDI	Word Development Indicator

ABSTRACT

The aim of this research is to identify the determinants of conventional banking profitability incorporates bank supervision and regulation, bank specific characteristics and macro-environment effect in Malaysia. In more specific, the research is conducted to: 1) identify changes of the conventional banking performance impress from the financial institution supervision and regulation compliances; 2) transform of bank characteristics in effects on banking performance; 3) movement of the macro-environment factors reflects on the conventional banking performance; 4) effect of banking profitability undergone financial distress of conventional banking profitability in Malaysia.

Data sources consists of total 189 observations were analyzed by using Stata package (STATA). The research questions have been validated by using ordinary least square (OLS), fixed effect model (FEM) and generalized method of moment (GMM) estimation in this study. The study revealed that CAMEL rating framework is partially supported with the significance level of 0.05 for management efficiency and liquidity. Conventional bank specific characteristics are identified as significant determinants with gross loan. Bank governance incorporates only CEO duality, while macroeconomics contains growth of GDP are significant influences on conventional bank profitability. Indeed, research found that return on assets and return on equity are individual significantly related to asset quality and earning performance, while latter indicated influential and significance effects on capital adequacy, bank size and remuneration of non-executive directors. The return on assets and equities highlighted vary result which contribute different findings. Financial crisis signify negative but not significant effect on bank profitability.

The research objectives and questions were fully addressed and justified based on statistical analysis and empirical researches. The significance of this study with contribution to theories enrichment, management decision making and policy makers. Limitations and implications have been suggested in this study.

CHAPTER 1

INTRODUCTION

The dynamic changes of global financial institutions structures where the globalization, deregulation and technology innovation leaves an impact on global banking sectors included Malaysia. The current reform of banking supervision, monitoring with transformation of financial market accelerated fundamental review of regulations and policies. The substantial market changes result doubt and importance on the rival banking institution performance. The research has been discussed background of study, problem statement, research objectives and questions that prompted for this study.

1.1 Research Background

The global financial liberalization and deregulation of commercial banking services had created challenges in financial market. While the advances of technological and system innovations are expanding to frontier and common regards to electronic and digital, for instance internet banking, mobile-banking service provided. The integration of rapid changes and innovations of financial market leads to the commencement of financial industrial reshaping to flatten their fundamental structures regards to internal operations, management effectiveness and efficiency, customer relationship management (CRM) as well as co-internal institutions relationship. Soteriou and Zerious (1997) suggest that superior insight consists of quality services created through operational efficiency anticipated changes that support operational costs to be diverted into profits. Hence, the commencement of bank operations emphasizes on operational efficiency achieves

which may reflect on profitability, especially in developing country (Olson & Zoubi, 2011).

Figure 1.1: Market Shares of Local and Foreign Commercial Banks in Malaysia
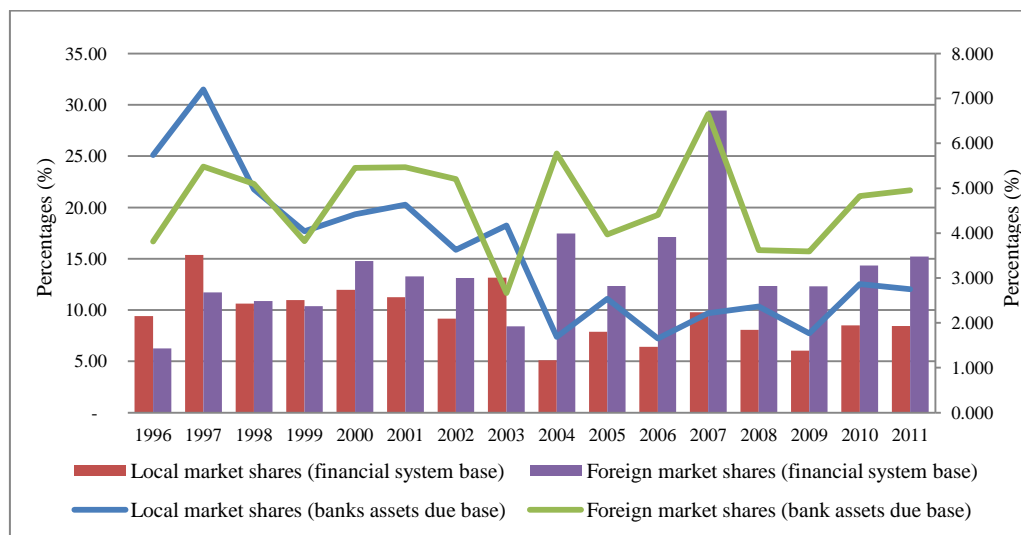
Source: Bank Negara Malaysia (2012a). Derived of local and foreign bank market shares are based on sum of conventional banks assets and whole financial system assets.

An evidence of local conventional banks has undergone a decline of domestic market shares during the occurrence of South East Asia (SEA) financial crisis in the year of 1997, consequently reduces by 13.8% due to collapse of Thai, Baht throughout East Asia (Moreno, Pasadilla & Remolona, 1998). An economic instability condition had caused country to struggle on crisis which tide over and experienced recovery thereafter. Louziz, Vouldis and Metaxas (2011) specify banks should anticipate dynamic economic changes such as downturn and effect of public debts that had influence on bank returns. Subsequently, the US was suffered from the stock market where it spreads its effects across Europe, Canada as well as Asia causing the reduction of local markets in 2003. Consequently, there were loss of market confidences and prospect of investors to US stock market (Norris, 2002). The susceptible series of financial distress hesitated growth of global economic condition affect foreign investments (William, 2012). Thereafter, appear of circumfluence of foreign bank investments has stimulated competition of market shares between local and foreign banking institutions.

In addition, rapid credit expansion has been indicated as further reason on behalf of poor regulation and supervision. Indeed, accelerate of credit issue due to inadequate prudential regulations by government neglected in the move caused override of short term foreign currency debts, consequently triggered SEA financial crisis (Karunatilleka, 1999). The underlying factors behind due to weak credit rating system as well as plenty of speculative activities existed in financial market, eventually leads to high degree of leverage that is susceptible to financial crisis. The wrench experienced impressed on Malaysia financial institution, as a result financial as well as banking industry commence in promoting financial stability are implemented and practiced by the Bank Negara Malaysia (Hasan, 2003). The sound financial structure is to support or supported the growth of economics and financial condition that may get effect to the bank industry performance.

Besides, the enforcement of corporate governance is drastically strict along to the vulnerable financial system structure against financial distress. Securities Commission enforce and execute proper practice of code of corporate governance, which align principles and recommendations which integrate parts of business trade, norms and cultures (Securities Commission, 2012). The circumfluence of market interest and confidence of investors build market stability as well as sound financial structure that enhance the banks performance. As the important policies implies the Malaysian Institute of Corporate Governance (MICG) responsible serve as one of the mechanism in supervising and monitoring practice of CG in respective listed corporation, included conventional banks.

There are need to investigate regards relationships of supervision and regulation, bank characteristics and environment changes relative to bank profitability. Empirical researches have indicated significant relationship for internal and external factors to influence on banking profitability (Dietrich & Wanzenried, 2011; Gul et al, 2011; Kosmidou & Pasiouras, 2005; Utama & Musa, 2011). Despite the limited number of local studies have addressed determinants in local, it has bring interests of the study explain effect of internal and external on bank

performance. This study aims to explain particular determinants effect upon conventional banks profitability in Malaysia.

1.2 Functions of Conventional Banking

The fundamental functions of existing banking institutions are serving in vary purpose which includes facilitates development and growth through shift fund from depositors and borrowers. Rose and Hudgins (2010) defines banks economics functions serve associates service facilitate and offered to customers in complying existing legal basis. The composition of financial system known as financial institutions consists of financial market (such as money market and capital market) and financial intermediaries (Allen & Gale, 2004). Existence structure functions of financial system attempts to facilitate shift of savings and investments by individual or group investor, to particular small-medium enterprise (SME) and corporations which demand specific leverage funding for business expansion and development.

In an existing of perfect capital market, Santos (2001) indicate excessive of financial intermediaries, hence entities could borrow funds direct through capital market. However, incurred of transaction and monitoring costs distort the function of perfect capital market no longer exist in reality (Ommeren, 2011). In addition, agency problem and asymmetry information suffers from capital market. Agency costs are defined as contrary incentives between principal (depositors) and agents (Jensen & Meckling, 1976). The misallocation of leverage funding has limited liabilities of borrowers during financial distress, hence leads to plenty of risks engaged by fund providers. The costs and time involved in monitoring borrower could be complex and expensive. As a result, the favor of financial intermediations in inefficient market since it could achieve least transactions and monitoring costs due to economic of scale and scope.

Besides, banking institutions contain significant function of maturity transformation (Rose & Hudgins, 2010). Bank institutions obtain short term deposits from multiple depositors shift savings to those termed loan borrowers. The bank holds part of the short term saving which allocates short term cash or liquid assets, thus facilitate depositors withdrawal when in needed. According to Schooner and Taylor (2010) indicate unique service provided by bank where granting term loan, whilst maintaining minimum liquid assets reserves in banks, which allow depositors to withdraw deposits without the decline of nominal values. In contrast, capital market could not attain maturity transformations due to individual investors against the price, liquidity and credit risks as compared to diversifying banks extents (Ommeren, 2011). For example, diversification of liquidity risks over large group of saver, where the credit and price risks are diversifying regards investments portfolio that bank maintain sufficient funds within bank as the individual able withdraw funds without liquidity problem.

Nowadays, financial system not only transforms funds from saving to investment, but also supports a variety of financial services in between sides of business fund borrowings and investments while enhancing the living standard. The role of banking service provider serves as a financial intermediary between individual and business industry to provide correspond sources of financed (Jee & Loghandran, 2003). Trend of new financial service provides such as electronic banking associated financial intermediaries with individual or business groups that have implications on the relevant cost and revenue thus affect the Malaysia commercial bank profitability.

On the other hands, the rapid growth of new forces, such as Islamic banking relative to the conventional banking service as major competitors and indicated new rivalry competition between financial intermediaries. Hassan and Bashir (2003) indicate the growing interest for critical evaluation of Islamic banking due to consolidation among banks while varying financial services were provided. The presence of Islamic banks comply principle of "Shariah" which replaced fixed interest payment for conventional financial transactions exemplifies empirical success and capability in banking industry. The costs of depositors regard rivalry

within financial institution that slash borrowing rate while reduce deposit rate as consequences affect bank's profitability.

There was an intense competition within banking institutions as the emergence of new services and activities shrinkage of traditional form of banking business conducts as receive deposits or credit extend. The tendency of increased complexity of bank characteristics incorporate price, liquidity, credit as well as operational efficiency risks manage balance between assets and liabilities regarding to capital adequacy would restrain potential earnings (Yap, Ong, Chan & Ang, 2010). As a result, an imposed supervision and regulation with close monitoring and controlling exposures helps to avoid bank failure which are triggered by the collapse of financial system even during financial distress.

1.3 Conventional Banking Sector in Malaysia

Along with international deregulation and convergence of system changes, the transition of accounting standard has adapted the environment and economic changes in financial system. Due to the transformation of environment, Malaysian Accounting Standard Board (MASB) and Financial Reporting Foundation (FRF) announced that the Malaysian entire banking institutions are required to prepare financial statements according to International Financial Reporting Standard (IFRS) on 1 January 2012 to replace the general national Generalized Accepted Accounting Principles (GAAP) which attempts to enhance public interest, understandable, and high compatibility with globally accepted format of financial statement preparation (MASB, 2012). The high transparent and publicly accepted financial reporting will raise market confidences when financial institution regulations and policies are comply with. The former GAAP is associated with other characteristics in Malaysian banking sector is described in this study as object of study. The scenario of global financial transformation and market development along with the world's economic inflation, there is a sound financial market and system operating where Malaysia undergone financial distress in 1997 and 2007. Representing the conventional banks' in Malaysia, Association of Bank

Malaysia (ABM) declared it possesses strong position to execute responsibilities in supporting and promoting finance and economic activities in country where its assets and investments are denominated in ASEAN (Trade Charka, 2012). Therefore, credit expansion in Malaysia is greater diversified at present where it was a substantial exposure in one segment.

According to Jegarasasingam (2011), there is significant improvement of assets quality in Malaysian banks that remained strong from year 2000 to year 2010 and further maintained the current non-performing loan (NPL) at fair and low level with 9.375% in 2010. Besides, the excess liquidity level in banking system is sufficient where it is able to absorb additional credit outspending, as it has been supported by the lower NPL. Due to the present Basel requirement as mentioned with the raise of statutory requirement, overall capital ratios of Malaysian banks has increased up to 15.4% and 13.87% for risk-weighted capital ratio (RWCR) and counterparty credit risk respectively (Bank Negara Malaysia, 2012a). The RWCR has remained above statutory requirement of 8% and market implied rate of 12%. It indicates that the strong capitalizations of banks reserve in BNM are capable to absorb uncertainty of financial loss.

Malaysia Banking Industry (2011) reported that the commercial bank has possessed the largest segment (total assets RM1, 192.84 million) of all financial institutions in Malaysia. The Bank Negara Malaysia (2012d) stated that there are 9 local and 18 foreign in conventional banking, which possessed 12.02% and 21.66% market shares respectively. However, the emergence of Islamic banking in Malaysia is the rapid growing sector in the global banking industry with average annual growth rate of 20% over past 5 years (Banking Industry Malaysia, 2011). Nowadays, Malaysia has 17 Islamic banks including Islamic units in several foreign banks (Bank Negara Malaysia, 2012c)

The reinforcement of corporate governance in domestic banking sector after the Asian crisis had been associated with the evolution and restructuring of banking system. An introduction of corporate governance plays a specific role for internal governance mechanism incorporates the board of directors, directors'

remuneration and so on. The emergence of supervisory and enhancement of corporate norms through Guideline on Directorship in Banking Institutions (GP1) and Guidelines on Specimen Financial Statement for Banking Industry (GP8) which reflects the structural changes of local banking industry's internal governance mechanism (Lum, & Koh, 2004). The purpose of enforcement of the internal corporate governance is to raise transparency and disclosure for board management with board dependence in achieving effectiveness for growth of banking institutions, particularly the manifold of merger and acquisition regarding the ownership structure in consolidating corporate norms, culture and environment. The best and optimum practice of corporate governance with a norm in local banking system is considered as challenges to BNM where it arises from substantial effects on bank institution in Malaysia.

On the other hand, the commencement of merger and acquisition activities in local market stated that the reinforced domestic banks strength of capital is competent enough to involve foreign bank. For instance, CIMB bank group has successfully acquired Southern Bank in 2007. It is one of the famous local credit issuers in order to expand their business into robust credit service provides (CIMB Group, 2007). In addition, the completion acquisition of EON Capital Berhad has become part of Hong Leong Bank group in 2011 with the attempt to align with BNMs' objectives systematical robustness of financial position with assets more than RM140billion to achieve the objectives and vision under BNM financial sector master plan (Hong Leong, 2011). The spring up of merger and acquisition activities in financial system, especially after financial crisis which attempts to reinforce the position and status compared to foreign banks as well as the rising of Islamic banking with regards to Shariah compliance that competes within the financial market

In present, the waves of country industries development in last decades have significant impact on financial sector, especially the banking sector. The globalization, deregulation and technological innovation transition have lower down the barriers and country boundaries that accelerate intense competition within local as well as foreign country financial institution. The globalization are

stated as the bank threshold involvement to abroad are encourage by country where it could lead to growth and diversified of domestic banking institutions. The acceleration of intense competition and market expansion within or outside country through large size of merger and acquisition activities to uniting the objectives to achieve economies of scale and synergies (Goddard, Molyneux & Wilson, 2004). The diversification of financial service provides off balance sheet transactions, mutual funds and insurances, which have been integrated by most of local banks, thus, encourages further growth of financial institutions. Moreover, the support and continuous improvement for technological innovation in enhancing service of processing and banking efficiency on the services provided through the use of auto-teller machine (ATM), and internet banking, which includes electronic banking and payment launch to reduce costs and time consumed in replacing bank branch front office. The wide accessibility to local and foreign in fund transition was integrated with capital market with regards to the rate offers available in market.

1.4 Requirement of Supervision and Regulations

The fundamental issues with imposed of regulations are due to moral hazard (Rose & Hudgins, 2010) and agency costs (Jensen & Meckling, 1976). Moral hazard is defined as the tendency of entities to engage in particulars risks where costs born will not be suffered by party involved. In other words, entities are insured limited liability to loss. The major issues refers to bank risk taking with regards to the downside risks are limited to particular amount for bank owners, in contrast, unrestricted upside risks undertake by bank depositor (Fecht, Nyborg & Rocholl, 2011). The purpose of bank owners' intention is to achieve shareholders wealth maximization although it encounters with implied risks exceeding the willingness to be accept by depositors.

