MACROECONOMIC AND BANK-SPECIFIC DETERMINANTS OF MALAYSIAN BANK PROFITABILITY: EVIDENCE DURING THE PERIOD OF 2008 GLOBAL FINANCIAL CRISIS

NURUL HAZWANI BINTI RAMLI

MASTER OF SCIENCE (MSC) BANKING

UNIVERSITI UTARA MALAYSIA

AUGUST 2014

MACROECONOMIC AND BANK-SPECIFIC DETERMINANTS OF MALAYSIAN BANK PROFITABILITY: EVIDENCE DURING THE PERIOD OF 2008 GLOBAL FINANCIAL CRISIS

By

NURUL HAZWANI BINTI RAMLI

Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
in Partial Fulfillment of the Requirement for the Master of Sciences (Banking)

PERMISSION TO USE

In presenting this dissertation/project paper in partial fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this dissertation/project paper in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my dissertation/project paper. It is understood that any copying or publication or use of this dissertation/project paper parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my dissertation/project paper.

Request for permission to copy or to make other use of materials in this dissertation/project paper in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business

Universiti Utara Malaysia

06010 UUM Sintok

Kedah DarulAman

Abstract

This dissertation analyzes the determinants of commercial bank profitability in Malaysia for the period 2006-2012. This dissertation also examines whether 2008 global financial crisis affects bank profitability in Malaysia. Since the sample comprises foreign and local banks, this dissertation also tests whether there is significant difference between foreign and local banks in the aspect of profitability, as generally, foreign banks have larger capital than that of local banks. From the fixed effect estimation analysis, the findings suggest that Malaysian banks with a larger capital and higher credit quality exhibit high profitability level. The findings also demonstrate that bank size has a negative relationship with bank profitability, implying that bigger banks have lower profits than that of small banks. The results also do not support that foreign banks are more profitable than that of local banks in the period studied. In the aspect of macroeconomics determinants, the results suggest that GDP is not the main determinant of Malaysian bank profitability, while on the contrary, inflation rate significantly impact bank profitability in Malaysia. Interestingly, this dissertation does not find conclusive evidence to support that the 2008 global financial crisis affects bank profitability in Malaysia.

Keywords: *macroeconomic variables, bank-specific variables, domestic and foreign commercial banks, panel data, return on asset, Malaysian banking sector*

Abstrak

Tesis ini menganalisis penentu keuntungan bank perdagangan di Malaysia bagi tempoh 2006-2012. Tesis ini juga cuba meneliti sama ada krisis kewangan 2008 global memberi kesan kepada keuntungan bank di Malaysia. Sejak sampel terdiri daripada bank-bank asing dan tempatan, tesis ini juga menguji sama ada terdapat perbezaan yang signifikan di antara bank-bank asing dan tempatan dalam aspek keuntungan, sebagai amnya, bank-bank asing mempunyai modal yang lebih besar daripada banks.From tempatan kesan analisis anggaran tetap, penemuan menunjukkan bahawa bank Malaysia yang mempunyai modal yang lebih besar dan kualiti kredit yang lebih tinggi mempamerkan tahap keuntungan yang tinggi. Dapatan kajian juga menunjukkan bahawa saiz bank mempunyai hubungan yang negatif dengan keuntungan bank, menunjukkan bahawa bank-bank yang lebih besar mempunyai keuntungan yang lebih rendah daripada itu keputusan banks.The kecil juga tidak menyokong bank-bank asing adalah lebih menguntungkan daripada yang bank-bank tempatan dalam tempoh yang dikaji. dalam aspek makroekonomi penentu, keputusan menunjukkan bahawa KDNK tidak adalah penentu utama keuntungan bank Malaysia, manakala sebaliknya, kadar inflasi ketara memberi kesan keuntungan bank di Malaysia. Menariknya, disertasi ini tidak menemui bukti yang kukuh untuk menyokong bahawa krisis kewangan global 2008 memberi kesan kepada keuntungan bank di Malaysia.

ACKNOWLEDGEMENT

Alhamdulillah….All the efforts and hardwork is paid off when I can make this dissertation finally ready. Firstly, I am most thankful to Allah S.W.T for giving me strength and made all things possible and guided me to complete my dissertation.

Foremost, I would like to express my heartful appreciation to my charismatic and committed supervisor, Dr. AzirabintiAbdAdzis for all the guidance and patient that she had shown in making my dissertation the very best that it could be.

