THE IMPACT OF SMALL AND MEDIUM ENTERPRISE FINANCING ON THE PROFITABILITY OF CONVENTIONAL AND ISLAMIC BANKS IN MALAYSIA

By

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Abstract

Small and Medium Enterprises (SMEs) play a very significant role in the economy in terms of balanced and sustainable growth, employment generation, development of entrepreneurial skills and contribution to export earnings. However, despite their importance to the economy, most SMEs are not able to stand up to the challenges of globalization, mainly because of difficulties in securing financing for their development. The difficulties faced by SMEs in assessing financial support are said to be contributed to their high risk profiles. SMEs are regarded as risky enterprises by the financial institution for a number of reasons. On that score, this study sets out to assess the trend as well as the impact of SME financing, along with other independent variables, on the profitability of 12 Conventional and 12 Islamic banks in Malaysia from the period of 2004 to 2017. Two dependent variables, Return on Asset (ROA) and Net Interest Margin (NIM) are selected as proxies for bank profitability. All the variables are then regressed using panel data of Random Effects (RE) and Fixed Effects (FE) models with robust standard errors. The regression result shows that while SME financing have a significant but negative impact on Conventional banks' profitability, it has an insignificant and negative impact on Islamic banks' profitability.

Keywords: SME, Conventional banks, Islamic banks, Profitability, ROA, NIM

Abstrak

Perusahaan Kecil and Sederhana (PKS) memainkan peranan yang penting dalam ekonomi di segi pertumbuhan yang mampan dan seimbang, penyediaan peluang pekerjaan, pembangunan kemahiran keusahawanan dan sumbangan dalam pendapatan export. Waiau pun mereka merupakan penyumbang penting kepada kemajuan ekonomi, industri PKS ini tidak berupaya untuk berhadapan dengan cabaran globalisasi disebabkan oleh kesukaran untuk mendapatkan pembiayaan untuk mengembangkan perniagaan mereka. Kesukaran untuk mendapatkan pembiayaan ini disebabkan oleh profil risiko mereka yang tinggi. Industri PKS dianggap industri yang berisiko tinggi yang menyebabkan institusi kewangan seperti bank agak keberatan untuk memberikan sokongan kewangan kepada industri ini. Justeru itu kajian ini dijalankan untuk mengetahui pola pembiayaan PKS serta kesan pembiayaan PKS, bersama dengan pembolehubah-pembolehubah bebas yang lain, keatas tahap keuntungan 12 bank-bank konvensional dan 12 bank-bank Islam dari tahun 2004 hingga 2017. Dua pembolehubah bebas, Pulangan keatas Aset (ROA) dan Kadar Faedah Bersih/Kadar Untung Bersih (NIM/NPM) dipilih sebagai proksi kepada keuntungan bank. Semua pembolehubah-pembolehubah ini diregresi menggunakan data panel melalui model REM and FEM. Analisa regresi daripada kajian ini menunjukkan bahawa pembiayaan kepada industri PKS mempunyai kesan yang besar tetapi negatif kepada paras keuntungan bank-bank konvensional manakala bagi bank-bank Islam ia meninggalkan kesan yang kecil tetapi negatif.

Kata Kunci: PKS, Bank konvensional, Bank Islam, Keuntungan, ROA, NIM

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List of Abbreviations

BLR	Base Lending Rate
BNM	Bank Negara Malaysia
CB	Conventional Banking
CPI	Consumer Price Index
CTA	Change in Total Asset
EXPAT	Total Expenses over Profit after Tax
FE	Fixed Effects
GDP	Gross Domestic Product
IB	Islamic Banking
LSME	Natural Log of SME Financing
NPL	Non-Performing Loan
PAT	Profit After Tax
RE	Random Effects
ROA	Return on Asset
ROE	Return on Equity
SME	Small and Medium Enterprise
TA	Total Asset
TL	Total Loan
TLTA	Total Loan over Total Loan
VIF	Variance Inflation Factor

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CHAPTER1

INTRODUCTION

1.1 Background of Study

Small and Medium Enterprises (SMEs) have contribute enormously to the economic growth of many countries including Malaysia. In both developed and developing countries, the SME sector plays a fundamental role in promoting economic prosperity through its significant contribution to income creation, absorption of labor and alleviation of poverty. SMEs also contributed to the balanced and sustainable growth, employment generation, development of entrepreneurial skills and contribution to export earnings (Shahchera & Taheri, 2016).