According to Rime (2001) indicate that an excessive risk takings undertake by depositors and insurance scheme. The fosterage of moral hazard due to regular government intervention where it is support by Haniffa and Hudain (2006)

government compelled direct physical or monetary policies carried out by BNM to avoid collapse of financial system. "Too big to fail" has been fostered by the local regulatory bodies which impelled collapse of local financial institution even triggered a financial distress. In context, since poor regulation and management in economy is one of the significant underlying factor that disrupts Malaysia's financial and economic condition experienced from the SEA financial crisis aroused in year 1997 (Karunatilleka, 1999).

Supervision and monitoring is a compulsory enforcement to regulate the functions and operations of banking institution to avoid undertaking excessive risks while preventing failure even systematic risks (Rose & Hudgins, 2010). In Malaysia, an effective regulation and supervision as prudent lending policy take into considerations where regulatory framework are laid down under BNM including *Garisan Panduan GP5,* Banking and Financial Institutions Act 1989 (BAFIA) and Capital Adequacy Guideline 1989 (Jee & Loghandran, 2003). An imposed of monitoring under BNM in protecting benefits of depositors, whilst preserve market confidence in promoting stable economic growth in Malaysia (Bank Negara Malaysia, 2012b)

Although relevant monitoring and supervision could reduce potential moral hazard and agency costs problem in banking sectors, underlying issues could not thoroughly solve the particular problems according to previous empirical researches. Blum (2008) indicate asymmetry information mainly causes inability of complex bank monitoring as well as bank risk assessment validation. The prescription of bank regulations and policies concerned the structure of balance sheet comprehends how supervision and monitoring influence bank profitability.

The Basel committee has introduced nationwide broadly accepted supervision of banking regulation in 1998, Basel 1, specific emphasize on credit risk incorporate interest risk, which constitutes minimum capital requirement in between credit and risk weighted assets (Basel Committee, 1988).

Table 1.1: Differences of Statutory Capital Requirements under Basel Regulations

Capital	Descriptions	Basel 1	Basel 2	Basel 3
Tier 1	Core		2.00%	4.50%
Tier 2	Supplementary	4.00%	4.00%	6.00%
Total Equity	Tier 1 + Tier 2	8.00%	8.00%	8.00%

Source: Basel Committee (1988); Basel Committee on Banking Supervision (2004, 2010). Composition of Basel framework contains different meaning for Tier 1 capital.

Latter, revision of Basel 1 are based on the integration) of moral hazard and arbitrage issues. The introduced 3 pillars are comprised of: i) minimum capital requirements, ii) supervisory review process and iii) market discipline (Basel Committee on Banking Supervision, 2004). The disclosure of capital requirement are controllable by supervisors and stakeholders which serves to maintain adequate risk management. Recently, the imposed funding and liquidity restriction in Basel 3 established additional capital reserve buffer and countercyclical buffer to promote stable short and long term funding of assets (Basel Committee on Banking System, 2010). BNM has complied with statutory requirement established with further consideration introduced to countercyclical capital buffer in line with requirement in Basel 3 (*The Edge Financial Daily*, 2011).

On the other hand, the awareness of code of corporate governance has been recognized since they are susceptible to local financial institutions structure to financial distress, such as the East Asian crisis 1997, which specifies the particular extent of attribution belong to weak form of corporate governance (Kim, 1998). The Malaysia Code of Corporate Governance (MCCG) was formally established on March, 2000, which sources and references from Hampel Report 1998 and Cadbury Report 1992 in United Kingdom (FCCG, 2000). The adaption of corporate governance is accredited by Securities Commission (SC) who are responsible to regulate and monitor corporate operation and administration function in complying principles of MCCG.

According to Gregory and Simms (1999), an effective implementation of corporate governance served as a significant role in promoting efficient use of resources for internal firms or external economy, which are able to attract least cost of capital investment while enhancing the knowledge and confidence of investors consists of local and foreign. The responsiveness of society needs and expectations drives motive in achieving corporate long term objectives. Jensen and Meckling (1976) contend the structure of corporate governance would presumably reflect the bank performance with regards to efficiently eliminate the presence of asymmetric information which possibly leads to moral hazards problem, where the conflict between self interest and corporate eventually at the expense of the capital provider, such as shareholders and depositors. An investigation of this study is concerned with whether supervision and regulation regarding the credit and liquidity framework, and corporate governance influence bank profitability.

1.5 Problem Statement

The implied multiple financial risks includes credit, interest and operational risks are concerned by financial institutions and regulatory bodies where it is exposed to financial distress after the broke out financial crisis, 1997. Subsequently, the enforcement of statutory capital requirements regulated under Basel regulations attempts to mitigate moral hazard associated reduces risk exposures (Konihi & Yasuda, 2004). Besides, the balance of assets-liabilities management accelerate operational efficacy reflects the improvement of potential earnings associated by low risks. Does supervision and monitoring of framework regulating by BNM against exposures influences bank return?

Besides, agency costs lead adverse impact on bank performance and financial distress undergone in Malaysia urges reinforcement of corporate governance as well as compelled intervention imposed by regulatory bodies in local market (Haniffa & Hudaib, 2006). Adequacy and transparent business affairs conduct required in Securities Commission (2012) with specific compliances and ethical

commitment intends to gain market confidences reflects bank profitability. Does supervision of corporate governance throughout conventional banking influences bank returns?

On the other hand, Sufian and Habibullah (2010) specified higher degree of economic liberalization results in optimal effect on the bank performance. However, intervention of physical and monetary policies along with market changes leads to adverse performance incorporated by dynamic economic factors including market lending rate and growth. The possibility of external factors triggered cyclical effects due to various size of financial institution (Drake, Hall & Simpler, 2006). Does the feature of fast economic change anticipate bank profitability performance?

1.6 Research Objectives

    i.   Identify the changes of conventional banking performance impress from financial institution supervision and regulation compliances.

    ii.   Examine transform of bank characteristics in effects on banking performance.

    iii.   Examine movement of macro-environment factors reflects on conventional banking performance.

    iv.   To examine the effect of conventional banking profitability changes undergone financial distress.

1.7 Research Questions

i. How does the implementation of CAMEL rating and bank governance on the banking profitability?

ii. What is the relationship between the bank specific characteristics influence on banking profitability?

iii. What is critical effect of macroeconomics on banking profitability?

iv. Is there significant effect of financial crisis impact on bank profitability?

1.8 Significant of Study

The purpose of this study is to identify significant relationship between supervision and regulation, bank characteristics and environment effect on conventional bank profitability. The comprehensive determinants are appreciated by the management of banking institutions to propose corporate direction that sustain within intense competitive financial system.

The new supervision and regulations establish in regulating financial institutions operation along with cyclical financial crisis. Impacts of implement of regulations upon banking profitability required assess and estimate by bank management since it will potentially influence present or even future performance. Bank management operates in complying to present regulations with least costs impact.

The supervision and regulations concerned the law and policies reform, for instance, statutory capital requirement in Basel regulation would cause substantial impact on banking performance. Besides, the extension of supervision with regards to corporate cultures and developments, stand as part of index where it should be emphasized by bank management. The identified major corporate governance issues where management may devotes resources to resolve throughout institution.

The transformation of bank characteristics in pace with various new financial products and services adds complexity of banking business. The standard bank characteristics serves as an indicator for management through internal and external purpose for promoting sound and sensible risk management. The imposed of supervision and regulations affect bank characteristics describes by balance sheet structures in rapid changes environment could influences bank profitability.

The cyclical upward and downward sloping indicates economic changes along with development of country will bring proliferation of institution includes financial market. Signify of peak and recovery reflects greater gain on bank performance. Dynamic changes of macroeconomic variables may influence on bank profitability.

1.9 Outline

The remaining structures of this study are indicated as follow. The following chapters are going to discuss and introduce the underlying theoretical concepts with brief overview of banking institutions in Malaysia with regards on bank profitability incorporate supervision and regulations, bank characteristics, and environment impact, relevant determinants of the study. Chapter 3 describes the research design regarding data sampling and methodology. Chapter 4 presents and discusses the statistical regression outputs with validated model implementation. Lastly, chapter 5 concludes by summarizing major findings of study in verifying the hypotheses while answering research questions. The practical implication, limitations as well as recommendations are further discussed in this chapter.

CHAPTER 2

LITERATURE REVIEW

This chapter attempts to review empirical researches of the determinants of banking profitability. Literature review provides a comprehensive view encountered by potential shortfall and argument in prior researches. Most countries have done related empirical researches, conceptual framework formulated to examine relevant factors, including supervision and regulation, balance sheet structure and environment effects impact upon conventional banking profitability in Malaysia. It further strengthens the reliability of constituted conceptual framework. The review of previous researches that contains comprehensive model constructed utilizing CAMEL rating framework, bank governance, bank specific characteristics and macroeconomics.

2.1 Review of Conventional Banking

Recently, the fast changing for the market participants due to the trends of financial deregulation, technological, financial innovation, are indeed globalization in the Malaysian financial sector. Guru et al (2009) state that the advances of information technology and communications are currently expanding the conventional banking business to electronic banking and internet based financial services. The relevant development in financial industry is certainly a reformation of the financial institutions regarding the system, operation and relation between institutions and customers. The proliferations of financial intermediaries are participated into fields between financial market and non

financial market. The relevant development and structure changes from cost and revenue affect the profitability of conventional banking.

Conventional banking generally defined as financial institutions that provide relevant financial services, such as accepting deposits, granting business and individual loans, mortgage lending and basic investments to facilitate the funding of organizations (Rose & Hudgins, 2010). The conventional bank profits fundamentally determine and sources from the compensation that borrower required to repay higher amount to bank. The difference between borrow amount and repay amount stated as interest on the investment or deposit. The existing of conventional banks provide wide ranges of services to the economy sectors, such as information delivery service, liquidity services, transaction cost services, intermediation service, money supply transmission, credit allocation and payment services (Cornett & Tehranian, 2004). The conventional banking get pivotal positions in financial institutions which promote capital flow from saver, especially household to investment contribute growth economy (Sathye et al, 2002).

Rumler and Waschiczek (2010) indicate the banks serve as intermediary in transforming public saving into investments in economic. The financial intermediary defined as an institution that acts as middle between fund saver and borrower in order to channel the fund from deposit to investment (Rose & Hudgins, 2010). The particular origin of two parties, such saver and borrower are fundamental service provided by financial institution, especially conventional banking in the financial market. However, the intense financial market competition which asymmetric information rose between competitors as well as economy, thus lead to greater risk exposure.

According to Chong (1991) indicate the profitability of conventional bank is positive associated with risk. The underlying moral hazard and agency cost problem induced effect on banking institutions, entire financial system. Besides, systemic risk implies is significant affect small and medium and large size bank. It means the greater the opportunity that conventional bank involved in risky

business, in reflect the greater level of profit gained. The bank not just solely maximizes bank profitability, but to achieve the optimal combination of bank risk and return (Kunt & Huizinga, 2010). Imposed of supervision and regulations regards Basel in financial sector influence changes of bank performance. Aims of particular bank management and operation is to mitigate potential risks undertaken while enhance return performance that achieve optimal risk-return.

The general trend toward disintermediation lead to competition for fund in correspond increases cost of deposit on the other hand squeezes commercial bank margin and profitability (Rumler & Waschiczek, 2010). As results, the apparent erosion in financial market share implies that the traditional banking is dying (Rose & Hudgins, 2010). Malaysia conventional banking will have to review their bank business structure and understand internal and external factors which may affect the profitability performance in order to sustain in financial market.

The review of literature are obtained and reveal by the number of previous researcher who have study the determinants of conventional banking profitability (Dietrich & Wanzenried, 2011; Gul et al, 2011; Garcia-Herrero, Gavila & Santabarbara, 2009; Bolt, Haan, Hoeberichts, Oordt & Swank, 2012). The explicit analysis to determine the determinants of conventional banking profitability in Malaysia serve to expand the literature on banking and finance in Malaysia.

2.2 Profitability of Conventional Banking

The profitability is significant measurements that determine and evaluate conventional bank performance over periods (Gul et al, 2011; Guru et al, 2009; Bordeleau & Graham, 2010). According to Tabak, Fazio and Cajueiro (2011) state that determinant of conventional banking profitability can separate into two particular categories, namely management controllable and those beyond the management control. The factors which affect by management control are

classified as internal determinants, on the other hand, the beyond management control are classified as external determinants (Guru et al, 2011).

The internal determinants are defined as bank management policies and decision regarding to the use of fund management, capital and liquidity management, and expenses management. The sources of management could analyze and examine through balance sheet and profit and loss in an institution (Rose & Hudgins, 2010), on the other hand, external determinant subdivided into macroeconomic and firm specific factors which are comprised of market structure, regulation, inflation and market growth (Kosmidou et al, 2005; Pasiouras & Kosmidou, 2006; Curak et al, 2012).

Accounting return is utilized to measure of conventional bank profit performance. The variables chosen are Return on Asset (ROA) and Return on Equity (ROE) as primary measurement of bank profitability. The ROA is defined as an indicator regarding to management efficiency and expressed as ratio or percentage of net profit to total assets (Dietrich & Wanzenried, 2011). It shows how capable the management has been converting assets into net earnings. The major rationale usually lies on managers and external analysts sophisticated use Return on Asset as a measurement of effective and efficiency of top management. Besides, the impact on institution management and strategy practiced is more directly reflected in accounting profit rather than stock price that enable external parties forecast future profits (Grant et al, 1988). Golin (2001) pointed out that the ROA is a key evaluation ratio for evaluating bank profitability and commonly employed in most of the literature.

The second measurement of profitability is the Return on Equity (ROE), which are generally defined as rate of fund flowing to shareholder and expressed as ratio of net profit to shareholder equity. Which means the shareholders receives their investing capital in the financial firm, which places fund in risk and in hope of earning substantial profit (Rose & Hudgins, 2010). There are numbers of research identified employ ROE indicator to measure the bank profitability (Lee & Hsieh, 2012; Bordeleau & Graham, 2010; Chirwa, 2003).

However, there is substitute of best measurement for bank profitability. The bank with lower leverage ratio (higher equity) results in higher ROA, but lower ROE. The ROE has ignored the higher risk associated with the high leverage and effect the regulation on leverage (Sathye et al, 2002). As a result, ROA serves as major measurement to examine the conventional banking profitability and primary dependent variables. Besides, ROE is employed as secondary indicator although there are drawbacks implied.

2.3 CAMEL and Bank Profitability

The CAMEL rating framework constituted and monitored by BNM attempts to supervise and regulate banking institution management and operation that will not involve risky portfolio investment caused the collapse of financial system. It serves as partial fulfillment and complies with Basel regulations. The assessment criteria embodies capital adequacy, asset quality, management efficiency, earning performance and liquidity.

2.3.1 Capital Adequacy

The monitoring and supervision of capital commensurate to aggregate the size of credit, market and operation risk exposures. Equity to assets ratio serves as the proxy of bank equity capital to measure capital adequacy (Dietrich & Wanzenried, 2011; Tabak, et al, 2011; James, 2006). Previous results suggested that the effect of changes for this ratio is complicated. Normally, the lower bank equity to assets are considered not safe as compared to higher ratio. Aligned with risk-return hypothesis, bank possessed lower equity ratio to gain high return in relative to better capitalized institutions (Curak et al, 2012; Hoffman, 2011). It is supported by previous researches which indicated the well capitalized bank has performed negative relations to its management of equities. However, better capitalized bank is safeguard and profitable remains within intense financial system, even in undergoing economic or financial difficulty where there are lowered risks, while

increasing the banks creditworthiness, hence reduces management funding costs (Al-Omar & Al-Mutairi, 2008). Meanwhile Lee and Hsieh (2012) indicate higher capital ratio should be getting positive effect to bank profitability measured in term of ROA and ROE respectively.

2.3.2 Asset Quality

The determinants of bank asset quality derived as ratio of loan loss reserves to gross loans. The possibility to recover non-performing loan (NPL) and interest suspense stipulates the recovery and success in collecting back . The loan loss provision defines an expense that institution or bank set aside as reserve to recover or replenish bad debts, where borrower are unable to repay over long periods (Bodha & Verma, 2006). The amount of loan loss reserve has been reported in financial statement. The higher ratio usually indicates lower bank assets quality, thus lower bank profitability. An adverse relationship results between ratio and bank return performance (Chirwa, 2003; Althanasoglou et al, 2008). In contrast recent researches result suggested that the possibility of positive effect in relative to bank return (Heffernan & Fu, 2010; Kanas, Vasiliou & Eriotis, 2012). According to Kanas et al (2012) specify that positive correlated of provision to pre-provision income where bank underlying risks assume and form of loan loss reserves during either economic upturns or downturns.