I also want to express my gratefulness to my family who gives full support and prayers for my success in this academic area and believes me to accomplish their wish and hopes. Not to forget, my fellow friends, especially Nor ShahiedabintiHishamudin who gives full moral support to complete this dissertation as well.

Last but not least, thanks to UUM for giving a chance and trust to me to perform my best in this academics area.

Thank you very much.

TABLE OF CONTENT

CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ROAA	Return on Average Assets
CAP	Capital Ratio
LSIZE	Logarithm of the Total Assets of Each Commercial Banks
LDEPOSITS	Logarithm of the Total Deposits of Each Commercial Banks
IR	Inflation Rate
GDP	Annual Percentage Changes of Malaysian Gross Domestic
LLP/TL	Loan Loss Provision to Total Loan
EQAS	Equity to Assets Ratio
NIM	Net Income Margin
NII/TA	Net interest income to total asset
LNTA	Logarithm of the Total Assets
RWA	Risk Weighted Average
GMM	Generalized method of moments
CHF	Swiss Franc
ETP	Economic Transformation Programme

CHAPTER ONE: INTRODUCTION

1.1 Background of study

Banking sector plays an important role in the economy. The Governor of Central Bank of Malaysia, Dr. Zeti Akhtar Aziz in year 2012 highlights that banking institutions are the most influential financial intermediaries that help to improve economic operations and hence, generating economic growth. Over the past few years, banking sector around the world experienced a rapid changing due to the changes in the financial structure environment and economic conditions (Naceur et. al, 2011).

Despite the increased trend toward bank disintermediation observed in many countries, the role of banks remains central in financing economic activity in general and different segments of the market in particular. A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Therefore, the determinants of bank profitability have attracted the interest of academic research as well as of bank management, financial markets and bank supervisors.

In Malaysia, banks are regarded as dominant financial institution thus, their health condition is crucial as it will give effect to the general health of the economy (Sufian, 2009). As the asset of the bank is high, the bank profitability is also increased. Sufian (2009) stated Malaysian banks contribute more than 70 per cent of the total assets in the financial system. Commercial banks are considered as the leader of the Malaysian banking sector and main profitable banks (BNM Bulletin, 2013). This dissertation is solely focused on commercial banks due to its role as the country's largest and most significant fund provider in the Malaysian banking system. Until 2012, commercial banks

The contents of the thesis is for internal user only

References

Aziz, A. Z. (2012, December). Finance and the real economy: fostering sustainability. *Islamic Development Bank (IDB) Regional Lecture Series*. Lecture conducted from Jakarta, Indonesia.

Aziz, A. Z. (2002, May). Gearing up for excellence.*Malaysian Banking & Financial Services Summit 2002.* Lecture conducted from Sheraton Imperial Kuala Lumpur.

Abreu, M., and V. Mendes. (2002). Commercial bank interest margins and profitability:evidence from EU countries. *Porto Working Paper Series*, CISEP,Portugal.

Ahmad, R., Arrif, M & Skully, M. (2007). Factors determining mergers of banks in Malaysia's banking sector reform. *Multinational Finance Journal11(1&2),* 1–31.

Alexiou, C., Sofoklis, V.(2009). Determinants of bank profitability: Evidence from the Greek banking sector. Economic Annals.182, 93-118.

Alpera, D. & Anbar, A. (2011).Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economics Research Journal 2*, 139-152.

Ameur, I.G., Mhiri, S.M. (2013). Explanatory Factors of Bank Performance Evidence from Tunisia.*International Journal of Economics, Finance and Management* 2.pp.143-152.

Angbazo, L., (1997). Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking. *Journal of Banking and Finance 21*, 55–87.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008).Bank-specific, industry specific and macroeconomic determinants of bank profitability.*Int. Fin. Markets, Inst. and Money 18,* 121–136.

Bank Negara Malaysia (2000).Guidelines of central bank of Malaysia. . Retrieved on 7 May 2014.Available at http://www.bnm.gov.my/index.php?ch=116&pg=352&ac=4.

Bank Negara Malaysia (2009).2008 annual report of the central bank of Malaysia.Retrieved on 27 February 2014.Retrieved from http://www.bnm.gov.my/files/publication/ar/en/2008/ar2008_book.pdf.

Bank Negara Malaysia (2012).2012 annual report of the central bank of Malaysia. Retrieved on 2 May 2014 from http://www.bnm.gov.my/files/publication/ar/en/2012/ar2012_book.pdf.