The growth of Small and Medium Enterprise (SME) can be enhanced by having easier access to financing. In the last few decades, a comprehensive financing ecosystem has been put in place to provide diversified funding options for SMEs from both public and private institutions. Financial institutions such as banks provide the bulk of funding to SMEs, accounting for about 97% of total SME lending. Bank lending to SMEs is complemented by Bank Negara Malaysia, other government funding agencies and development financial institutions in the form of schemes and programs. Current financial and non-financial options cover a wide variety of options for every stage of SME business cycle, including for startups and grants for export from public and private institutions.

Despite their important contribution to exports, employment and economic growth, there are many challenges and barriers facing SMEs in Malaysia and for that matter in other countries. One of the major barriers is the access to financing from the

REFERENCES

Abduh, M., & Idrees, Y. (2013). Determinants of Islamic Banking Profitability in Malaysia. *Australian Journal of Basic and Applied Sciences, 7* (2), 204-210.

Abebaw, K. G., & Depaack, K. (2011). What drives the performance of commercial banks in Ethiopia. *International Journal of Research in Commerce and Management, 2*(7), 62–75.

Ahmad, N. H., & Ahmad, S. N. (2004). Key factors influencing credit risk of Islamic bank: A Malaysian case. *The Journal of Muamalat and Islamic Finance Research, 1*(1), 65-80.

Ahmed, A.M., & Khaba, N. (1999). Performance of the banking sector in Saudi Arabia. *Journal of Financial Management & Analysis, 12*(2).

Akhtar, M. F., Ali, K., & Sadaqat, S. (2011). Factors Influencing the Profitability of Islamic Banks of Pakistan. *International Research Journal of Finance and Economics, 66*, 125-132.

Al-Damir, N.A.S. (2014). Factors Affecting the Profitability Of Islamic Banks In GCC Countries. Master Thesis. Universiti Utara Malaysia.

Alkassim, F. (2007). The Profitability of Islamic and Conventional Banking in the GCC Countries: A Comparative Study. Bangor, UK: University of Wales.

Alshatti, A.S. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations, 12*(1-2), 338-345.

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

Al-Tamimi, H., & Hassan, A. (2010). Factors Influencing Performance of the UAE Islamic and Conventional National Banks. 15(37), 102-108.

Al-Wesabi, H., & Ahmad, N. (2013). Credit Risk of Islamic Banks in GCC Countries. *International Journal of Banking and Finance, 10*(2), 120-136.

Amin, H. (2008). Choice criteria for Islamic housing financing: Empirical investigation among Malaysian bank customers. *International Journal of Housing Markets and Analysis, 1*(3), 256-274.

Amin, H., Abdul Rahman, A. R., Abdul Razak, D., & Rizal, H. (2017). Consumer attitude and preference in the Islamic mortgage sector: A study of Malaysian consumers. *Management Research Review, 40*(1), 95-115.

Lindstrand, A., Lindbergh, J. (2011). SMEs' dependency on banks during international expansion. *International Journal of Bank Marketing, 29*(1), 65-83.

Arif, M., Khan, M. Z., & Iqbal, M. (2013). Impact of Bank Size on Profitability: Evidence from Pakistan. *International Journal of Applied Research, 2*, 98-109.

Aver, B. (2008). An empirical analysis of credit risk factors of the Slovenian banking system. *Managing Global Transitions, 6*(3), 317.

Azraa, R. (2015). Determinants of credit risks in Islamic banks in Malaysia (Doctoral dissertation, Universiti Utara Malaysia).

Baltagi, B.H. (2001). *Econometric Analysis of Panel Data.* 2nd edition. England: John Wiley and Sons.

Baltagi, B.H. (2005). *Econometric Analysis of Panel Data.* 3rd Edition, John Wiley and Sons Inc., New York.

Bank Negara Malaysia (2018). Monthly statistical bulletin 2018. Kuala Lumpur: Bank Negara Malaysia.

Bashir, A. H. M. (2003). Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East. *Islamic Economics Studies, 11*(1), 31-57.

Ben Khediri, K., & Ben-Khedhiri, H. (2009). Determinants of Islamic Bank Profitability in the MENA Region. *International Journal of Monetary Economics and Finance, 2*(3), 409-426.