2.3.3 Management Efficiency

The management efficiency measured in terms of cost to income ratio derived as operating expenses to operating income. The cost income ratio specifies the bank management and operation efficiency where particular bank regulation compliance. Empirical evidence presented mixed result relative to bank profitability. This efficiency ratio indicated positive effects on bank returns (Goddard, Molyneux & Wilson, 2004). This suggests that greater bank devotes investment on operation funding in order to facilitate and stipulate diverse

business affairs conduct. However, there is common negative relationship between cost income ratio and bank profitability, as greater ratio will induce lower return performance (Ben Naceur & Omran, 2011; Garcia-Herrero & Santabarbara, 2009). The mismanagement of banks operation where the managed of operating expenses exceeds the operating income, consequences negative impact on profits.

2.3.4 Earning Performance

Bank spread, net interest margin serves as a proxy for earning performance result in bank system operation and management (Bodha & Verma, 2006; Ben Naceur & Omran, 2011). The net interest margin calculates the differences between interest income and interest expenses as expended as the percentage of total assets. The optimal ratio that bank require is to keep low distributable interest whilst charges acceptable rate for loan to borrower (Bodha & Verma, 2006). The higher spread indicated greater earnings with regards on interest income minus interest expenses agreed to distribute to depositors. Yield on bank assets on term structure loan as profits generate and capable to manage short term depositors interest. However, the integration of quality of the bank loan incorporates economic conditions as well as business cycle which had influence on bank profitability (Ben Naceur & Omran, 2011).

2.3.5 Liquidity Management

To identify the impact of liquidity management on bank return, net loan to total assets are measured as ratio to examine bank liquidity operations. The bank involves into multiple portfolio investment such as short term or long term credit. Curak et al (2012) specify positive impact on bank return. High ratio means the capability of meeting frequent demand from borrowers as well as depositors. However, the liquid assets hold may obstruct associated with the least rate of return. This argument is consistent to previous researches which indicated inverse relationship between liquidity and bank profitability (Alper & Anbar, 2011;

Alexiou & Sofoklis, 2009). It aligns to Billet and Garfinkel (2004) specify robustness of financial flexibility implying the sensitivity reduction of bank profits against implicit wealth shock, hence reduce bank liquidity in order to cope with financial slack.

2.4 Bank Governance and Bank Profitability

The regulation imposed and monitored by Securities Commission for those listed companies with regards to governance structure and processes. Financial institutions necessary comply with Bank Negara Malaysia licensed institution requirement regards prudential financial policy development for corporate governance guideline compliances. The compliance of annual report fulfills the recommendation provided which mitigates agency cost and moral hazard problem top to down from bank top management purposively. The corporate governance variables have been employed in this study to estimate bank return.

2.4.1 Board Size

The provision of board composition should establish nominating committee, chaired by independent directors who are responsible to monitor assessment and nomination of directors (Securities Commission, 2012). The good corporate codes are part to ensure sustainability strategies growth of banking institutions. Haniffa & Hudaib (2006) state that composition on board possessed significant impression on the market measure performance. The board size governs bank management which had influence on operations performance. The effect of inverted U-shape suggested by Andres and Vallelado (2008) specify between board size and return performance. The composition and board size are critical to determine the efficiency and monitoring of management advice. The small and concentrated board is more likely to carry out efficient monitoring which reflects positive growth in return performance (Mashayekhi & Bazaz, 2008).

2.4.2 CEO Duality

Previous researches suggested that role of CEO possesses managerial shareholdings while reserving the seat on board was a significant influence on return performance. Stewart (1991) state that the role of duality may align with stretch objectives, which sharpens the decision making and promotes rapid operation decision implementation. The incentive of duality performance could suggest better decision implementation while improving performance without external influences. Dahya, Lonie and Power (1996) indicate that the duality of potential individually would sharpen business objectives without board interference, results in improved performance. However, Chang and Leng (2004) find out that there is negative association between role of duality and return performance in Malaysia. The separation of role has been enforced by Securities Commission (2012) as code of corporate governance suggested that the role board seated and managerial should be separated which would not aggregate moral hazard problem when business run like sole trader.

2.4.3 Proportion of Independent Non-Executive Director

Empirical researches suggested that non-executive directors (NED) had proven mixed results with regards on performance. The role of independent non-executive directors responsible to serve as external parties to monitor business operation which align to corporate objectives while comply code of corporate governance. Milstrein and MacAvoy (1998) points out that greater proportion of non-executive directors reflects greater performance in relative to dependence board. Since the independence monitor required by corporate governance practice could surpass the dependence results to outperform within industry while achieving shareholder wealth maximization (SWM). In contrast, negative finding found by Agrawal and Knoeber (1996) between Independent non-executive directors and return performance measured in term Tobin' Q. The incentive of non-executive directors is less, since shares hold are less or non would reduced motivation to monitor management, thus concerned about shareholders values

(Conyon & Peck, 1998). As a result, an optimal control of proportions of non-executive directors on board in leveraging performance that aligns to corporate objectives to maximize shareholder values.

2.4.4 Remuneration of Non-Executive Directors and total remuneration of directors

The composition of board includes executive directors (ED) and non-executive directors where remuneration of directors was determined by the company annual general meetings (AGM) (Securities Commission, 2012). The proportions of remuneration allocation are significant alleviation of agency costs problem in managing corporate operation. The legal compensation not only based on cash salary, but also includes stock option, employee stock option scheme (ESOS) and stock grants to particular board members. The mixed results have been suggested by previous researches with regards to optimal compensation to directors. According to Core, Holthausen and Larcker (1999), agency problem arises when remuneration pays more than market equilibrium. The negative relation between remuneration and return performance results in contentment and lesser motivation to the directors' willingness to monitor management performance. The optimal remuneration for directors should be based on measured performance applies either executive or non-executive directors (Basu, Hawang, Mitsudome & Weintrop, 2007).

2.4.5 CEO from Founding Family

The founding family member retains serve as critical variables relative to the corporate governance while reflecting on the return performance. In Malaysia, the family controlled business in banking industry has gradually decreased in recent years, since there were intense competition within the industry while new forces of Islamic banking has been developed. Basu et al (2007) state that family appointed top executive would increase incentive solely and able to overpay

themselves as consequence sever agency problem has been fixed due to weak form external parties as well as shareholders monitoring. Integration of firm ownership and founding family member appointed could exercise absolute power over operation whilst override interest of shareholder which exerts private benefits (Fama & Jensen, 1983). The shareholders concentration is an effective corporate governance mechanism influence on the performance.

2.5 Bank Specific Characteristics and Bank Profitability

The bank specific characteristics have been selected by choosing the key determinants to examine the effect upon bank profitability. Previous literatures suggested that bank size, loan growth and retained earnings were factors which had influence on bank return performance. The selective explanatory variables are further elaborated below:

2.5.1 Bank Size

Previous literature reviews suggested that bank size, derived from log of bank total assets to measure growth and expansion of bank scale and scope of business conducts. There are contradicting results which suggested that the bank size has either positive or negative effect on bank profitability. Prior researches stated that larger bank size reflects greater bank return (Al-Omar & Al-Mutairi, 2008; Leung, Young & Rigby, 2003). The larger banks are likely to provide wide range of financial products and services which enabled them to achieve products diversification as compared to small and medium banks, as result underlying risk has been reduced (Chong, 1991). Besides, large bank holding companies are operated with greater leverage and undertake risks lead to potential profitable lending (Demsetz & Strahan, 1997). However, Sufian and Habibullah (2011) argue that the larger banks tend to gain lower profits. It is due to greater bank products and service diversification which intends to reduce systematic risks,

which are unable to be monitored and managed by banks causing the negative impact on banks return.

2.5.2 Growth of Loan

The main stream of bank income depends on loan serves as fulfill demand from borrower. Hoffman (2011) state that loan capacity is related to bank gross loan and lease bank short term liabilities, such as custom deposits over total assets. Mixed results have been indicated by previous researchers reflect on bank profitability. The traditional bank products provide leverage facilities to borrowers which results in positive gain on the bank income (Gul et al, 2011; Tabak et al, 2011), since interest charges on particular loan has been repaid over periods of time. According to Alpher and Anbar (2011) the loan volume growth is rapid rather than what the market serves, it will results positive gain bank profitability. However, fast growth of bank loan may result in negative impact on the bank performance (Hoffmann, 2011). The overlooked bank business expands as loan volume increase could lead to mismanagement by an existing loan portfolio which may induce increase of loan loss provision, a consequence shrinking of bank return.

2.5.3 Retained Earnings

Bank retained earnings refers to the funds preserved within institution less out from net income gains instead distribute dividends to shareholders (Sathye et al, 2002). The proportion of retained earning remained in an institution should manage an equilibrium between shareholder and reserve funding. Berger (1995a) specifies that significant portion for bank fluctuations are kept as retained earnings while dividends does not response to changes in bank earnings. The stipulations of market shares as well as shareholder wealth maximization may contribute to bank reputation, indirect enhance bank return performance. However, excessive retained fund keep may obstruct bank growth and development. Alexious and

Sofoklis (2009) state that increase retained earning proportions will reduce bank return performance in terms of return on capital employed (ROCE).

2.6 Macroeconomics and Profitability

Besides the internal determinants indicated above, this research incorporates the country environmental effect in terms of macroeconomic variables, which includes GDP growth and average market lending rate to examine the significant impact on banking profitability, while continuous adopt by prior researchers.

2.6.1 GDP Growth

The gross of domestic products (GDP) are defined as sum of market value of total final goods and services produced by country within specific periods (Alpher & Anbar, 2011). GDP growth specified GDP varies over time based on changes of economic conditions. Mixed results have been suggested between GDP growth and bank profitability. Gul et al (2011) stated that GDP growth implies both positive and negative effect since the changes of economic and business cycle are presented as sigmoid curve. It may cause the effect of GDP shift over time which depend on upward or downward sloping on cycle. The effect of GDP growth would result in either positive (Bordeleau & Graham, 2010; Kanas, Vasiliou & Eriotis, 2012) or negative (Pasiouras & Kosmidou, 2006; Bolt et al, 2012) effects upon bank profitability due to the seated on environment and cycle may vary over countries.

2.6.2 Average Market Lending Rate

This study make used of average market lending rate which are generally declared by BNM and practiced by financial institution in Malaysia. Market lending rate are defined as the rate of interest offer determined by the markets supply and demand according to the duration and amount of deposits or borrows which were significant influence on bank profitability. Bank Negara Malaysia (2012a) empowered all commercial banks to state their own deposit and borrow rate as above minimum requirement on February 1991.

Since the bank lending rates are based on the average basic lending rate (BLR) among all commercial banks reported to central bank, BNM. Guru et al (2009) suggested that there is positive impact for market lending rate on bank profitability supported by Bolt, Haan, Hoeberichts, Oordt and Swank (2012) reinforce that evidence of bank lending history should be taken into account to explain the bank profits. The changes of interests may respond to elasticity that bank can charge higher interest with the prevailing business on time.

On the other hand, prior researches stated that there were an adverse relationship between interest charges and return (Leung et al, 2003). An unreasonable interest imposed may induce reluctant fund borrow from commercial bank rather than through other financial institutions resulting in negative grow growth of bank return.

Table 2.1: Summarized Table of Dependent and Explanatory Variables

Dependent Variables		Descriptions	Expected Sign
Bank Performance			
Return on assets	ROA	Profit after tax and provision to average assets. Profit generated from utilizing/allocating bank assets	
Return on equity	ROE	Profit after taxes and provision to shareholder equities. Profit generated from utilizing leveraged by shareholder equities	
Explanatory Variables			
CAMEL			
Equity/Assets	EAR	Total shareholder equities to total assets, high E/Aassumes as indicator of low leverage and low risk.	+/-
Loan loss res/Gross loan	LLR_GL	Loss loss reserved to gross loan, high ratio assume indicator of high lending risk and reudce income and EPS.	+/-
Cost to income ratio	CI	Operating expense to operating income ratio, high ratio assume indicator of low efficiency management is at reducing costs	-
Net interest margin	NIM	Interest income minus interest expenses dividing average assets, high ratio indicate greater difference between operating income and operating expenses genrated from assets.	+
Net loans/total assets	NL_TA	Net loan outstanding to total assets, high ratio indicate high bank loaned up and low liquidity, with higher risk	+/-
Bank Specific			
Bank size	LOG_ASSET	Bank total assets	+/-
Growth of loans	GL	Growth of bank loans over periods	-
Retained earnings	LOG_RE	Bank profit after taxes, provision and dividend distributed	+
Bank Governance			
Board size	LOG_BS	Number of directors on board	+/-
Independent non-exec directors (%)	IND	Percentage of independent non-exc directors on board	-
CEO duality, dummy	CD	Chief Executive Officer/Managing Director who held as director on board	+/-
Remuneration of non-exc directors	LOG_TRNED	Non-exc directors remuneration consists of fees, salaries, fees, share option (ESOS), benefit in kind, etc	-
Total remuneration of exc and non-exc directors	LOG_TREND	Total remuneration of exc and non-exc directors remuneration	-
Director from founding family	CFF	Directors who belongs to founding family	-
Macroeconomic			
GDP growth (%)	GGDP	Growth of gross domestic product (GDP) per capita	+/-
Average market lending rate	MLR	Average market lending/borrowing rate of financial institutions	+/-

2.7 Conceptual Framework

Figure 2.1: Conceptual Framework

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┌─────────────────────────────┐
│           CAMEL             │
│ • Earnings to assets  (+/-) │
│ • Loan loss reserves        │
│    to gross loan      (+/-) │
│ • Cost to income       (-)  │
│ • Net interest margin (+)   │
│ • Net loans to total        │
│    Assets             (+/-) │
└─────────────────────────────┘

┌─────────────────────────────┐
│      Bank Governance        │
│ • Board size        (+/-)   │
│ • CEO duality       (+/-)   │
│ • Independent               │
│    non-executive            │
│    director          (-)    │
│ • Remuneration              │
│    of non –                 │
│    executive director (-)   │
│ • Total remuneration        │
│    of directors      (-)    │
│ • Director from             │
│    founding family   (-)    │
└─────────────────────────────┘

┌─────────────────────────────┐
│       Bank Specific         │
│      Characteristics        │
│ • Bank size         (+/-)   │
│ • Growth of loan     (-)    │
│ • Retained earnings  (+)    │
└─────────────────────────────┘