Bank Negara Malaysia (2012).Economic and Financial Developments in the Malaysian Economy in the Fourth Quarter of 2012.Retrieved on 27 February 2014. Available at http://www.bnm.gov.my/index.php?ch=en_press&pg=en_press_all&ac=2758.

Bank Negara Malaysia (2013). 2013 annual report of the central bank of Malaysia. Retrieved from http://www.bnm.gov.my/files/publication/ar/en/2013/ar2013_book.pdf.

Bank Negara Malaysia (2013).Monthly Statistical Bulletin.Retrieved on 27 February 2014. Available at http://www.bnm.gov.my/index.php?ch=13&cat=banking&type=CB.

Baltagi, B.H. (1995) Econometric Analysis of Panel Data, *John Wiley & Sons Ltd.* ISBN 0-471-95299-0, pg 3-5.

Baltagi, B. H. (2005). Econometric Analysis of Panel Data. West Sussex: John Wiley & Sons.

Berger, A. (1995). The Profit-Structure Relationship in Banking: Test of Market-Power and Efficient-Structure Hypotheses. *Journal of Money, Credit and Banking.* 27, 404-431.

Berger, A. N., &.Bouwman, C. H.S. (2013). How does capital effect bank performance during final crises? *Journal of Financial Economics 109*, 146–176.

Bernama News (June 9, 2003). Zeti Outlines Challenges In Financial Sector. *Business News.* Retrieved May 9, 2014 from http://www.bernama.com/finance/news.php?id=202584.

Bikker, J., and Hu, H., (2002). Cyclical Patterns in Profits, Provisioning and Lending of Banks and Procyclicality of the New Basel Capital Requirements.*BNL Quarterly Review 221*, 143-175.

Bontis, Nick., Keow. W. C. C., Richardson, Stanley. (2000). Intellectual capital and business performance in Malaysian industries.*Journal of Intellectual Capital*. 85 – 100.

Campello, M., Graham J. R.,Harvey, Campbell, R. H.(2010). The real effects of financial constraints : Evidence from a financial crisis. *Journal of Financial Economics 97*, 470–487.

Chen, I-J., (2014). Financial crisis and the dynamics of corporate governance: Evidence from Taiwan's listed firms. *International Review of Economics and Finance 32*, 3–28.

Chong, R. R. &Sufian, F., (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines. *Asian Academy of Management Journal of Accounting and Finance 4(2), 91–112.*
Demirguc-Kunt, A., & Huizinga, A., (1998). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *World Bank Economic Review13,* 379-408.

Detragiache, E.,Gupta, P. (2006). Foreign banks in emerging market crises:Evidence from Malaysia.*Journal of Financial Stability 2*,217–242.

Dietrich, A., &Wanzenried, G., (2011).Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of Banking & Finance*, 307–327.

Francis, M. E.(2013). Determinants of Commercial Bank Profitability in Sub-Saharan Africa.International Journal of Economics and Finance. Vol. 5(9),134-147.

García-Herrero, A., Gavilá, S., Santabárbara, D. (2009). What explains the low profitability of Chinese banks?.*Journal of Banking and Finance33 (11),* 2080–2092.

Goddard, J.A., Liu, H., Molyneux, P., and Wilson, J.O.S., (2011).The Persistence of Bank Profit. *Journal of Banking and Finance 35(11)*, 2881-2890.

Godlewski, C. J. (2014). Bank loans and borrower value during the global financial crisis: Empirical evidence from France. *Int. Fin. Markets, Inst. and Money 28*, 100–130.

Goh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital 3*, 385-396.

Hanadzlah, A. H., (2012,July 27). Charting future of banking and finance in a new era.*Business Times*. Retrieved from
http://blis2.bernama.com.eserv.uum.edu.my/getArticle.do?id=63904&tid=100&cid=3

Hoffmann P. S., (2011).Determinants of the Profitability of the US Banking Industry.International Journal of Business and Social Science. Vol. 2 (22), 255-269.

Kim D. and Lee J. Y. (2013).Bank performance and its determinants in Korea.*Japan and the World Economy*, pp. 83–94.

Klapper, L., Love I. (2011).The impact of the financial crisis on new firm registration.*Economics Letters 113*,1–4.

Kosmidou, K., Pasiouras, F., (2007).Factors influencing the profitability of domestic and foreign commercial banks in the European Union.*Research in International Business and Finance* 21, 222–237.