Ben Naceur, Sami and Goaied, Mohamed. The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia (April 1, 2008). *Frontiers in Finance and Economics, 5*(1), 106-130.

Berma, B and Ramlee, S. (2013). Financing Gap in Malaysian Small-Medium Enterprises: A Supply-Side Perspective. *SAJEMS Special Issue, 16*(16). 115-126.

Boadi, I., Dana, L.P., Mertens, G., & Mensah, L. (2017). SMEs' Financing and Banks' Profitability: A "Good Date" for Banks in Ghana?, *Journal of African Business, 18*(2), 257-277, DOI: 10.1080/15228916.2017.1285847

Brooks, C. (2008). *Introductory Econometrics for Finance.* 2nd ed. Cambridge University Press, New York, 10(37), 103-110.

Bukhari, S. A. J., & Qudous, R. A. (2012). Internal and External Determinants of Profitability of Banks Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 3*(9), 1037-1058.

Burhonov, J. (2006). Islamic banking operations of commercial banks under Islamic Banking scheme (IBS) of Malaysia: The performance analysis. Master Thesis. Thammasat University Bangkok, Thailand.

Che, M. Z. C. O., & Nurdiana, M. N. A. (2015). Factors Affecting the Success of Bumiputera Entrepreneurs in Small and Medium Enterprises (SMEs). *International Journal of Management Science and Business Administration, 1*(9), 40-45.

Choong, Y.V., Thim, C.K., & Kyzy, B.T. (2012). Performance of Islamic Commercial Banks in Malaysia: An Empirical Study. *Journal of Islamic Economics, Banking and Finance, 8*(2), 67-80.

Irwin, D., & Scott, J.M. (2010) "Barriers faced by SMEs in raising bank finance", International *Journal of Entrepreneurial Behavior & Research, 16*(3), 245-259.

Davydenko, A. (2010). Determinants of Bank Profitability in Ukraine. *Undergraduate Economic Review, 7*(1), 9-18.

Dawood, U. (2014). Factors Impacting Profitability of Commercial Banks in Pakistan for the Period of (2009-2012). *International Journal of Scientific and Research Publications, 4*(3), 1-7.

Deepak, K., & Abebaw, K. G. (2011). Financial performance and ownership structure of Ethiopian commercial banks. Journal of Economics and International Finance.

Department of Statistics of Malaysia (DOSM), 2018). *National Accounts.* Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=dUtRRlJYWjk2TEJhalBrZml0REY4UT09.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The review of economic studies, 51*(3), 393-414.

Dietrich, A., & Wanzenried, G. (2011). Determinants of Bank Profitability Before and During the Crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money, 21*(3), 307-327.

Dietrich, A., & Wanzenried, G. (2014). The Determinants of Commercial Banking Profitability in Low-, Middle-, and High-Income Countries. *The Quarterly Review of Economics and Finance, 54*(3), 337-354.

Guru, B. K., Staunton, J., & Balashanmugam, B. (2002). Determinants of Commercial Bank Profitability in Malaysia. *Journal of Money, Credit and Banking, 17*, 69-82.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2010). *Multivariate data analysis* seventh edition. New York: Prentice Hall International Inc.

Halim, F. A., Malim, M. R., Derasit, Z., Rani, R. M., & Rashid, S. S. (2017). The impact of macroeconomic variables on SMEs in Malaysia. *Journal of Physics: Conference Series, 890*(1), [012138].

Hamid, A., & Masood, O. (2011). Selection criteria for Islamic housing financing: A case study of Pakistan. *Qualitative Research in Financial Markets, 3*(2), 117- 130.

Haron, S. (2004).Determinants of Islamic bank Profitability. *Global Journal of Finance and Economics, 1*(1).

Hidayat, S.E. & Abduh, M. (2012). Does Financial Crisis Give Impacts on Bahrain Islamic Banking Performance? A Panel Regression Analysis. *International Journal of Economics and Finance. 4*(7).

Idris, A. R., Asari, F. F. A. H., Taufik, N. A. A., Salim, N. J., Mustaffa, R., & Jusoff, K. (2011). Determinant of Islamic Banking Institutions" Profitability in Malaysia.

World Applied Sciences Journal 12 (Special Issue on Bolstering Economic Sustainability), 1(7).

Iqbal, Z. & Mirakhor, A. (2007). *An Introduction to Islamic Finance: Theory and Practice.* John Wiley and Sons, Singapore.