┌─────────────────────────────┐
│       Macroeconomics        │
│ • Growth of GDP  (+/-)      │
│ • Market lending            │
│    Rate             (+/-)   │
└─────────────────────────────┘
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┌──────────────────────────┐
│      Bank Return         │
│      Performance         │
│ • Return on assets (ROA) │
│ • Return on equity (ROE) │
└──────────────────────────┘
```

Previous study indicated that effect of supervision and regulations (CAMEL and bank governance), balance characteristics (bank specific characteristics) as well as macroeconomics on banking profitability. The conceptual framework illustrated the internal and external determinants as show on figure 2.1, impact on conventional bank return performance. Those explanatory variables employed for

the expected signs are derived based on previous researches, which direct the hypotheses constructed in this study to explain the effect on conventional banking profitability in Malaysia.

2.8 Summary

Empirical researches emphasized the influences of regulatory bodies, BNM and SC imposed supervisions and regulations on particular banks portfolio investments that particular risks (agency costs and moral hazard) involved effect upon conventional bank profitability in Malaysia. ROA and ROE are commonly employed as proxy to explain bank return performance throughout researches varies over counties (Guru et al, 2009; Tabak et al, 2011). Balance sheet structure components examine as bank specific characteristics which taken into account to explain conventional bank return. The macroeconomics variables have taken into account to estimate the consequence of commercial bank return due to rapid environment changes in Malaysia. Research proceeds to methodology in order to examine the result of financial factors upon Malaysian conventional bank profitability performance.

CHAPTER 3

DATA SOURCES AND RESEARCH DESIGN

Empirical researches discussed in previous chapter facilitates in research design in this chapter which model developed. The formulated dependent and explanatory variables in chapter 2 are determined and make use to identify the determinants of conventional banking profitability in Malaysia. The data collections with regards to sourcing and sampling have further discussed in this chapter.

3.1 Data Collection

This part describes data sources and sampling of data and constitute of representative of conventional banks in Malaysia. Data collection explains the sources and databases that are used to collect data for dependent and explanatory variables. Subsequently, data sampling discusses about the data available for local and foreign banks where the bank samples are being employed to examine banks profitability.

3.1.1 Data Sources

The data collected and used in this research design comprises of local and foreign conventional banks which are registered under Bank Negara Malaysia (BNM) as licensed institutions. The key determinants of this study consists of CAMEL rating, bank specific characteristic, bank governance and macroeconomics have derived and extracted from different sources.

The data for CAMEL rating and bank specific characteristics data are collected from Bankscope databases serve as a comprehensive databases containing information extracted from financial statements throughout worldwide multiple banks. The bank governance data are collected from respective local and foreign conventional bank corporate governance statements which required disclosure by SC. Lastly, the macroeconomics data are collected from World Development Indicator (WDI), which compiles official internal recognized sources.

Data sources consists number of databases, financial statements and corporate governance statement from respective banks are being used to examine the constructed hypotheses statements. The sum of observations are collected are consists 8 local and 13 foreign conventional banks from 2003 to 2011 respectively.

3.1.2 Data Sampling

The selected sample of conventional banking institutions located in Malaysia which are registered under BNM as licensed financial institutions. The bank data sampling consist number of steps to filter conventional banks listed under BNM. Firstly, there are total of 27 commercial banks, which consist of 9 local and 18 foreign. The comprehensive domestic conventional banking sectors are justified due to sophisticated of banking sectors as well as comparison issues.

The secondary data is applying in this study and collects from Bankscope databases which consists of 27 commercial banks listed under Bank Negera Malaysia. The selected determinants in chapter 2 are being extracting from collected bank database.

The data sampling attempt avoid reduces number of banks. Since there are limited bank observations regards commercial banks registered under specified short term periods. Research data has to exclude 6 banks, including 1 local and 5 foreign bank due to incomplete availability of bank data sets from 2003 to 2010. It

originated from local merger and acquisition activities as well as shift and investment of foreign banks (Karunatilleka, 1999).

The consolidated banks data has been chosen and employed in this study. Besides, missing of financial statements for selective bank is the major issue in data sampling. As a result, the unbalanced panel data consist of 21 conventional bank and 189 bank observations for periods from 2003 to 2011. This study utilizes an unbalanced panel as an attempt to avoid potential bias implied by model incorporate M&A which does not take into account.

3.2 Research Methodology

The dependent and explanatory variables selected in this chapter based on empirical researches. As a result, specific model implemented attempts to examine and analyze the hypotheses. The data sources specified in this study is panel or pool data technique, which are comprised of time series, indicated the period of this study (2003 to 2011) and cross sectional, indicated individual conventional banks (8 local and 13 foreign banks) in Malaysia.

The favorable employed panel data based on more informative, variability, degree of freedom and efficiency, whilst less co linearity among variables as indicate by Gul, Irshad and Zaman, (2011) since cross-sectional estimation yields consistent structural parameters, where it often includes the deviations in long run equilibrium that tends to be correlated between variables (Curak, Poposki & Pepur, 2012). The use of panel data enables the adjustments of disequilibrium, while the industry's specific data are minimized, due to the presence of observable industry specific. As a result, panel data are propitious to explain dynamic changes of variables.

3.3 Ordinary Least Square (OLS)

Empirical researches investigated the internal and external determinants of bank profitability using pooled least square or known as the panel least square modeling technique. The pooled regression model constructed according to Al-Omar & Al Mutairi (2008) as equation:

$$\pi_{it} = \beta_1 + \beta_2 X_{it} + \beta_3 X_{it} + e_{it} \qquad i=1, 2\ldots21, t=1,2\ldots9 \quad \text{(Eq.1)}$$

Subscript i and t refer to cross-sectional and time-series respectively. The coefficient assumes for individual object constant over time while $var\,(e_{it}) = \sigma^2$ and $E\big(e_{it}e_{js}\big) = 0$ for $i \neq j$ or $t \neq s$. Short (1979) and Bourke (1989) suggest that linear model generates favorable results as good as any form of econometric function forms, since the regression model for parameter of linear profitability may change over time, as different cross-sectional units are encountered by economic and financial shocks.

However, panel data encounter that individual specific for respective explanatory variables for error terms are correlated (Gujarati & Porter, 2009), which may lead to potential bias when the statistical results were generated. Fixed effect model (FEM) or random effect model (REM) are applying in this study where the model implement are determined by Hausman test (Pasiouras & Kosmidou, 2006; Rumler & Waschiczek, 2010).

3.3.1 Fixed Effect Model (FEM)

The econometric model specified in explaining the bank profitability with regards to implemented FEM suggested by Rumler and Waschiczek, (2010), and Althanasoglou, Delis and Staikouras, (2008), are illustrate in equation 2.

The fixed effect estimator model is regressed on the notion across individual banks, and it is captured by differences in intercept.

$$\pi_{it} = \beta_{1i} + \beta_2 X_{it} + u_{it} \quad i = 1, 2 \ldots, 21, t = 1 \ldots, 9 \quad \text{(Eq. 2)}$$

Where i is the object of cross-sectional, t is the period of time in defining the variables over time periods. π_{it} is the dependent variables, α_{1i} is the intercept term, which are treated as fixed unknown parameters that can be estimated. β_1 is a $k \times 1$ vector of slope coefficient, while the X_{it} is a $1 \times k$ vector of explanatory variables. The intercept value of individual bank are expressed as $\beta_{1i} = \beta_1 + \varepsilon_i$. u_{it} is the reflected error variance that is identically and independently distributed with zero mean and constant variance, $iid \sim (0, \sigma_u^2)$. Under the assumptions that there are zero covariance between individual cross-sectionals, $cov\left(\varepsilon_{it}.\varepsilon_{jt}\right) = 0$, $i \neq j$. Besides, there are no auto-correlation implied over time, $E\left(u_{it}:u_{is}\right) = 0$, $i \neq s$.

The FEM allows individual error component, ε_i to be correlated with one or more explanatory variables. Baltagi (2005) suggest that firm level of heterogeneity could be eliminated through employed mean deviation data by introducing FEM, whereas results estimated from the regression is efficient and unbiased. The restricted F-test can be used to examine the significant individual effect of fixed estimation postulated by panel least square and fixed effect model.

3.3.1.1 Hausman Fixed Test

The preference of FEM or REM was determined by using Hausman test. The underlying hypotheses are used to examine the error term of v_{it}, whether it is correlated to other explanatory variables. If critical the probability of chi-square, X^2 significance to 5% or 10%, or critical chi-square value of 9.341 and 25.182 respectively, the suggested random effects are probably correlated with one or more independent variables. Application of FEM is preferable to REM, or vice versa.

3.3.1.2 Breusch and Pagan Lagrange Multiplier (LM) Test

Essential of fixed effect estimation could be absence of heteroskedasticity for the residuals. Breusch Pagan LM test takes place to check evidence of non-constant residual variance implied in the model. The null hypothesis assumes that there were homoskedastic residual variances. The White (1980) transformation has been introduced as an attempt to control of the residual variance which mitigates potential biases the results generate.

3.4 Generalized Method of Moments

To examine the determinants to profitability performance in this research, a linear regression model is constructed according to Garicia-Herrero et al (2009), and Dietrich and Wanzeried (2011).

$$\pi_{i,t} = \alpha_0 + \eta\pi_{i,t-1} + \beta X_{i,t} + \varepsilon_{i,t} \qquad \text{(Eq.3)}$$
$$\varepsilon_{i,t} = V_{i,t} + \mu_{i,t}$$

$\pi_{i,t}$ is profitability of bank *i,* at time *t,* (while *i=1…N, t=1….T*), α_0 is constant term, $\pi_{i,t-1}$ is a lagged dependent variable, $X_{i,t}$ measures consists internal and external determinants, and $\varepsilon_{i,t}$ is the disturbance consisted of $V_{i,t}$, unobserved bank specific effect with $\mu_{i,t}$, idiosyncratic error.

Hoffman (2011) indicate that the unobservable, constant and heterogeneous characteristics can overcome by employing panel data of each bank in this study. It is solely due to the employment of either time-series or cross-sectional will not identify and measure well those unobservable effect implied. The available of panel data are not stationary as desired consistent to Bordeleau and Waschiczek (2010), the scarce of existing data and variables are always comparable over banks as ROA are constructed according to different theoretical values, either

before or after taxes. The significant differences of stability data may be skewed towards specific directions with various sources over various banks.

Bank profits indicated a persistent pattern over time, reflecting serial correlation occurred with the specific market competition, informational opacity, and sensitivity to regional, macroeconomics shocks (Berger, Bonime, Covitz, Hancock, 2000). It is resulted in an endogeneity problem, for instance more profitable banks may be able to raise bank equity more easily by retaining profits. Bank could contribute more by advertising expenditures and expanding bank size, indirectly affecting bank profitability. However, the causality effect implies that possibilities went to the opposite direction where profitable bank will hire more staffs, thus reducing the operational efficiency (Garcia-Herrero et al, 2009).

There are unobserved effect, such as the heterogeneity problem implied across banks (*i*) as equation 3 (Wooldridge, 2001). It may result in large variance since the banks operate in various structures, corporate governance, which research cannot identify well. The bank profitability eventually could be persistent over time because of political interference (Garcia-Herrero et al, 2009).

There are 3 major problems, include consistency, unobservable and heterogeneous could not be resolved by using the current empirical researches regarding determinants of bank profitability (Fixed and Random Effect model). The fixed effect model (FEM) carries along 4 basic assumptions, which are zero means in time varying errors, constant variances and zero correlation (Wooldridge, 2001). As a result, this research employed Generalized Method of Moments (GMM) estimator introduced by Arellano and Bover (1995) for dynamic panel model. The violation of ordinary least square (OLS) model specific assumptions, such normally distribution, serial correlation, heteroskedasticity will generate biased and inefficient estimated results (Gujarati & Porter, 2009).

As a result, OLS is no longer effective and efficient estimator in this research (Curak, Poposki & Pepur, 2012; Dietrich & Wanzeried. 2011). There are number of robustness checks involved Hansen test and Arrelano-Bond (AR) test.

3.4.1 Arrelano and Bond test

The fourth group of tests referred to serial correlation test, LM test. This test is carried out by employing different level residuals, such as first order (AR1), second order (AR2) to test for autocorrelation issue (Arrelano & Bover, 1995). If an existence of first order serial correlation in various residuals implies consistency of the estimation, the consistency of coefficient estimation indicate there are no second order serial correlations in the residuals (Curak et al, 2012). If the result accepts null and rejects alternative hypothesis it indicates that there is uncorrelated vary level of residuals.

3.4.2 Hansen Test

Hansen test was introduced by Sargan (1958) and Hansen (1982) to test for over identifying restriction which identifies correlation with regards to residuals should be uncorrelated to the set of exogenous variables with hypothesis constructed H_0 specifies that there is no correlation between instruments and error (Hoffman, 2011). The lower chi-square statistic (χ), or higher p-value for Sargan test is better. If the result accepts the null and rejects alternative hypothesis, it means the chosen instruments are valid in the equation.

3.5 Econometric Model Specification

The critical relationship investigates the bank profitability with bank-supervision and regulations, bank characteristics and environment effects based on review of empirical researches. The explicit model is based on suggested empirical researchers are expressed as in equation 3:

$$\pi_{i,t} = \alpha_0 + \eta \pi_{i,t-1} + \beta_j X_{it}^j + \beta_l X_{it}^l + \beta_m X_{it}^m + \beta_n X_{it}^n + u_{it} \qquad u_{it} = u_i + v_{it}$$

$\pi_{i,t}$ is profitability of bank *i,* at time *t,* (while *i*=1…N, *t*=1….T), α_0 is constant term, $\pi_{i,t-1}$ is a lagged dependent variable. The explanatory variables divides into 1×k vector of CAMEL framework (X_{it}^{j}), bank specific characteristics (X_{it}^{l}), bank governance (X_{it}^{m}) and macroeconomic variables (X_{it}^{n}). $\varepsilon_{i,t}$ is the disturbance consisted of $V_{i,t}$, unobserved bank specific effect with $\mu_{i,t}$, idiosyncratic error. The system GMM model is proceeded to examine the relationship between particular determinants and bank profitability.

3.6 Research Design

The subsequent step was to analyze the data by using statistical software, Stata Package (Stata). The Generalized Method of Moments (GMM) estimator introduced is mainly used in the estimation. Lee and Hsieh (2012) suggest that it is able to solve short micro panel with endogenous variables. Besides, the model misspecification problem, omitted the variables in cross-sectional estimation which leads to endogeneity that generates bias and inconsistent results that may be altered by employing system GMM estimator. The endogenity evoked by reverse causality effect from profitability to explanatory variables are able to be revised by GMM.

The Fixed Effect model (FEM) will be carried out to examine the model (Rumler & Waschiczek, 2010; Kosmidou & Pasiouras, 2005) to determine the validity of estimation model in comparing GMM estimator in this study. Panel least squares and GMM estimation are principally identified the critical effect of risk associated factors upon bank profitability performance. The diagnostic tests are contains Breusch-Pagan LM test, Hausman fixed test, Hansen test (over-identifying restriction) and Arrelano and Bond test (auto-correlations) in study. The generated results will be identified and discussed in following chapter.

3.7 Examining Impact of Financial Crisis

Investigation of the effects of financial crisis on bank profitability purpose is to determines whether it will distort relationship in relative on bank return performance. The methodology was adapted in such a way recommend by Ommeren (2011) to answer this research question. Prior researches suggest that there are two common methods involved; first, is to included dummy variable as an indicator of evidence of financial crisis whether it will influence the bank profitability upon bank return; second, to separate of the 2 subsets of sample to run regression in order compare the significant differences. Since availability of observations is limited, the approach of dummy variable inserted has been employed to explain the sub-research question. The dummy variable of FR has been insert indicates financial crisis experienced in 2007 to 2008.

3.8 Summary

The determined dependent, includes return on assets and equities, and explanatory variables consist of CAMEL framework, bank governance, bank characteristics and macroeconomics have been estimated by using econometric model derived from previous researches. Most of the data are extracted and collected through Bankscope database, bank financial and corporate governance statement and World Development Indicator. Panel data consists of 21 conventional banks has been implemented due to incomplete selected commercial bank data available for specified periods. Observation has been reduced from 243 to 189 from year 2003 to 2011. In order to mitigate potential biases which heteroskedasticity issues commonly incurred by using panel data. One-step system generalized method of moments (GMM) estimator employed suggested by Arellano and Bover (1995) outperforms standard ordinary least square (OLS) to identify relationship between specific determinants and profitability. Data analysis conduct includes descriptive statistics used to explain the variables characteristics and correlation matrix is to identify the serial correlation between variables.

CHAPTER 4

DATA ANALYSIS AND EMPIRICAL RESULTS

After data collection and research design, it will be analyzed by using statistical software, Stata packages. The outputs of the analysis will be presented in form of tables. This chapter focused on three main analyses, includes descriptive statistics are presented for overview of determinants, correlations matrix determines the serial correlation between dependent and explanatory variables and statistical analysis includes pooled regression, fixed effect model and GMM estimation. Subsequently, estimation outputs of equations presented in table 4.3 compares existing studies that are reviewed earlier. Several robustness checks are performed to validate statistical results by employing system GMM method.

4.1 Descriptive Statistics

The descriptive statistics present consists of mean, standard deviation, minimum and maximum for particular individual variables in sampling. Outputs report in table 4.1 includes total panel observations of 189. The issues include stationary distributes, endogenous problem incorporated in sampling could deteriorate the result presented by implementing OLS. The employed system of GMM does not make strict assumptions with regards to data normally distribution or extreme observations will influence the GMM estimation outputs compared to OLS include FEM.

4.1.1 General Characteristics of Variables

Table 4.1: Descriptive Statistics for Variables and Sub-periods

Variables	Mean	Median	Standard deviation	Skewness	Minimum	Maximum	Observations
				Total Sample			
Bank Return							
ROA	1.106	1.185	0.476	-0.639	-0.860	2.450	189
ROE	13.704	13.535	7.749	0.051	-13.330	37.390	189
CAMEL							
EAR	9.499	7.820	4.964	1.964	3.570	31.070	189
LLR_GL	4.069	3.295	2.960	4.294	1.540	24.930	189
CI	42.742	42.805	11.096	1.187	18.540	103.100	189
NIM	2.961	2.880	0.939	3.277	0.360	9.440	189
NL_TA	53.397	58.705	18.169	-1.695	0.420	77.610	189
Bank Specific							
ASSET	62828.590	39263.000	77280.530	2.384	1136.100	452824.500	189
GL	14.039	11.440	20.731	2.903	-42.470	148.520	189
RE	1511.148	881.200	1794.608	2.168	-10.600	8130.500	189
Bank Governance							
BS	8.288	8.000	1.975	-0.039	5.000	12.000	171
CD	0.894	1.000	0.309	-2.562	0.000	1.000	179
IND	0.495	0.500	0.118	0.261	0.180	0.860	171
TRNED	1905.350	714.500	3492.937	3.942	85.000	23799.000	189
TREND	5167.857	3742.000	5669.209	3.099	345.000	33716.000	189
CFF	0.194	0.000	0.397	1.547	0.000	1.000	180
Macroeconomics							
GGDP	5.038	5.590	2.440	-2.044	-1.510	7.150	189
MLR	5.815	6.050	0.597	-0.499	4.920	6.500	189

CAMEL rating: equity to asset (EAR), loan loss reserve to gross loan (LLR_GL), cost to income (CI), net interest margin (NIM), net loan to total assets (NL_TA); Bank specific characteristics: bank size (LOG_ASSET), loan growth (GL), retained earnings (LOG_RE); Bank governance: board size (BS), CEO duality (CD), independent non-executive proportion (IND), remuneration of non-executive directors (TRNED), total remuneration of directors (TREND); Macroeconomics: growth of GDP (GGDP), market lending rate (MLR).

The banking profitability is measured in terms of both ROA and ROE in this study. The average positive profits indicated over periods of time. The mean value of ROA is equal to 1.106 while ROE equal to 13.704 percentages with minimum of -0.86 and -13.33 as well as maximum of 2.45 and 37.39 percentages respectively.

There are larger extreme values downward than upward, which caused by market struggling during past year in Malaysia. These large downside observation influence standard deviation for ROA and ROE, quite substantial , 0.476 and 7.749 respectively.

The explanatory variables had generated interesting results specified in table 4.1. The large dispersion in the minimum and maximum observation in ROA and ROE there could be seen less variation in the equity to assets ratio with standard deviation, 4.3964 percent. The earnings to asset ratio indicate larges dispersion in minimum and maximum where relative low values due to reduce of bank revenue in effect on retained earnings throughout financial distress. Besides, the equity to assets skewed downwards and was likely to stipulate market borrowing associated with reduction of market rate. Meanwhile, an imposed of statutory capital requirement are required in Basel regulation that would sustain earnings to assets ratio over periods.

The larges difference specify by bank assets between values of minimum of 1136.10 and maximum of 452824.50. It is due to financial crisis where financial institution against recession that forces banks restraint their developments. Moreover, the loans approved are going through stringent process and being highly monitored, hence affect the loan growth indicate minimum, negative growth of -42.470 percents in relative to maximum, 148.52 percent. Bank retained earning reveal minimum of negative values of 10.60 due to restriction of bank expansion and developments during crisis, following recovery stipulate market growth up to maximum value of 8130.50.

The regulation imposed in Basel 2 regards to liquidity and asset quality risks are substantial effect on bank asset quality and liquidity requirement. Descriptive statistics report asset quality refers to loan loss reserves to gross loan, on average of 4.069 percent, whilst liquidity refers to loan quality indicate by net loan to total assets, on average of 53.397 percent. Indeed, there is interesting observation indicate a large difference ranges between 18.54 and 103.10 of cost to income ratio. It is measure the bank management with means equals 42.742 implies

efficiency of bank performance. There is a stable earnings performance indicates by net interest margin, found that upward skewness, 3.277 is slightly greater than institution averages, 2.961 percent.

On the other hand, regulations implemented concerning corporate governance supervised by Securities Commission (SC) and Bank Negara Malaysia (BNM) including the board composition, CEO duality and proportion of independent non-executive directors. The board size indicated on averages of 8 persons following with CEO duality and proportion of independent directors with value on average 0.894 and 0.495 percents respectively.

The commercial banks highlighted significant increases of director remuneration for non-executive directors with differences values of 23,714 between minimum, 85 and maximum, 23,799, related to the effect on total remuneration specify difference of 33,371. In Malaysia, gradually reduce of CEO from founding family indicate on averages of 0.194, represent that bank management not absolutely control by founding family in present.

Although substantial impact on financial distresses the local financial system, there were remaining stable growth of GDP with means value of 5.038 percents over periods. Along with market recovery, commercial banks begin raise market lending rate in comparing mean of 5.815 percent and minimum of 4.92 percents. There should be a sign of rapid industries development in related to strong growth of financial institution.

4.1.2 Correlation Matrix

Table 4.2 presents serial correlations matrix for varying observations of defined variables. Several banks report missing values for at least one of variables incorporate in this model. The occurrence of missing value because there are no full range of annual report kept in corporate websites, particularly foreign banks. The correlations matrix employed list wise deletion method suggested by Griffiths, Hill and Lim (2011). The list wise deletion is implemented if one of the variables is missing, the observations of particular bank would be deleted in generating correlation matrix. However, the system GMM with observations incorporate were using case wise deletion method rather than list wise deletion for regression result generated that more efficient and consistent.

The correlation matrix table illustrates the serial correlation between dependent and explanatory variables, but it does not involve any causation between variable as indicated by specific relationship. The correlation for -1 represents perfect negative correlations, in opposite +1 represents perfect relationship between particular variables. Table 4.2 indicates earnings to assets ratio identified at high correlation with ROE (0.5021) and ROA (0.1495). Those high degrees of correlation could induce endogeneity issues, where the bank retains the earnings increase along with the bank profits increase, thereby positive relationship is specified.

The potential biases estimated are presented by using OLS but not system GMM (Garcia-Herrero, Gavila & Santabarbara, 2009; Curak, Poposki & Depur, 2012) . Since potential endogeneity issues will be eliminated by lagged earnings to assets in estimation. There are ordinal variables for loan loss reserve to gross loan (LLR_GL) and cost to income (CI). The bank loan loss reserves to gross loan are measured as bank expenses where the provisions increased would reduce bank return, whilst operation and management cost refer to cost to income ratio increase would also results in the opposite direction for bank profitability

Table 4.2: Correlation Matrix of Dependent and Explanatory Variables

	ROA	ROE	EAR	LLR_GL	CI	NIM	NL_TA	LOG_ASSETS	GL	LOG_RE	LOG_BS	CD	IND	LOG_TRNED	LOG_TREND	CFF	GGDP	MLR
ROA	1.000																	
ROE	0.673 ***	1.000																
EAR	0.150 **	-0.502 ***	1.000															
LLR_GL	-0.230 ***	-0.358 ***	0.299 ***	1.000														
CI	-0.516 ***	-0.205 ***	-0.217 ***	0.403 ***	1.000													
NIM	0.228 ***	0.064	0.167 **	0.370 ***	-0.059	1.000												
NL_TA	-0.090	0.179 ***	-0.344 ***	-0.420 ***	-0.291 ***	-0.051	1.000											
LOG_ASSET	-0.005	0.457 ***	-0.769 ***	-0.300 ***	0.085	0.001	0.472 ***	1.000										
GL	-0.115	-0.151 **	-0.039	-0.070	0.078	0.209 ***	-0.183 ***	-0.050	1.000									
LOG_RE	0.254 ***	0.491 ***	-0.566 ***	-0.277 ***	0.098	0.081	0.303 ***	0.798 ***	-0.111	1.000								
LOG_BS	-0.149 *	0.144 *	-0.413 ***	-0.087	0.176 **	0.055	0.358 ***	0.624 ***	-0.032	0.302 ***	1.000							
CD	0.241 ***	0.098	0.186 ***	-0.577	0.040	-0.060	-0.205 ***	-0.117	0.045	-0.004	-0.227 ***	1.000						
IND	0.035	0.057	-0.139 *	0.002	0.050	0.055	0.069	0.185 ***	-0.044	0.242 ***	-0.075	0.041	1.000					
LOG_TRNED	-0.069	0.337 ***	-0.554 ***	-0.268 ***	0.184 ***	-0.011	0.433 ***	0.712 ***	-0.070	0.383 ***	0.522 ***	-0.069	0.236 ***	1.000				
LOG_TREND	-0.207 **	0.087 ***	-0.372 ***	-0.132 *	0.081	0.081	0.522 ***	0.667 ***	-0.143 **	0.333 ***	0.640 ***	-0.235 ***	0.173 **	0.804 ***	1.000			
CFF	-0.101	0.022	-0.212 ***	-0.106	-0.023	0.026	0.121	0.270 ***	0.011	0.115	0.265 ***	0.169 **	-0.018	0.356 ***	0.388 ***	1.000		
GGDP	0.001	0.003	-0.025	0.071	0.006	0.817	0.001	-0.043	0.220 ***	-0.077	-0.008	-0.055	-0.034	-0.051	-0.030	0.027	1.000	
MLR	-0.012	0.003	-0.014	0.171 **	-0.116	0.215 ***	-0.045	-0.127 *	0.105	-0.194 ***	0.022	-0.102	-0.095	-0.121	-0.056	0.056	0.382 ***	1.000

The correlations are calculates using list wise deletion method for missing observations. The p-value are of *, **, *** indicated significant different at 90% (0.10), 95% (0.05) and 99% (0.01) at confidence level respectively

Indeed, interesting statistical results presented opposite direction for particular variables correlated to bank return measured, ROA and ROE. There is adverse correlated between net loan to total assets to ROA, but positively correlated to ROE. It seems that increasing of net loan where bank total assets increase simultaneously, thus reducing bank return generated by using bank assets, ROA but not return derived from leverage, ROE. Since ROE does (are) affected by the proportion of equity consists of customer or institutional deposits instead assets.

Besides, the composition of board with total board size estimated negative on ROA, but positive on ROE. The rationale behind due to diversify composition on board may contribute significant improvement on bank assets management as well as reduce bank leverages in order to strengthen bank sustainability growth and structures development. The increased of director compensation consists of executive and non-executive directors along with board size increased. As a consequence, bank return would be deteriorating simultaneously.

However, the increase of board size would reflect mismanagement function between directors on board. Andres and Vallelado (2008) found that negative effects on bank profitability would influences shareholder and market confidence regards bank operation and management, thereby impresses customer or institutional retain or switch their deposits to other banks that they believe could perform well. The ROE is positively correlated to board size where bank deposits were reduced in effects on bank equities rather than poor bank returns performance. Last but not least, correlation matrix presented in table 4.2 serves as a basic indicator to detect multicollinearity issues that leads to biased and inefficient results.

4.1.3 Variance Inflation Factor (VIF)

Table 4.3: Variance Inflation Factor

Variables	VIF	1/VIF
EAR	5.05	0.198
LLR_GL	1.49	0.581
CI	1.49	0.669
NIM	1.72	0.529
NL_TA	2.05	0.456
LOG_ASSETS	13.98	0.072
GL	1.27	0.790
LOG_RE	4.95	0.202
CD	1.37	0.728
LOG_BS	1.89	0.488
IND	1.22	0.822
CFF	1.36	0.736
LOG_TRNED	5.44	0.184
LOG_TREND	2.19	0.243
GGDP	1.23	0.813
MLR	1.49	0.673
Mean	**3.18**	

Table 4.3 show variance inflation factor test to examine multicollinearity issues imply in model estimation. Gujarati and Porter (2009) suggest that the rule of thumb to detect co-linearity issues when VIF value exceed 10. Statistical result highlight that one of variable, bank size (LOG_ASSET) is take place of serial collinearity problem with VIF value of 13.98.

The variable, bank size should remain in model since it is interesting to examine impact of bank size on bank profitability in Malaysia (Gul, Irshad & Zaman, 2011; Guru, Staunton & Shanmugam, 2009). The GMM estimation would able to tackle non-normality issue where results generated without biased.

4.2 Empirical Findings

These paragraphs discussed regression analyses regards determinants of conventional banking profitability in Malaysia. Further paragraph discuss result presented in Table 4.4 whether determinants are valid explain effect on bank profitability. Several tests performed to examine the findings are robust to changes in sample or changes of methodology.

4.2.1 Ordinary Least Square (OLS)

Empirical analysis suggests several justified regression analyses and sample constructing methods. The OLS model includes pooled least square and fixed effect model are going to review sensitivity of result to the assumptions. If statistical procedures are insensitive to the initial assumptions of model, results are considered robust and valid. Both of regressions do not include the lagged variables since it could lead several biases to the estimate for other parameters. Results obtain are similar to those obtained from one-step GMM estimation. Most variables retain their sign and significance.

4.2.1.1 Pooled Regression Model

Table 4.4 presents pooled least square model is not adjusted for non-normality, heteroskedasticity, endogeneity or autocorrelation in the disturbance term. Therefore, the probability value (p-value) performed using robust standard errors in order to make hypothesis rejection area more conservative whether in the presence of endogeneity or heterokedasticty items. There are some interesting differences to mention.

For the return on assets (ROA), the variable of earnings performance indicate by net interest margin (NIM) is significant and negative to the determinants of bank profitability with parameter equal to -0.222. The variable of director

remunerations divides into non-executive director's remuneration (LOG_TRNED) and total director remuneration (LOG_TREND) are respectively significant. However, non-executive remuneration is negative (parameter equals -0.389) and total director remuneration is positive (parameter equals 0.481) effect on bank profitability.

For return on equity (ROE), the variable of net interest margin is gain significant and positive (coefficient equals 0.734) consistent to return on assets result. The director remuneration of non-executive (coefficient equals -6.000) and total remuneration (coefficient equals 9.643) to director are also significant and gain consistent sign to the results obtain from return on assets. The CEO from founding family (CFF) is significant and negative (parameter equals -2.286). The estimated coefficient for growth of GDP obtains significant and positive coefficient equal 0.225 is very similar to fixed effect and main, GMM estimation model.

4.2.1.2 Fixed Effect Model

On the other hands, the report of fixed effect model at first attempt to solve problem of endogeneity and dynamic biases (Griffths, Hill & Lim, 2012). The model still unable to solve heteroskedasticity and autocorrelation in disturbance results potential biases results. Fixed effect model has been selected instead random effect model. There are differences to main model mention.

For return on asset, the capital adequacy (earning to asset) is significant and positive (parameter equals 0.029) to bank profitability which differ to GMM estimation model that earning to asset ratio is significant only to return on equity. Bank asset quality indicates by loan loss reserve to gross loan (LLR_GL) is solely significance level of 0.05 with negative coefficient of 0.029. The net interest margin is significant and positive (parameter equals 0.092) consistent to GMM estimation model. The variable of CEO from founding family is significant and negative (parameters equals -0.2651) to banking profitability.

For return on equity, the variable of CEO from founding family (CFF) is significant and negative (parameter equals -3.819) determinant on bank profitability. Furthermore, significant of growth of GDP with positive coefficient (0.228) is align to main GMM model.