Lee, C.C. & Hsieh, M.F.,(2013). The impact of bank capital on profitability and risk in Asian banking.*Journal of International Money and Finance* 32,251–281.

Mitton, T.(2002).A cross-firm analysis of the impact of corporategovernance on the East Asian financial crisis.*Journal of Financial Economics 64*,215–241.

Morgan, H. M.(2013).Foreign banks and the export performance of emerging market firms: Evidence from India. *Research in International Business and Finance 29*,52– 60.

Naceur, B S., &Goaied, M. (2008). The determinants of commercial bank interest margin and profitability: Evidence from Tunisia. *Frontiers in Finance and Economics 5(1),* 106– 130.

Park, K. H., BaekJ.,Kang, J. (2004). Corporate governance andfirm value performance: evidencefrom the Korean financial crisis.*Journal of Financial Economics 71*,265–313.

Pellegrina, L. D. (2012).Does capitalization enhanceefficient risk undertaking?A comparison between Islamic andconventional banks.*Accounting Research Journal 3,*185-207.

Rughoo. A., Sarantis, N. (2014). The global financial crisis and integration in European retail banking. *Journal of Banking & Finance 40*, 28–41.

Sufian, F., (2009.Factors Influencing Bank Profitability in a Developing Economy: Empirical Evidence from Malaysia.*Global Business Review 10*.225-242.

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

Sufian, F., and Habibullah M. S., (2012).Globalizations and bank performance in China.*Research in International Business and Finance26*.221– 239.

Swank, J.,Oordt M. R.C, Hoeberichts, M., Haanet.L.D., and Bolt, W., (2012).Bank profitability during recessions.*Journal of Banking and Finance 36*. 2552–2564.

Tabak, B. M., Fazio, D. M., Cajueiro, D. O. (2012).The relationship between banking market competition and risk-taking: Do sizeand capitalization matter?*Journal of Banking & Finance 36*,3366–3381.

The Association of Banks in Malaysia.(2013). ABM Press Release. Retrieved on 27 February 2014, from The Association of Banks in Malaysia (ABM) website: http://www.abm.org.my/_repository/uploaded/bankresources/Bank_Branches_as_at_31_ Dec_2013.pdf.

Thomas, D., Peter, F. (2014). The impact of the financial crisis on transatlantic information flows: An intraday analysis. *Int. Fin. Markets, Inst. and Money 31*, 1–13.

Vmd,S. (2014,May 8). BNM MAINTAINS OPR AT 3.0 PCT. *Bernama News.* Retrieved May 9, 2014, from http://blis2.bernama.com.eserv.uum.edu.my/mainHomeBypass.do

Wgm, N.(2014, March 6). Banking Sector Reports Decent Results For 4qcy13. *Bernama News.* Retrieved May, 2, 2014 from http://blis2.bernama.com.eserv.uum.edu.my/getArticle.do?id=17720&tid=106&cid=2.

Yu, J. et. al (2012). Financial Determinants of Bank Performance in Taiwan.*Journal of Economics and Behavioral Studies 4 (12),* 691-702.

Yue, P. (1992). Data Envelopment Analysis and Commercial Bank Performance: A Primer with Applications to Missouri Banks. *Federal Reserve Bank of St. Louis Review*,31-45.

Table 6

Descriptive statistic

stats	roaa	cap	ln_ta	loanta	llp_loan	cpi	gdp	dum_0709	dum_fo~n
mean	.0321175	.081686	17.18239	.4835098	.004732	2.603725	4.770636	.4285714	.6
p50	.0320544	.0761316	17.55615	.568086	.0047574	2.027353	5.585031	0	1
min	.0056367	.0065035	13.94309	.0042582	-.0162491	.5833084	-1.513683	0	0
sd	.0111718	.0323199	1.591939	.2185283	.0068655	1.494732	2.693518	.4966486	.491657
max	.0785095	.1954159	19.65195	.7500752	.0441398	5.440782	7.425006	1	1