Iqbal, M., & Molyneux, P. (2005), Thirty Years ofIslamic Banking History, Performance and Prospects. Printed in Great Britain by Antony Rowe Ltd, Chippenham and Eastbourne.

Isanzu, J.S. (2017). The Impact of Credit Risk on the Financial Performance of Chinese Banks. *Journal of International Business Research and Marketing, 2*(3), 14-17.

Ishak, M,A.F. (2018). The Impact of Housing Loan / Financing on Bank Risk Performances In A Dual Banking System. Master Thesis. Universiti Utara Malaysia.

Izhar, H. & Asutay, M. (2007). Estimating the Profitability of Islamic Bank: Evidence from Bank Mualamat Indonesia. *Review of Islamic Economics, 11*(2), 17-29.

Jabir, T. T., & Terye, N. D. (2016). Credit Risk Analysis of Ethiopian Banks: A Fixed Effect Panel Data Model. *British Journal of Applied Science and Technology, 15*(1), 1.

Jamal, A. A. A., Karim, M. R. A. & Hamidi, M. (2012). Determinants of Commercial Banks' Return on Asset: Panel Evidence from Malaysia. *International Journal of Commerce, Business and Management, 1*(9).

Khan, I. & Ahmad, A. (2017). Assessing Banks Internal Factors as Determinants ofNon-Performing Loans Evidence from Pakistani Commercial Banks. *Journal of Managerial Sciences, 11*(1).

Khir, K., Gupta, L. & Shanmugam, B. (2007). *Islamic Banking: A Practical Perspective*, Pearson Longman, Petaling Jaya.

Kihimbo, B. W., Ayako, B. A., & Omoka, K. W. (2012). Collateral Requirements for Financing of Small and Medium Enterprises (SMEs) in Kakamega Municipality, Kenya. *International Journal of Current Research, 4*(6), 21-26.

Klonowski, D. (2012). Liquidity gaps in financing the SME sector in an emerging market: evidence from Poland. *International Journal of Emerging Markets, 7*(3), 335-355.

Kutum, I. (2017). The Impact of Credit Risk on the Profitability of Banks Listed on the Palestine Exchange. *Research Journal of Finance and Accounting, 8*(8).

Lenka, S. K., & Sharma, P. (2015). FDI as a Main Determinant of Economic Growth: A Panel Data Analysis. *Journal of Symbiosis Centre for Management Studies, 84*(9).

Li, F., Zou, Y., & Lions, C. (2014). The Impact of credit risk management on profitability of commercial banks: A study of Europe. *Journal of Business and Economics, 4*(1), 1-93.

Macharia, N.J (2016). Determinants of profitability of commercial banks in Kenya.

Mahbub, M., Aqra, M. Shammo, A.M., Yahya, A., & Bashir, N. (2016). Bank Lending Behavior towards SME during Global Financial Crisis 2008: Evidence from Malaysia. *The SIJ Transactions on Industrial, Financial & Business Management (IFBM), 4*(10).

Markowitz, H. M. (1952, March). Portfolio selection. *The Journal of Finance, 7*(1), 77-91.

Markowitz, H. M. (1959). Portfolio selection: Efficient diversification of investments. *The Engineering Economist, 24*, 217-234.

Masato, A. Troilo, M., & Batsaikhan, O. (2015). Financing small and medium enterprises in Asia and the Pacific. *Journal of Entrepreneurship and Public Policy, 4*(1), 2-32.

Molyneux, P., & Thornton, J. (1992). Determinants of European Bank Profitability: A Note. *Journal of Banking & Finance, 16*(6), 1173-1178.

Muda, M. & Shaharuddin, A. & Embaya, A. (2013).Determinants of Bank's Efficiency: A Panel Regression Analysis of Islamic Banks in Malaysia. *Economics and Finance Review, 3*(3), 19-28.

Muda, M., Shaharuddin, A., & Embaya, A. (2013). Profitability Determinants and the Impact of Global Financial Crisis: A Panel Data Analysis of Malaysian Islamic Banks. *Research Journal of Finance and Accounting, 4*(7), 121-130.

Muratbek, D. (2017). Determinants of Non-Performing Loans in Kazakhstan (Doctoral dissertation, Nazarbayev University, School of Humanities and Social Sciences).

Mwaura, I. G. (2013). *The Determinants of Credit Risk in Commercial Banks in Kenya.* University of Nairobi.