4.2.2 GMM Estimation Model

The statistical results are investigated mainly by referring to one-step GMM model as advance dynamic model discussed in chapter 3. The model instrument includes lagged dependent variables, endogeneous variables and other defined variables. In order to avoid proliferation of instrumentality of the variables employed, Hansen test serves as an indicator with greater p-value to examine over identification of instruments. Statistical result show that the greater p-value (p-value equals 1.00) in both equation (return on asset and return on equity) highlight that instruments are valid without over-identification. The statistical regression outputs were generated by using software package Stata.

Table 4.4 show the lagged of dependent variables are seized of explanatory power within respective model. The coefficient reported equals -0.1187 and -0.0333 with total sample for lagged of ROA and ROE respectively. The least significant of lagged ROA identified that the model should take into account of profit persistence when explaining bank profitability (Althanasoglou et al, 2008). The coefficient does not contain meanings but banks experienced loss in previous years. Meanwhile, the lagged ROE presented similar results with lower coefficient with -0.0402 despite it is not significant where profit persistence does not hold.

4.2.2.1 Return on Asset

Based on formal hypothesis, there is negative relationship between management efficiency and bank profitability performance which are consistent with previous researches findings Ben Naceur and Omran (2011), and Herrero and Santabarbara

(2009). The cost to income ratio is significant and negative (parameter equals -0.026) to bank profitability. It was a common finding that well managed bank operation could result positive gained on bank profitability, since particular cost reductions along with efficiency achieved would increase bank operation income and profits, which indicates alignment with efficient structure hypothesis (Berger, 2005).

Besides, the bank earnings performance indicated net interest margin spread of interest income mainly from bank loan charges, granted subtract interest expenses derived from depositors' interest given to reward their deposits in short or medium term. There is negative relationship between net interest margin and ROA with the parameter of 0.0622. The finding similar to Bodha and Verma (2006) with positive gained would be resulted in the bank keeping optimal ration between low distributable reward interests while acceptable rate charges on loan. It is a signal to relative market power hypothesis that the bank possesses market shares in relative competitors. The interest charges along with shift of market shares where greater market shares enables the bank to provide lower interests loan support with large volume of loan applications. The wider spread result reflects on increasing banking profitability, ROA.

The bank liquidity proxy of net loan to total assets reported negative impact to bank return performance in table 4.4. The parameter of net loan to total assets (NL_TA) indicates significant and negative (-0.008) relationship to return on assets (ROA). It was consistent to Alpher and Anbar (2011) in Turkey, and Alexiou and Sofoklis (2009) in Greek. An overabundance of net loan granted and non-liquidity asset over total assets which may obstruct the bank performance with least rate of return gained. The higher flexibility implies that the bank manager's optimal bank loan granted against total assets whilst residuals kept within bank or invested in money market for short term investment.

Table 4.4: Regression Results of OLS, FEM and GMM with Dependent Variables of ROA and ROE

| | Pooled Least Square (1) | | | | | | Fixed Effect Model (2) | | | | | | GMM (3) | | | | | |
| | ROA | | | ROE | | | ROA | | | ROE | | | ROA | | | ROE | | |
Explanatory variables	β		p-value	β		p-value	β		p-value	β		p-value	β		p-value	β		p-value
L.ROA	-		-	-		-	-		-	-		-	-0.119	*	0.063	-0.333		0.651
CAMEL																		
EAR	0.118		0.303	-0.603	***	0.000	0.029	**	0.022	-0.112		0.506	0.003		0.823	-0.436	**	0.037
LLR_GL	-0.007		0.694	-0.241		0.357	-0.029	**	0.028	-0.278		0.192	-0.024	*	0.098	-0.390		0.115
CI	-0.222	***	0.000	-0.182	***	0.001	-0.028	***	0.000	-0.230	***	0.000	-0.026	***	0.000	-0.205	***	0.000
NIM	0.049	**	0.026	0.734	**	0.042	0.092	**	0.012	0.526		0.344	0.062	***	0.008	0.619		0.293
NL_TA	-0.004	*	0.054	-0.022		0.412	0.000		0.996	-0.002		0.975	-0.008	**	0.014	0.081	***	0.006
Bank Characteristics																		
LOG_ASSETS	0.096		0.543	0.716		0.742	-0.454		0.336	2.308		0.751	0.283		0.157	7.335	**	0.039
GL	-0.004	***	0.004	-0.091	***	0.000	-0.003	**	0.013	-0.079	***	0.001	-0.005	***	0.000	-0.104	***	0.000
LOG_RE	0.188	*	0.095	2.314	*	0.098	0.388		0.137	3.442		0.292	0.094		0.241	-0.768		0.657
Bank Governance																		
LOG_BS	0.008		0.980	0.855		0.876	0.998	*	0.094	0.579		0.949	-0.144		0.746	-6.035		0.495
CD	0.230		0.125	3.392		0.141	0.105		0.592	0.978		0.769	0.489	***	0.002	5.448	***	0.008
IND	-0.140		0.599	-6.289		0.112	-0.064		0.867	-3.668		0.496	-0.383		0.309	-8.987		0.176
LOG_TRNED	-0.388	***	0.000	-6.000	***	0.000	-0.337		0.119	-5.409	*	0.052	-0.149		0.391	-3.834	**	0.034
LOG_TREND	0.481	***	0.002	9.643	***	0.000	0.540	*	0.062	7.931	*	0.063	0.036		0.888	4.638		0.161
Macroeconomics																		
CFF	-0.111	*	0.085	-2.286	**	0.021	-0.265	***	0.000	-3.819	***	0.003	-0.210		0.102	-3.230		0.108
GGDP	0.018	*	0.007	0.225	**	0.050	0.020	***	0.006	0.228	***	0.018	0.020	***	0.000	0.230	***	0.001
MLR	0.006		0.894	0.698		0.343	-0.013		0.867	1.218		0.378	0.013		0.891	0.693		0.615
FD	-		-	-		-	-		-	-		-	-0.101		0.244	-0.411		0.765
Constant	0.279		0.684	-3.801		0.719	0.892		0.680	-14.506		0.666	1.243		0.287	-3.067		0.851
F-test	15.220	***	0.000	17.470	***	0.000	8.930	***	0.000	4.520	***	0.000	54.950	***	0.000	83.980	***	0.000
R-square		0.526			0.567			0.381			0.471			-			-	
Breusch Pagan LM test		-			-		6.390	**	0.012	33.430	***	0.000		-			-	
Hausman test		-			-		23.910	*	0.092	30.620	**	0.015		-			-	
AR(1)		-			-			-			-		-2.810	***	0.005	-2.100	**	0.035
AR(2)		-			-			-			-		-1.750	*	0.080	1.020		0.307
Hansen-test		-			-			-			-		1.310		1.000	4.030		1.000
Obs		188			188			188			188			167			167	

The OLS and FEM standard errors are robust hence rejection areas more conservative. The standard errors using system GMM model are consistent to heteroscedasticity. The significant coefficient indicated with p-value of *, ** and *** indicated for 0.10 (10%), 0.05 (5%) and 0.01 (1%)

The loan growth (GL) reported in table 4.4 refer to one-step GMM model specify negative relationship relative to banking profitability, ROA with parameter equals -0.005 at significance level of 0.01. The negative relationship is consistent to Hoffman (2011) with sample in United State. The continuous growth of banking business regards portfolio loan managed could be overlooked by business operation due to the rapid expansion of investments where the bank not able to diversify existing portfolio risk results in negative experience on bank return. The commercial banks not just focus on loan intermediate from investor to borrower, but diversify bank business such as mutual fund and underwrite business. Thereby, the loan growth would negatively affect on bank profitability, where bank return being contribute by the other banking business provides.

On the other hand, bank governance obtains positive relationship between CEO duality and bank profitability, ROA. Dahya et al (1996) highlight that constructive bank governance would result greater bank return, includes duality seats of CEO on board. CEO duality (CD) implies greater explanatory power on bank profitability with parameter equals 0.489. The dual responsibility for executive to manage bank operation and direct business objective simultaneously. The CEO duality (CD) would gain greater banking return performance, ROA in Malaysia.

For environment effects, there is significant positive relationship between GDP growth and bank profitability. It is consistent to Bordeleau and Graham (2010) and Kanas et al (2012) for positive effects on bank profitability position on environment changes and cycle. The coefficient of GDP growth equals 0.020 to banking profitability. The cyclical upward sloping represent economic growth with the development of country will bring along proliferation of institutions including financial system which serves as fund provider assist. The development and growth of institutions enable commercial bank to gain greater profits along with changes of business cycle reflect positive gain or vice versa.

4.2.2.2 Return on Equity

For particular interesting findings regarding bank supervision and regulations comprises of CAMEL and bank governance. There is an evidence of negative relationship between equity to assets and ROE. The coefficient of equity to assets is -0.4363 throughout sample align with risk-return trade off hypothesis where bank possess lower equities could gain better return relative to better capitalized institutions (Curak et al, 2012; Hoffman, 2011). It is supported that well capitalized banks could manage with least of equities while maximize bank profits.

The signaling of bankruptcy costs suggested by Berger (1995) specified that higher capital or equity may reduce bank profitability that debt financing holders have to bear administrative, legal, as well as assets evaluations costs of bank failure, thereby forces reduction of interest rate on uninsured fund in consistent to the hypothesis. The funding costs could be obtained lower from high capitalized firm among competitors with better performance signaling which reflects positive relationship in ROA with coefficient 0.003, although it was not significantly explained in the model. There were varying directions reported for different measurement of bank profitability regarding bank assets and leverage.

The coefficient of cost to income ratio also obtain significant negative (coefficient equals -0.205) to banking profitability. It is carrying on for the bank efficient structure that the well management bank operations would contribute well specified firm structure and gain market shares at the least expenses thus increasing market concentration (Berger, 2005).

The bank liquidity proxy of net loan to total assets (NL_TA) in effect on banking profitability denoted by return on equity (ROE) obtains relative great, significant and negative parameter equals -0.081). It is consistent to the result obtain from return assets (ROA). Since the financial flexibility implied sensitivity could reduce bank profits incorporate wealth shock and high liquidity in order to cope with financial slacks (Billet and Garfinkel, 2004). On the other hand, Curak et al

(2012) supported that higher ration of higher proportion of net loan reflects higher yield on assets thus better bank return performance.

The bank size reported positive relationship to ROE with coefficient equals 7.335. The greater bank size reflects greater banking profitability in terms of ROE. It is consistent to Leung et al (2003) and Tabak et al (2011). Since the larger bank size is preferable to provide wide range of financial products and services which achieves greater diversification in order lower systematic. An unsystematic risk compared to small and medium banks. The findings indicated that greater capitalized banks are able to generate greater bank profits within financial institutions. It is supported by bankruptcy costs hypothesized greater equity debt financing holder able to obtain lower interest for uninsured fund financing from creditors (Berger, 2005), while greater bank performance would attract market investors and depositors facilitating banks generated return through offer term loan to public.

The growth of loan report also indicates significant and negative relationship to bank profitability, ROE with parameter equals -0.104. It is consistent to Garcia-Herrero et al (2009) with sample in China. The regulations required minimum capital requirement and pre-fixed ratio for provision reserve against non-performing loan (NPL) record as expenses lead to negative relation between loan growth and profitability (Bodha and Verma, 2006). The increase of capital reserves under Basel regulation would affect bank loan provides, hence reduce amount of loan growth.

The CEO duality (CD) also highlight significant and positive (coefficient equals 5.448) to return on equity (ROE). The result obtain consistent to return on assets indicate CEO duality would contribute greater bank return performance in Malaysia. Dahya et al (1996) found that the potential would individually strengthen the business objectives without board interferences reflect positive return performance.

The determinant of bank remuneration for non-executive directors (LOG_TRNED) is present negative relationship to bank profitability, ROE. Since the increase of non-executive remuneration as bank operating expenses may reduce bank profitability, ROE as consistent to Ke et al (1999) found that significant positive association between compensation budget and corporate performance. However, opposite statement indicated by Milstein and MacAvoy (1998) that greater proportion of non-executive directors seat on board reflect greater performance which carry practice of external assessment to particular bank management and operation aligns with the presence of policies and regulations. In addition, appoint of board members, include non-executive directors based on selection from annual general meeting by shareholders, thus optimal control of proportion of non-executive directors as well as remuneration determined that maximized shareholder values.

The environmental effects, the growth of GDP is significant and positive (parameter equals 0.230) affect on banking profitability. Curak, Poposki and Pepur (2012) state cyclical economic growth would increase investor demand on investment fund and raise banking profitability. Athanasoglou et al (2008) specify significant relationship in upward instead downward sloping. As a result, bank profitability depends on cyclical environmental changes that signify the peak and recovery reflecting gain or versa.

There is an interesting results show that the effect of financial crisis in 2007 and 2008 are indicated as negative relationship but not significant. Statistical results is align to prior research did by Dietrich and Wanzeried (2011) in Switzerland. The stock market and financial market experienced financial crisis where the distort of institutions and market confidence caused downfallen of financial institution, especially conventional banking with fund shift from short term depositors to medium or long term borrowers. The dummy measured financial crisis from 2007 to 2008 implicit greater explanatory power to ROE (parameter equals -0.4109) due to the effect of financial crisis influencing bank operation necessary to raise deposits interest and reduce interest charges on loan, the vary gap of interest income and interest expenses eventually reduces bank profitability.

4.3 Robustness Checks

The previous chapters had discussed OLS model which are employed by empirical researchers that incorporate FEM and REM. The first and second estimation models are pool least square and FEM presented in table 4.4. Introduce of ordinary least square (OLS) require to address basic assumptions includes normality distributed, heteroskedasticity and serial correlation issues. Either one incurred may lead to optimal biased or inconsistent presented. The statistical outputs for first two columns were presented in order to compare different outcomes generated with either directions or significant relationship changes between dependent and explanatory variables.

The Breusch Pagan LM test are used to examine and identify heteroskedasticity problem which disturbances are random. Meanwhile, the Hauman fixed test are used to determine preferable model employed either FEM or REM. The null hypothesis specified for Breausch Pagan LM test that the error terms are randomly distributed and the alternative hypothesis stated are not. The bottom part in table 4.4, results indicated that the tests are significant at 5% and 1% respectively stated that there was serious heteroskedasticity problem incurred, whilst the remedy introduced by White (1980) for white corrections methods have been corrected in this equation. In addition, null hypothesis stated for Hausman fixed test choose REM as preferable model and vice versa. Statistical results reported that estimations are significant at 10% and 5% respectively for ROA and ROE.

The model employ is consistent to most researches because implying significant effect of individual banks could capture in FEM, but not REM. The application of OLS regression are no longer consistent and efficient with variety movement of bank affairs conducts that may alter bank characteristics since dynamic changes presented. As a result, the ordinary model is not suitable in explaining dynamic panel data, on the other hand, introduction of system GMM estimation could overcome those assumptions with generating unbiased and efficient results.

4.4 Validity and Consistency of System GMM Estimator

Table 4.4 present numbers of observations, Hansen test and Arrelano and Bond test to examine the validity of the system of GMM estimation. Based on previous discussion system GMM doesn't make any pre-assumptions as compared to OLS regarding normally distributed and endogenity problem implied by using panel data in study. However, there are basic assumptions necessary to fulfill considering there were absence of second order autocorrelation (AR2) within errors and model instruments used are not over-identified.

The Arrelano and Bond test are used to test the second order autocorrelation within errors, while Hansen or Sargan test were meant to examine over-identification for instrument variables. The null hypothesis of Arrelano and Bond test specified there is first or second autocorrelation implied in GMM model estimation. The present of first order autocorrelation for null hypothesis accepted (p-value>0.05), but rejection of second autocorrelation within errors are compulsory (p-value>0.05). Results suggested the system GMM estimator one and two reject of null hypothesis on second order autocorrelation (AR2). It indicates the absence of autocorrelation between errors in estimation.

Besides, the use of panel data where GMM estimator are implemented by using lags of dependent and endogenous variables as instruments that correlation are removed in second order. Subsequently, over-identification of instruments examined using Hansen test for robust to heteroskedasticity are specified in contrary to Saragan test. The insignificant of p-value (p-value>0.05) for null hypothesis suggested that the/ proved that the absence of over-identification is not rejected. Last, table report F-test with alternative hypothesis specified at least one variable is significant to explain dependent variable. Results showed that null hypothesis is rejected with p-value less than 0.01 justify model overall is fit.

4.5 Summary

Statistical results generate using three regression analyses includes ordinary least square (OLS), fixed effect model (FEM) and GMM estimation model. The pre-assumptions specified normally-distributed, heteroskedasticity and serial correlation by using panel data (composed of time-series and cross-sectional) for the employment of OLS generated biased and non-efficient estimation. The lagged dependent variable possesses significant explanatory power with less visible profit persistence (Athanasoglou et al, 2008). In addition, capital adequacy (EAR), assets quality (LLR_GL) and remuneration for non-executive (LOG_TRNED) found significant negative relationship, while bank size (LOG_ASSETS) indicated positive relationship to ROE. Besides, the solely positive relationship between interests spread (NIM) and ROA. Last but not least, the management efficiency (CI), bank liquidity (NL_TA), growth loan (GL) have negative, whilst duality of CEO on board (CD) and growth of GDP (GGDP) presented positive relationship to the bank profitability. Although results indicate there is negative impact of financial crisis (FD) on bank profitability, it is not significant in this study. The results presented are consistent to previous researchers by using GMM estimator over OLS including FEM, where the validity of model implement examined included Arrelano and Bond test and Hansen test.

CHAPTER 5

SUMMARY AND CONCLUSIONS

5.1 Summary

The raise of supervision and regulation regards CAMEL rating and bank governance due to moral hazard and agency costs which derived from various objectives between management and bank corporate objectives. The results of moral hazards that the management paid incentive towards profits, without proper credit assessment for bank portfolio investments since funding gathering from customer deposits while it is guaranteed and insured by group banking insurance, PIDM (*Perbadanan Insurans Deposits Malaysia*) due to the "Too Big to Fail" issue. Subsequently, implementation of Basel regulation framework concerned on market risk, especially credit and liquidity risk that could affect bank profitability. The purpose of this study is to investigate the effects of conventional bank profitability by incorporating the research questions; what are the determinants of bank profitability and how do supervision and regulation, bank characteristics and environment effect? Furthermore, the effects from financial distress (2007 to 2008) examine by dummy variable, financial distress (FD) takes into account to examine whether experienced any significant impact on bank profitability associated with coefficient during crisis periods.

In theoretical basis it is explained that the financial intermediary serves major two roles includes integrate of short term deposits to individual or institutions with term loan structure. Besides, financial intermediary play major role to mitigate and reduce of transaction costs associated asymmetric information in imperfect market (Rose & Hudgins, 2010). On the other hand, the social incorporate financial stability particularly on banking sector with the attempt to prevent

breakdown of economy and business cycle which ties up with the entire market. The imposed supervision and regulation would like to introduce stable and fair structure of financial institutions where the transparence of banking management and operation to gain market confidence as well as foreign investment, thus constraints the spreading of moral hazard and agency problem.

The bank profitability determinants for this study based on empirical researches where numerous defined variables to be tested. The balance panel data with banks selection incorporates domestic and foreign banks. The regression performed ultimately employed one-step GMM estimator rather than OLS to overcome non-normally distributed, heteroskedasticity and serial correlation which may lead to potential biases in OLS estimation. Findings suggest that certain least significant profit persistence in this study are consistent to Athanasoglou et al (2008) where lagged dependent variables, ROA are used to estimate. There are interesting results found where negative relationship between capital adequacy and ROE supporting the signal of risk return trade off hypothesis or bankruptcy cost hypothesis.

Besides, the management efficiency (cost to income) and asset quality (net loan to total asset) specified negative effect on bank profitability. It is due to bank management engage in risky investment where portfolios contain low quality assets. The greater human and capital resources will devote to manage it while the efficiency structure hypothesis supports the low quality management and operation, eventually causes negative effects on bank profitability. It also shows that the interest spread indicated positive relationship to ROA. The interest income denotes the sources from term structure loans provided by banks subtract interest expenses distributed to customer deposits. The significant of ROA supporting the reasonable charges would have a major impact on spread rather than customer deposit distributed to the insignificant ROE. The CAMEL framework is principally complying with Basel regulation requirement in effect on banking profitability.

On the other hand, the context of bank governance reported significant positive association between duality of CEO and bank profitability. It is consistent with previous researches that bank executive are delegate authority from board in managing bank operation. He would be the one most comprehend in the banking operation and discuses the banks future direction on board without interference by the other board directors. In addition, previous researchers found that it is the role of independent non-executive directors as responsible act as external party to examine the banks operation aligning with bank objective as well as regulations. However, an immoderate increase of non-executive directors would get additional expenses to bank thus leads to negative consequences on the bank return. The compliance of bank governance result less significance to banking profitability.

There are interesting evidences found on the aspect of bank specific characteristics. There is a negative signal in the relationship between growth of loan (GL) and bank profitability since immoderate term loan proved without appropriate bank procedures along with specific control, may suffer an adverse impact on bank return. In contrary, the larger bank size supports leverage from shareholder equities would result positive gain on ROE due to board financial services provides of larger size bank capable to satisfy market demand rather than small or medium size banks. Last but not least, the macroeconomic variable, GDP growth found positive relationship to bank profitability, consistent to previous researches where growth and development of banking business are highly dependent on country throughout global effects. An evidence indicate there is negative but insignificant effect on bank profitability, return on assets (ROA) or return on equity (ROE) since the government strive supported with particular policies implemented through monetary and physical associated transparent standard accounting format present to remedy rapid undergone financial distress. Both bank specific characteristics and macroeconomics indicators contained less significant influences on conventional bank return as refer to the research questions and attaining objectives.

5.2 Implications of Study

A comprehensive view of the determinants effect on conventional banking profitability present in major findings incorporates supervision and regulations, bank characteristics and environment effects. The imposed of supervision and regulations consists of CAMEL rating and bank governance serves as an indicator to measure transparence, effectiveness and specific compliances with standard rules and policies stated by Bank Negara Malaysia and Securities Commission.

The determinants for profitability measured could serve as indicator and sign for conventional bank internal management. Since the greater exposes and banking business conducting within local or oversea would vague the banks operation and management direction whether benefits on bank performance. For instance, the significant of management efficiencies indicates adverse effect on bank return. There is clear evidence for conventional banks should effectively manage to reduce operating and other costs in order to increase the bank return.

The underlying risks encountered market and liquidity risks caused substantial effect on bank performance. The bank governance variables significant bank performance regards board dependence and efficiency of board management facilitate MCCG to review and revise for establishing rules and policies in rapid evolvement in accelerating transparent and disclosure in complying specific requirement where they gained market confidences.

Furthermore, innovating and varying financial products and services provides results from intense competition undergoing globalization. Intermingle of traditional business transition to innovate services provides further competitive strength for conventional banks in Malaysia. Commercial banks could identify banking business diversified as growth of bank size, whether it could build competitive advantages as well as strengthen of bank operation and management.

An effect of economic environment has taken into account in measure the banking profitability. The macroeconomic condition is able to influence the institutions performance. The significance of GDP growth results in positive effect on conventional profits. The cyclical effect caused by global environment should take into consideration whether the bank is outperforming or underperforming in certain economic conditions.

Overall, this study serves as basic guidance to conventional banks, financial institutions, regulatory bodies for planning and proposing business development and operations in fulfilling their respective roles and objectives. The compliance of rules and regulations has further transparency of banking operations for maximizing long term values to shareholders as well as stakeholders along with bank performance and accountability.

5.3 Limitations of Study

This study found an interesting relationship between multiple determinants and bank profitability. However, there was several limitations constraint when the research was conducted. These limitations should taken into consideration when generating and interpreting the results. First of all, the main obstacle against this study is the limited observations availability. The defined determinants based on previous researches are mainly extracted from financial statement. The availability of financial reports or corporate governance statements for those foreign banks in domestic is limited or partially available.

Furthermore, this study principally use consolidate statement of banks instead unconsolidated statement. The consolidated statement is justified due to ease of data collected for respective conventional banks derived from Bankscope. Despite the double counting issue for subsidiaries of unconsolidated statement convergence report into consolidated statement of parent company. The data extracted from consolidated statement will incurred duplicate information between subsidiary or parent company lead to distort results generated since the business

development of local and foreign conventional banks are engaged to dynamic business scope. For instance, the investment and Islamic business instead remain traditional. The standard classifications of commercial banks are difficult thus no clear cut between natural businesses of particular bank.

The incorporation of risk undertakings for Basel regulations required at BNM of Malaysia regulated under CAMEL rating framework while the Securities Commission supervise bank corporate governance of bank management and operation. There is limited study review for the market risk of banks that engage in widespread of banking activities. Due to non-distinct as good proxy incorporates market risks and only limited evidence measure market risks which are applicable in model estimation. There is possibility of unfavorable variable serves as proxy indicate market risk, eventually lead omitted biases. There is hard to justify suitable variable in examining market risk on banking profitability, and it may vary to countries which depend on local market condition. It is proposed that for the future research, there were more available data supported by selected good proxy as an indicator for market risks to reflect bank profitability performance.

5.4 Recommendations for Future Research

The recommendations for future research take particular limitations into consideration when replicating empirical analysis. There are several recommendations in proceeding for future research. The purpose of this study is to examine supervision and regulations incorporate CAMEL rating and bank governance. Empirical researches suggested that number of variables for market and operational risks such as credit and liquidity risk to be regulated under Basel regulations to explain variation of bank profitability. The framework ratios require more conservative calculations to identify and measure specific variables as proxy for market and operational risk. Future research suggests applying consistent calculations for the variables among bank in estimating bank profitability. The evidence for insignificant coefficients were found to no longer meant absolutely

no influences on bank profitability, but were replaced by other variables or increased observations may accelerate rejection on null hypothesis validating the relationship between determinants and bank profitability.

Furthermore, the adoption of unconsolidated statement rather than consolidated statement in future study is recommended. Garcia-Herrero et al (2009) specify that unconsolidated data is preferable over consolidated due to the differences removed in account for interrelationship between subsidiaries and holding company. Due to bank diversify their business of financial services provides where there are divides into individual which operate and manage by subsidiary.

The duplication of counting could be substantial over given M&A in banking sector could lead to varying results. In order to avoid potential biased issues, choosing unconsolidated statement for banking institutions in explaining banking profitability, not just commercial but entire financial intermediary is preferred for future researches conduct.

Besides, a more comprehensive framework should be constituted along with banking transformation and innovation over periods where employ more determinants to explain banking profitability. Since the change of banking business integrated investment, insurance and Islamic will increase degree of complexity for preparing financial statement. Subsequently, the indicator for supervision and regulation for bank activities incorporates range of explanatory variables to capture the effects while explaining the variation of entire banking institutions profitability.

5.5 Conclusions

In general, the objectives of this study were achieved and research questions have been answered accordingly. The validity of banks profitability determinants is partially supported and consistent with the previous researches. Despite achieving and answering research objectives, there were several incurred limitation in this study, while numbers of recommendations have been provided to improve the area of study. Nevertheless, the findings from this study could provide directions for central bank (BNM) to create greater benefits for banking institutions.

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APPENDICES

Appendix A

Market Shares of Local and Foreign Banks in Malaysia

Year	Local			Foreign		
	RM (million)	Percentage (%) [1]	Percentage (%) [2]	RM (million)	Percentage (%) [1]	Percentage (%) [2]
1996	11,062.62	25.10	2.152	7,351.72	16.68	1.43
1997	23,806.85	31.50	3.517	18,125.20	23.98	2.68
1998	14,961.09	21.78	2.427	15,318.14	22.30	2.49
1999	16,025.00	17.70	2.510	15,124.45	16.70	2.37
2000	18,029.50	19.34	2.736	22,255.22	23.87	3.38
2001	17,808.21	20.26	2.571	21,014.07	23.91	3.03
2002	15,388.43	15.88	2.093	22,082.76	22.78	3.00
2003	24,530.20	18.25	3.006	15,676.80	11.66	1.92
2004	10,171.09	7.38	1.166	34,842.70	25.27	3.99
2005	17,305.53	11.11	1.805	27,043.68	17.36	2.82
2006	16,056.13	7.24	1.469	42,794.03	19.28	3.92
2007	27,339.94	9.68	2.238	82,192.46	29.11	6.73
2008	24,665.44	10.35	1.843	37,734.03	15.84	2.82
2009	19,745.44	7.72	1.384	40,194.13	15.71	2.82
2010	30,190.76	12.54	1.948	50,825.96	21.11	3.28
2011	34,422.97	12.02	1.932	62,031.60	21.66	3.48

Sources: Bank Negara Malaysia. (2012). Annual Reports: Monthly Statistical Bulletin Oct 2012 (A.17 Banking System: Statement of Assets)
1. Market shares derived by local and foreign commercial banks assets divided total bank assets due in Malaysia
2. Market shares derived by local and foreign commercial banks assets divided financial system total assets

Appendix B

Conventional Bank Licensed under Bank Negara Malaysia (BNM)

No	Commercial Bank	Ownership
1	Affin Banks Berhad	Local
2	Alliance Bank Malaysia Berhad	Local
3	Ambank (M) Behad	Local
4	CIMB Bank Berhad	Local
5	Hong Leong Bank Berhad	Local
6	Malayan Banking Berhad	Local
7	Public Bank Berhad	Local
8	EON Bank Berhad	Local
9	RHB Bank Berhad	Local
1	Bangkok Bank Berhad	Foreign
2	Bank of America Malaysia Berhad	Foreign
3	Bank of China (Malaysia) Berhad	Foreign
4	Bank of Tokyo-Mitsubishi UFJ (Malaysia) Bhd	Foreign
5	BNP Paribas Malaysia Berhad	Foreign
6	Citibank Bank Berhad	Foreign
7	Deustche Bank (Malaysia) Berhad	Foreign
8	HSBC Bank Malaysia Berhad	Foreign
9	Industrial and Commercial Bank of China (Malaysia) Berhad	Foreign
10	J.P Morgan Chase Bank Berhad	Foreign
11	Mizuho Corporate Bank (Malaysia) Berhad	Foreign
12	National Bank of Abu Dhabi Malaysia Berhad	Foreign
13	OCBC Bank (Malaysia) Berhad	Foreign
14	Standard Chartered Bank Malaysia Berhad	Foreign
15	Sumitomo Mitsui Banking Corporation Malaysia Berhad	Foreign
16	The Bank of Nova Scotia Berhad	Foreign
17	The Royal Bank of Scotland Berhad	Foreign
18	United Oversea Bank (Malaysia) Berhad	Foreign

Source: Bank Negara Malaysia. (2012). List of licensed of banking institutions in Malaysia.

Appendix C

Regression Models Outputs

Ordinary Least Square (Model 1)

ROA (Pooled Regression Model)

regress roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, robust