Table 7

Multicollinearity

. corr
(obs=135)

	code	year	roaa	cap	ln_ta	loanta	llp_loan	cpi	gdp	dum_0709	dum_fo~n
code	1.0000										
year	0.0620	1.0000									
roaa	-0.3186	-0.2797	1.0000								
cap	-0.1780	0.0395	0.1657	1.0000							
ln_ta	-0.2457	0.0383	0.2848	-0.1619	1.0000						
loanta	-0.1505	0.0391	0.2069	-0.2621	0.4797	1.0000					
llp_loan	-0.1477	-0.3252	0.2924	-0.2755	0.1640	0.3145	1.0000				
cpi	0.0087	-0.3511	0.1241	-0.0578	-0.0367	-0.0407	0.0137	1.0000			
gdp	0.0058	0.0268	0.0344	-0.0077	0.0076	-0.0355	-0.0607	0.3401	1.0000		
dum_0709	-0.0206	-0.4544	-0.0182	-0.0746	-0.0155	-0.0289	0.1489	0.0749	-0.5130	1.0000	
dum_foreign	0.4386	0.0314	-0.1906	0.0535	-0.6855	-0.3765	-0.2355	0.0048	0.0037	-0.0108	1.0000

Table 8

OLS regression

```
. (10 vars, 140 obs pasted into editor)
- preserve
reg roaa cap ln_ta loanta llp_loan cpi gdp dum_0709
```

Source	SS	df	MS		Number of obs =	135
					F(7, 127) =	6.20
Model	.004113131	7	.00058759		Prob > F =	0.0000
Residual	.012029812	127	.000094723		R-squared =	0.2548
					Adj R-squared =	0.2137
Total	.016142943	134	.00012047		Root MSE =	.00973

roaa	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
cap	.1081713	.0277149	3.90	0.000	.0533286	.163014
ln_ta	.0017774	.0006096	2.92	0.004	.0005712	.0029836
loanta	.0035719	.0046796	0.76	0.447	-.0056883	.012832
llp_loan	.5123356	.1331068	3.85	0.000	.2489412	.7757301
cpi	.0012154	.0006253	1.94	0.054	-.000022	.0024528
gdp	-.0001381	.0004088	-0.34	0.736	-.000947	.0006708
dum_0709	-.0014641	.0021099	-0.69	0.489	-.0056393	.0027111
_cons	-.0131653	.0104969	-1.25	0.212	-.0339368	.0076062

Table 9

Fixed effect estimation

```
Fixed-effects (within) regression          Number of obs      =       135
Group variable: code                       Number of groups   =        20

R-sq:  within  = 0.3105                     Obs per group: min =         4
       between = 0.2174                                    avg =       6.8
       overall = 0.0360                                    max =         7

                                            F(7,108)           =      6.95
corr(u_i, Xb)  = -0.9300                    Prob > F           =    0.0000
```

roaa	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
cap	.0951038	.0537797	1.77	0.080	-.011497	.2017046
ln_ta	-.0129875	.0035385	-3.67	0.000	-.0200013	-.0059736
loanta	.0225087	.0136216	1.65	0.101	-.0044915	.049509
llp_loan	.2580037	.1314257	1.96	0.052	-.0025049	.5185122
cpi	.0007647	.000499	1.53	0.128	-.0002244	.0017537
gdp	.0000508	.0003235	0.16	0.875	-.0005903	.000692
dum_0709	-.0016822	.0017697	-0.95	0.344	-.00519	.0018257
_cons	.2342973	.0641275	3.65	0.000	.1071855	.3614091

sigma_u	.02366991					
sigma_e	.00755409					
rho	.90756249	(fraction of variance due to u_i)				

```
F test that all u_i=0:      F(19, 108) =      5.41              Prob > F = 0.0000

.
```

Table 10

OLS regression for dummy foreign

```
. (10 vars, 140 obs pasted into editor)
- preserve
- preserve
reg roaa cap ln_ta loanta llp_loan cpi gdp dum_foreign
```

Source	SS	df	MS		
Model	.004217337	7	.000602477		
Residual	.011925606	127	.000093902		
Total	.016142943	134	.00012047		

```
Number of obs =     135
F(  7,   127) =    6.42
Prob > F      =  0.0000
R-squared     =  0.2612
Adj R-squared =  0.2205
Root MSE      =  .00969
```

roaa	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
cap	.1142227	.0278085	4.11	0.000	.0591947	.1692508
ln_ta	.0023922	.0007822	3.06	0.003	.0008445	.0039399
loanta	.0042132	.0046404	0.91	0.366	-.0049694	.0133957
llp_loan	.5300393	.1334472	3.97	0.000	.2659713	.7941072
cpi	.001112	.000594	1.87	0.064	-.0000635	.0022875
gdp	.0000209	.0003331	0.06	0.950	-.0006383	.0006801
dum_foreign	.0030123	.0023848	1.26	0.209	-.0017069	.0077314
_cons	-.0275048	.0147112	-1.87	0.064	-.0566155	.001606