Naceur, S. (2003). The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence. Paper presented at the Economic Research Forum (ERF) 10th Annual Conference, Marrakesh-Morocco, 16-18 December.

Nasir, S.M. (2011) Improving Bank's Attitude Towards Financing the Small and Medium Enterprises (SMEs): A Case for Malaysia. Master Thesis. Universiti Malaya.

Newell, G., Yue, W., Wing, C. K., & Kei, W. S. (2010). The development and performance of REITs in Hong Kong. *Pacific Rim Property Journal, 16*(2), 191-206.

Noman, A., Pervin, S., Chowdhury, M., Banna, H. (2015). The Effect of Credit Risk on the Banking Profitability: A Case on Bangladesh. *Global Journal of Management and Business Research: C Finance, 15*, 41-48.

Nyarko-Baasi, M. (2018). Effects of Non-Performing Loans on the Profitability of Commercial Banks - A Study of Some Selected Banks on the Ghana Stock Exchange. *Global Journal of Management and Business Research: C Finance. 18*(2).

Osmadi, A. (2010). The Malaysian development and their role in a portfolio (Doctoral thesis), University of Western Sydney, Australia.

Polodoo, V. (2011). The Role of Small and Medium Enterprises and Bank Profitability - A Mauritian Perspective (December 10, 2011).

Rahman, S., Ali, F., Iqbal, K.,& Ali, Z., (2012). Parameters of Conventional and Islamic Banks Profitability in Pakistan: Evaluation of Internal Factor. *Journal of Finance and Accounting, 3*(3).

Ramadan, I. Z. (2011). Bank-Specific Determinants of Islamic Banks Profitability: An Empirical Study of the Jordanian Market. *International Journal of Academic Research. 3*(6), 73-80.

Ramadan, I. Z., Kilani, Q. A., & Kaddumi, T. A. (2011). Determinants of Bank Profitability: Evidence from Jordan. *International Journal of Academic Research, 3*(4), 180-191.

Rasiah, D. (2010). Theoretical framework of profitability as applied to commercial banks.

Rathnasiri, R.A. (2017). The Impact of Credit Risk on the Profitability of Commercial Banks in Sri Lanka. Department of Banking and Finance, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka, 190-195.

Rundassa, S. & Batra, G. (2016). Impact of credit risk management on the financial performance of Ethiopian commercial banks. *IOSR Journal of Economics and Finance (IOSR-JEF), 7*, 108-116.

Rubinstein, M. (2002). Markowitz's "Portfolio Selection": A fifty-year retrospective. *The Journal of Finance, 57*(3), 1041-1045.

Ruslan, N.H. (2015). Determinants of Islamic and Conventional Banks Profitability in Malaysia. Master Thesis. Universiti Utara Malaysia.

Saleh, A.S. & Ndubisi, N.O. (2006). An evaluation of SME development in Malaysia. *International Review of Business Research Papers, 2*(1), 1-14.

Said, R. M., & Mohd, H. T. (2011). Performance and Financial Ratios of Commercial Banks in Malaysia and China.

Scholtens, B., & Van Wensveen, D. (2000). A critique on the theory of financial intermediation. *Journal of Banking and Finance, 24*(8), 1243-1251.

Schumpeter, J.A. (1911). *The Theory of Economic Development*. Harvard University Press, Cambridge.

Shahchera, M., & Taheri, M. (2016). Loan to SME and banking profitability: an Iranian perspective. Paper presented at the Annual E-Banking and Payment Systems (EBPS5) 5th Annual Conference, Tehran, Iran.

SMIDEC (2002), "SMI Development Plan (2001-2005)", Percetakan Nasional Malaysia Berhad, Kuala Lumpur.

Smirlock, M. (1985). Evidence on the Non-Relationship between Concentration and Profitability in Banking. *Journal of Money, Credit and Banking, 17*(1), 69-83.

Sufian, F. (2009). Factors Influencing Bank Profitability in a Developing Economy: Empirical Evidence from Malaysia. *Global Business Review, 10*(2), 225–241.

Sufian, F. (2011). Profitability of the Korean Banking Sector: Panel Evidence on Bank-Specific and Macroeconomic Determinants. *Journal of Economics and Management, 7*(1), 43-72.