```
Linear regression                               Number of obs =      188
                                                F( 16,   171) =    15.22
                                                Prob > F      =   0.0000
                                                R-squared     =   0.5264
                                                Root MSE      =   .36316

------------------------------------------------------------------------------
             |               Robust
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         ear |   .0117955   .0114115     1.03   0.303     -.01073     .0343209
      llr_gl |   -.006746   .0171195    -0.39   0.694    -.0405386    .0270467
          ci |  -.0221553   .0042562    -5.21   0.000    -.0305569   -.0137538
         nim |   .0485725   .0216248     2.25   0.026     .0058865    .0912585
       nl_ta |  -.0040387     .00208    -1.94   0.054    -.0081446    .0000671
   log_asset |   .0963012   .1579215     0.61   0.543    -.2154254    .4080278
          gl |  -.0042262   .0014355    -2.94   0.004    -.0070598   -.0013927
      log_re |   .1883378   .1122954     1.68   0.095    -.0333259    .4100015
      log_bs |   .0081038   .3265823     0.02   0.980     -.636548    .6527556
          cd |   .2302161   .1493372     1.54   0.125    -.0645657    .5249979
         ind |  -.1397323   .2650275    -0.53   0.599    -.6628792    .3834145
   log_trned |   -.388463   .1031699    -3.77   0.000    -.5921135   -.1848124
   log_trend |    .480765   .1552652     3.10   0.002     .1742817    .7872484
         cff |  -.1111995   .0641867    -1.73   0.085    -.2378999    .0155009
        ggdp |   .0184266   .0067302     2.74   0.007     .0051416    .0317116
         mlr |   .0064262   .0480599     0.13   0.894    -.0884409    .1012932
       _cons |   .2785441   .6833209     0.41   0.684    -1.070286    1.627374
------------------------------------------------------------------------------
```

ROE (Pooled Regression Model)

regress roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, robust