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

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

Sufian, F., & Habibullah, M. S. (2012). Globalizations and Bank Performance in China. *Research in International Business and Finance, 26*(2), 221-239.

Syafri (2012). Factors affecting bank profitability in Indonesia. Paper presented at the International Conference on Business and Management, Phuket, Thailand. 6-7 September, 2012.

Tabash, M. I., & Dhankar, R. S. (2014). The Impact of Global Financial Crisis on the Stability of Islamic Banks: An Empirical Evidence. *Journal of Islamic Banking and Finance, 2*(1), 367-388.

Tafri, F. H., Hamid, Z., Meera, A. K. M., & Omar, M.A. (2009). The Impact of Financial Risks on Profitability of Malaysian Commercial Banks: 1996-2005. *International Journal of Social, Education, Economics and Management Engineering, 3*(6), 228-242.

Tan, Y., & Floros, C. (2012). Bank profitability and Inflation, The case of China. *Journal of Economic Studies, 39*(6), 675-696.

Tanasković, S., & Jandrić, M. (2015). Macroeconomic and institutional determinants of non-performing loans. *Journal of Central Banking Theory and Practice, 4*(1), 47-62.

Tariq, W., Muhammad, U., Haseeb, Z., Inam, A. & Imran, A. (2014). Determinants of Commercial Banks Profitability: Empirical Evidence from Pakistan. *International Journal of Accounting and Financial Reporting, 4* (2), 1-22.

Usman, F.H.E. (2014). Macroeconomic Determinants of Home Financing In Malaysia: A Comparative Analysis of Conventional and Islamic Banks. Master Thesis. Universiti Utara Malaysia.

Vejzagic, M., & Zarafat, H. (2013).An Analysis of Macroeconomic Determinants of Commercial Banks Profitability in Malaysia for the Period 1995-2011. *Journal of Asian Economy and Financial Review, 4*(1).

Vejzagic, M., & Zarafat, H. (2014). An Analysis of Macroeconomic Determinants of Commercial Banks Profitability in Malaysia for the Period 1995-2011. *Asian Economic and Financial Review, 4(*1), 41-57.

Vong, A. I., & Chan, H. S. (2008). Determinants of Bank Profitability in Macao. *Journal of Economics and Finance, 7*(19), 93-109.

Vong, A., & Hoi, S. (2009). Determinants of Bank Profitability in Macao. Faculty of Business Administration, University of Macau.

Vong, P. I., & Chan, H. S. (2009). Determinants of Bank Profitability in Macao. *Macau Monetary Research Bulletin, 12*(6), 93-113.

Wan Johi, S.M. (2017). The Effect of Financial Risk Management on the Financial Performance of Commercial Banks in Kenya. *International Journal of Finance and Banking Research, 3*(5), 70.

Wasiuzzaman, S. & Tarmizi, H. A. B. A. (2010). Profitability of Islamic Banks in Malaysia: An Empirical Analysis. *Journal of Islamic Economics, Banking and Finance, 6*(4), 53-68.

Wooldridge J.M., (2001). *Econometric Analysis of Cross Section and Panel Data.* The MIT Press.

Wooldridge, J.M. (2003). Cluster-Sample Methods in Applied Econometrics. *American Economic Review, 93*, 133-138.

Yahaya, S.N., Mansor, N. & Bakar, M.H. (2016). Credit Risk: The Conceptual Framework of SME Financing. *IJRRAS. 26*(3).

Yap, V. C., Chan, K. T., & Kyzy, B. T. (2012). Performance of Islamic Commercial Banks in Malaysia: An Empirical Study. *Journal of Islamic Economics, Banking and Finance, 8*(2), 67-80.

Yuqi, L. (2006). Determinants of Banks. Profitability and its Implication on Risk Management Practices: Panel Evidence from the UK in the Period 1999-2006; University of Nottingham.

Zantioti, L. E. (2009). Does Islamic Bank Performance Differ by Region? Unpublished Master Thesis, Stockholm School of Economics. Retrieved from: arc.hhs.se/download.aspx?MediumId=842.

Zeitun, R. (2012). Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis. *Global Economy and Finance Journal, 5*(1), 53-72.