```
Linear regression                               Number of obs =      188
                                                F( 16,   171) =    17.47
                                                Prob > F      =   0.0000
                                                R-squared     =   0.5665
                                                Root MSE      =   5.5331

------------------------------------------------------------------------------
             |               Robust
         roe |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         ear |  -.6031594   .1657687    -3.64   0.000    -.930376   -.2759429
      llr_gl |  -.2408883   .2606073    -0.92   0.357    -.7553099    .2735333
          ci |  -.1818646   .0549478    -3.31   0.001    -.2903278   -.0734013
         nim |   .7342459    .358126     2.05   0.042     .0273288    1.441163
       nl_ta |  -.0222123    .027037    -0.82   0.412    -.0755815     .031157
   log_asset |   .7164932   2.176579     0.33   0.742    -3.579929    5.012916
          gl |   -.091014   .0182077    -5.00   0.000    -.1269548   -.0550732
      log_re |   2.313822   1.391722     1.66   0.098    -.4333446    5.060989
      log_bs |   .8550182   5.482002     0.16   0.876    -9.966093    11.67613
          cd |   3.392021   2.291738     1.48   0.141    -1.131718     7.91576
         ind |  -6.289051   3.937655    -1.60   0.112    -14.06172     1.48362
   log_trned |  -5.999528   1.351741    -4.44   0.000    -8.667776    -3.33128
   log_trend |   9.642524   2.399935     4.02   0.000     4.905211    14.37984
         cff |  -2.285583   .9796834    -2.33   0.021    -4.219413   -.3517524
        ggdp |   .2248061   .1137512     1.98   0.050     .0002688    .4493434
         mlr |   .6984078   .7347376     0.95   0.343    -.7519156    2.148731
       _cons |  -3.801361   10.53486    -0.36   0.719    -24.59647    16.99375
------------------------------------------------------------------------------
```

Fixed Effect Model (Model 2)

Random Effect Model Equation

xtreg roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, re

ROA (Breusch Pagan LM Test)

xttest0

```
Breusch and Pagan Lagrangian multiplier test for random effects

        roa[code,t] = Xb + u[code] + e[code,t]

        Estimated results:
                     |       Var     sd = sqrt(Var)
            ---------+-----------------------------
                 roa |   .2546486        .5046272
                   e |   .1054035         .324659
                   u |   .0031087         .055756

        Test:   Var(u) = 0
                          chi2(1) =      6.39
                        Prob > chi2 =    0.0115
```

ROA (Fixed Effect Model)

xtreg roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, fe robust

```
Fixed-effects (within) regression              Number of obs      =        188
Group variable: code                           Number of groups   =         21

R-sq:  within  = 0.4862                         Obs per group: min =          8
       between = 0.4501                                        avg =        9.0
       overall = 0.3814                                        max =          9

                                                F(15,20)           =          .
corr(u_i, Xb)  = -0.7193                         Prob > F           =          .

                                   (Std. Err. adjusted for 21 clusters in code)
-------------------------------------------------------------------------------
             |               Robust
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
         ear |    .029172    .011703     2.49   0.022     .0047601     .053584
      llr_gl |  -.0291758   .0123011    -2.37   0.028    -.0548355   -.0035162
          ci |  -.0279423   .0053058    -5.27   0.000      -.03901   -.0168745
         nim |   .0923157   .0335837     2.75   0.012     .0222614      .16237
       nl_ta |  -.0000217   .0038388    -0.01   0.996    -.0080292    .0079858
   log_asset |  -.4535177   .4600615    -0.99   0.336    -1.413189    .5061538
          gl |  -.0031351   .0011487    -2.73   0.013    -.0055312    -.000739
      log_re |   .3877387   .2503383     1.55   0.137    -.1344578    .9099352
      log_bs |    .998295   .5673777     1.76   0.094    -.1852342    2.181824
          cd |   .1052831     .19332     0.54   0.592    -.2979752    .5085415
         ind |  -.0637963   .3770654    -0.17   0.867    -.8503409    .7227484
   log_trned |  -.3369666   .2067886    -1.63   0.119      -.76832    .0943867
   log_trend |   .5395363   .2730072     1.98   0.062    -.0299467    1.109019
         cff |  -.2650613   .0624252    -4.25   0.000     -.395278   -.1348446
        ggdp |   .0198668   .0064547     3.08   0.006     .0064025    .0333311
         mlr |   -.012872   .0761003    -0.17   0.867    -.1716145    .1458705
       _cons |   .8923272   2.132669     0.42   0.680    -3.556342    5.340996
-------------+-----------------------------------------------------------------
     sigma_u |  .39483287
     sigma_e |  .32465902
         rho |  .59661346   (fraction of variance due to u_i)
-------------------------------------------------------------------------------
```

xtreg roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, fe

est store fixed

xtreg roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, re

ROA (Hausman Fixed)

hausman fixed

```
hausman fixed (ROA)
                ---- Coefficients ----
             |     (b)         (B)          (b-B)     sqrt(diag(V_b-V_B))
             |    fixed          .         Difference         S.E.
-------------+----------------------------------------------------------------
         ear |   .029172      .012087        .017085         .0110667
      llr_gl |  -.0291758    -.0078282      -.0213476        .0042529
          ci |  -.0279423    -.0223861      -.0055562        .0021807
         nim |   .0923157     .0511105       .0412052        .0124142
       nl_ta |  -.0000217    -.003835        .0038133        .0051834
   log_asset |  -.4535177     .081842       -.5353597         .312869
          gl |  -.0031351    -.0044259       .0012908        .0006438
      log_re |   .3877387     .1962043       .1915345        .0753689
      log_bs |   .998295      .0772597       .9210353        .4039408
          cd |   .1052831     .2313304      -.1260473        .0980045
         ind |  -.0637963    -.148217        .0844207        .2082266
   log_trned |  -.3369666    -.3928959       .0559292        .0891725
   log_trend |   .5395363     .4872493       .052287         .1490161
         cff |  -.2650613    -.1138674      -.1511939        .2621737
        ggdp |   .0198668     .0189014       .0009654            .
         mlr |  -.012872      .0069672      -.0198392        .0335129
-------------+----------------------------------------------------------------
                     b = consistent under Ho and Ha; obtained from xtreg
          B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

                 chi2(16) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        23.91
               Prob>chi2 =      0.0916
               (V_b-V_B is not positive definite)
```

Random Effect Model Equation

xtreg roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, re

ROE (Breusch Pagan LM Test)

xttest0

```
Breusch and Pagan Lagrangian multiplier test for random effects (ROE)

        roe[code,t] = Xb + u[code] + e[code,t]

        Estimated results:
                     |      Var      sd = sqrt(Var)
            ---------+-----------------------------
                roe  |   64.5867        8.036585
                  e  |   22.76731       4.77151
                  u  |   2.586964       1.608404

        Test:   Var(u) = 0
                       chi2(1) =    33.43
                    Prob > chi2 =     0.0000
```

ROE (Fixed Effect Model)

xtreg roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, fe robust

```
Fixed-effects (within) regression          Number of obs     =        188
Group variable: code                       Number of groups  =         21

R-sq:  within  = 0.3239                     Obs per group: min =          8
       between = 0.5802                                    avg =        9.0
       overall = 0.4713                                    max =          9

                                            F(15,20)          =          .
corr(u_i, Xb)  = -0.0869                     Prob > F          =          .

                              (Std. Err. adjusted for 21 clusters in code)
--------------------------------------------------------------------------------
             |               Robust
         roe |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
         ear |  -.112051   .1655129    -0.68   0.506    -.4573048    .2332028
      llr_gl |  -.2778846  .2060342    -1.35   0.192    -.7076645    .1518952
          ci |  -.2298336  .0539617    -4.26   0.000    -.3423957   -.1172714
         nim |   .5264303  .5436162     0.97   0.344    -.6075333    1.660394
       nl_ta |  -.0019872  .0717762    -0.03   0.978    -.1517097    .1477352
   log_asset |   2.308195  7.181426     0.32   0.751      -12.672    17.28839
          gl |  -.0787934  .0210881    -3.74   0.001    -.1227823   -.0348045
      log_re |   3.442143  3.17726      1.08   0.292    -3.185506    10.06979
      log_bs |   .5790657  8.906251     0.07   0.949    -17.99905    19.15718
          cd |   .9776038  3.282099     0.30   0.769    -5.868734    7.823942
         ind |  -3.66761   5.294982    -0.69   0.496    -14.71275    7.377529
   log_trned |  -5.409052  2.62198     -2.06   0.052    -10.87841    .0603013
   log_trend |   7.931257  4.035866     1.97   0.063    -.4874128    16.34993
         cff |  -3.81921   1.146881    -3.33   0.003    -6.211562   -1.426858
        ggdp |   .2284092  .0888321     2.57   0.018     .0431087    .4137097
         mlr |   1.218495  1.350251     0.90   0.378    -1.598078    4.035069
       _cons |  -14.50551  33.14203    -0.44   0.666    -83.63858    54.62756
-------------+------------------------------------------------------------------
     sigma_u |  4.0637715
     sigma_e |  4.7715101
         rho |  .42040704   (fraction of variance due to u_i)
--------------------------------------------------------------------------------
```

xtreg roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, fe

est store fixed

xtreg roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr, re

ROE (Hausman Fixed)

hausman fixed

```
F test that all u_i=0:     F(20, 151) =     3.95          Prob > F = 0.0000
hausman fixed (ROE)

               ---- Coefficients ----
            |      (b)          (B)           (b-B)      sqrt(diag(V_b-V_B))
            |     fixed          .          Difference        S.E.
------------+-----------------------------------------------------------------
        ear |   -.112051     -.4874656       .3754146        .1510513
      llr_gl |  -.2778846     -.2256009      -.0522838        .0679475
         ci |   -.2298336     -.1859262      -.0439073        .0292409
        nim |    .5264303       .589163      -.0627327        .1616963
      nl_ta |   -.0019872     -.0222338       .0202465        .0747725
  log_asset |    2.308195      1.325119       .9830762        4.488574
         gl |   -.0787934     -.0945847       .0157913         .009563
     log_re |    3.442143      2.482544       .9595987        1.030668
     log_bs |    .5790657      .6639046      -.0848388        5.436549
         cd |    .9776038      2.662347      -1.684743        1.307629
        ind |    -3.66761     -5.442335       1.774725        2.761495
  log_trned |   -5.409052     -6.123622       .7145694        1.222563
  log_trend |    7.931257      9.522009      -1.590752        2.002055
        cff |    -3.81921     -2.136203      -1.683007        3.770865
       ggdp |    .2284092      .2328352       -.004426            .
        mlr |    1.218495       .871833       .3466621        .5067474
------------------------------------------------------------------------------
                      b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

              chi2(16) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                       =        30.62
            Prob>chi2 =        0.0150
            (V_b-V_B is not positive definite)
```

GMM Estimation Model (Model 3)

ROA

xtabond2 roa l.roa ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr fr, gmm(roa ear llr_gl ci nim nl_ta log_asset gl log_re log_trend, lag(2 2)) iv (log_bs cd ind log_trned cff ggdp mlr fr) robust h(1) small

```
Dynamic panel-data estimation, one-step system GMM
-------------------------------------------------------------------------
Group variable: code                      Number of obs      =        167
Time variable : year                      Number of groups   =         21
Number of instruments = 149               Obs per group: min =          7
F(18, 20)     =      54.95                               avg =       7.95
Prob > F      =      0.000                               max =          8
-------------------------------------------------------------------------
             |               Robust
        roa  |    Coef.    Std. Err.      t     P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
        roa  |
         L1. |  -.118724    .0603399    -1.97   0.063    -.2445909    .0071429
             |
         ear |  .0026532    .0117003     0.23   0.823    -.0217533    .0270597
      llr_gl |  -.0240526   .0138695    -1.73   0.098    -.0529839    .0048788
          ci |  -.0257861   .005114     -5.04   0.000    -.0364538   -.0151184
         nim |  .0621797    .0211005     2.95   0.008     .0181649    .1061946
       nl_ta |  -.008023    .0029906    -2.68   0.014    -.0142612   -.0017849
   log_asset |  .2825113    .1920451     1.47   0.157    -.1180877    .6831102
          gl |  -.0052136   .000924     -5.64   0.000    -.0071411   -.0032861
      log_re |  .0939751    .0778252     1.21   0.241    -.0683655    .2563157
      log_bs |  -.1444906   .4401285    -0.33   0.746    -1.062583    .7736013
          cd |  .489267     .1397939     3.50   0.002     .1976621    .7808719
         ind |  -.3833224   .367533     -1.04   0.309    -1.149983    .383338
   log_trned |  -.1486778   .1697386    -0.88   0.391    -.5027464    .2053907
   log_trend |  .0363512    .2554814     0.14   0.888    -.4965737    .569276
         cff |  -.2103518   .1227051    -1.71   0.102    -.4663102    .0456065
        ggdp |  .0198726    .0047301     4.20   0.000     .0100057    .0297395
         mlr |  .0133078    .0962545     0.14   0.891    -.1874756    .2140911
          fr |  -.1008168   .0840463    -1.20   0.244    -.2761343    .0745007
       _cons |  1.242696    1.136777     1.09   0.287    -1.128579    3.613971
-------------------------------------------------------------------------------
Instruments for first differences equation
  Standard
    D.(log_bs cd ind log_trned cff ggdp mlr fr)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.(roa ear llr_gl ci nim nl_ta log_asset gl log_re log_trend)
Instruments for levels equation
  Standard
    log_bs cd ind log_trned cff ggdp mlr fr
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.(roa ear llr_gl ci nim nl_ta log_asset gl log_re log_trend)
-------------------------------------------------------------------------------
Arellano-Bond test for AR(1) in first differences: z =  -2.81  Pr > z =  0.005
Arellano-Bond test for AR(2) in first differences: z =  -1.75  Pr > z =  0.080
-------------------------------------------------------------------------------
Sargan test of overid. restrictions: chi2(130)  = 119.74  Prob > chi2 =  0.730
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(130)  =   1.31  Prob > chi2 =  1.000
  (Robust, but weakened by many instruments.)

Difference-in-Hansen tests of exogeneity of instrument subsets:
  GMM instruments for levels
    Hansen test excluding group:      chi2(60)  =   1.18  Prob > chi2 =  1.000
    Difference (null H = exogenous): chi2(70)  =   0.13  Prob > chi2 =  1.000
  iv(log_bs cd ind log_trned cff ggdp mlr fr)
    Hansen test excluding group:      chi2(122) =   2.08  Prob > chi2 =  1.000
    Difference (null H = exogenous): chi2(8)   =  -0.77  Prob > chi2 =  1.000
```

ROE

xtabond2 roe l.roe ear llr_gl ci nim nl_ta log_asset gl log_re log_bs cd ind log_trned log_trend cff ggdp mlr fr, gmm(roe ear llr_gl ci nim nl_ta log_asset gl log_re log_trend, lag(2 2)) iv (log_bs cd ind log_trned cff ggdp mlr fr) robust h(1) small

```
Dynamic panel-data estimation, one-step system GMM
-------------------------------------------------------------------------------
Group variable: code                        Number of obs      =        167
Time variable : year                        Number of groups   =         21
Number of instruments = 149                 Obs per group: min =          7
F(18, 20)      =     83.98                                  avg =       7.95
Prob > F       =     0.000                                  max =          8
-------------------------------------------------------------------------------
             |              Robust
         roe |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
         roe |
         L1. |  -.0332991   .0725289    -0.46   0.651    -.1845917    .1179935
             |
         ear |  -.4362596   .1957405    -2.23   0.037    -.8445671    -.027952
      llr_gl |  -.3897009   .2367154    -1.65   0.115    -.8834807    .1040788
          ci |  -.2052145   .0327961    -6.26   0.000    -.2736259   -.1368031
         nim |   .6193722   .5731707     1.08   0.293    -.5762409    1.814985
       nl_ta |  -.0812443   .0261922    -3.10   0.006    -.1358803   -.0266083
   log_asset |   7.335267    3.32868     2.20   0.039     .3917627    14.27877
          gl |  -.1036333   .0178293    -5.81   0.000    -.1408245   -.0664421
      log_re |  -.7678293   1.703435    -0.45   0.657    -4.321133    2.785474
      log_bs |  -6.035043   8.676414    -0.70   0.495    -24.13373    12.06364
          cd |   5.448364   1.836257     2.97   0.008     1.617999    9.278729
         ind |  -8.986865   6.402643    -1.40   0.176    -22.34254    4.368813
   log_trned |   -3.83374   1.688732    -2.27   0.034    -7.356372   -.3111071
   log_trend |   4.638356   3.189436     1.45   0.161    -2.014692     11.2914
         cff |  -3.229742   1.920485    -1.68   0.108    -7.235804    .7763192
        ggdp |   .2297569   .0579885     3.96   0.001      .108795    .3507187
         mlr |   .6931886   1.356817     0.51   0.615    -2.137082     3.52346
          fr |  -.4108906   1.353858    -0.30   0.765    -3.234988    2.413207
       _cons |  -3.066923    16.1112    -0.19   0.851    -36.67429    30.54044
-------------------------------------------------------------------------------
Instruments for first differences equation
  Standard
    D.(log_bs cd ind log_trned cff ggdp mlr fr)
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    L2.(roe ear llr_gl ci nim nl_ta log_asset gl log_re log_trend)
Instruments for levels equation
  Standard
    log_bs cd ind log_trned cff ggdp mlr fr
    _cons
  GMM-type (missing=0, separate instruments for each period unless collapsed)
    DL.(roe ear llr_gl ci nim nl_ta log_asset gl log_re log_trend)
-------------------------------------------------------------------------------
Arellano-Bond test for AR(1) in first differences: z =  -2.10  Pr > z =  0.035
Arellano-Bond test for AR(2) in first differences: z =  -1.02  Pr > z =  0.307
-------------------------------------------------------------------------------
Sargan test of overid. restrictions: chi2(130) = 116.81  Prob > chi2 = 0.790
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(130) =   4.03  Prob > chi2 = 1.000
  (Robust, but weakened by many instruments.)

Difference-in-Hansen tests of exogeneity of instrument subsets:
  GMM instruments for levels
    Hansen test excluding group:     chi2(60)  =   0.92  Prob > chi2 = 1.000
    Difference (null H = exogenous): chi2(70)  =   3.11  Prob > chi2 = 1.000
  iv(log_bs cd ind log_trned cff ggdp mlr fr)
    Hansen test excluding group:     chi2(122) =   2.99  Prob > chi2 = 1.000
    Difference (null H = exogenous): chi2(8)   =   1.04  Prob > chi2 = 0.998
```