APPENDIX A

REGRESSION OUTPUT

CONVENTIONAL BANKING

1. Description

```
. xtsum roa nim ta exp sme pat tl npl
```

Variable		Mean	Std. Dev.	Min	Max	Observations
roa	overall	1.222278	1.10084	-.79	11.13	N = 158
	between		.3157688	.8446154	1.734286	n = 12
	within		1.057859	-.4360549	10.70843	T-bar = 13.1667
nim	overall	2.087707	.5635543	.83	7.05	N = 157
	between		.3214165	1.467273	2.825714	n = 12
	within		.4743499	1.279525	6.869246	T-bar = 13.0833
ta	overall	1.07e+08	1.03e+08	7949599	5.10e+08	N = 158
	between		9.94e+07	3.34e+07	3.59e+08	n = 12
	within		4.73e+07	-3.32e+07	2.57e+08	T-bar = 13.1667
exp	overall	1341448	1142746	282823	5880703	N = 158
	between		1127760	447985.9	4231294	n = 12
	within		482033.3	-816957.7	2990857	T-bar = 13.1667
sme	overall	1.15e+07	1.31e+07	408123	6.37e+07	N = 158
	between		1.19e+07	588597.6	3.74e+07	n = 12
	within		7132990	-1.45e+07	4.04e+07	T-bar = 13.1667
pat	overall	1213247	1294862	-331165	6422644	N = 158
	between		1171607	315800.4	3994662	n = 12
	within		717169.5	-3112580	3641229	T-bar = 13.1667
tl	overall	6.53e+07	6.06e+07	1.38e+07	3.00e+08	N = 158
	between		5.32e+07	2.14e+07	1.79e+08	n = 12
	within		3.50e+07	-8.43e+07	1.86e+08	T-bar = 13.1667
npl	overall	2.307342	1.942921	.44	13.75	N = 158
	between		1.079059	.8715385	4.566154	n = 12
	within		1.644684	-.4788121	11.49119	T-bar = 13.1667

2. Correlation

. cor cta expat lsme tlta cnpl gdp blr cpi

	cta	expat	lsme	tlta	cnpl	gdp	blr	cpi
cta	1.0000							
expat	-0.0234	1.0000						
lsme	0.0582	-0.0888	1.0000					
tlta	-0.1514	-0.0218	0.0541	1.0000				
cnpl	-0.0437	0.0940	0.0251	0.2956	1.0000			
gdp	-0.0020	0.0340	0.0298	0.0532	0.1626	1.0000		
blr	0.0020	0.0937	0.1692	0.0334	-0.0676	0.5706	1.0000	
cpi	-0.0392	-0.0224	-0.0105	0.0124	-0.1778	0.3874	0.5264	1.0000

3. Regression for ROA Model

. reg roa cta expat lsme tlta cnpl gdp blr cpi

Source	SS	df	MS	Number of obs	=	146
				F(8, 137)	=	117.69
Model	160.295076	8	20.0368845	Prob> F	=	0.0000
Residual	23.3241934	137	.170249587	R-squared	=	0.8730
				Adj R-squared	=	0.8656
Total	183.619269	145	1.26633979	Root MSE	=	.41261

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
cta	-.0292773	.046362	-0.63	0.529	-.1209549	.0624003
expat	-.0104231	.0037308	-2.79	0.006	-.0178004	-.0030457
lsme	-.0722309	.0310476	-2.33	0.021	-.1336254	-.0108363
tlta	1.372493	.0496226	27.66	0.000	1.274367	1.470618
cnpl	.2347291	.0896136	2.62	0.010	.0575244	.4119338
gdp	-.0018563	.0210242	-0.09	0.930	-.0434302	.0397177
blr	.0647104	.1359704	0.48	0.635	-.2041616	.3335825
cpi	.0347113	.0345731	1.00	0.317	-.0336546	.1030773
_cons	.9416983	.8378371	1.12	0.263	-.7150669	2.598463

4. Variation Inflation Factor

```
. vif
    Variable |       VIF       1/VIF
-------------+----------------------
         blr |      1.92    0.519903
         gdp |      1.64    0.608470
         cpi |      1.50    0.667672
        cnpl |      1.24    0.803310
        tlta |      1.13    0.882672
        lsme |      1.07    0.932797
       expat |      1.05    0.956929
         cta |      1.03    0.970140
-------------+----------------------
    Mean VIF |      1.32
```

```
. 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 |     1.26634        1.125318
               e |    .1012996         .318276
               u |    .0929772        .3049216

        Test:   Var(u) = 0

                            chibar2(01) =    117.22
                         Prob> chibar2 =    0.0000
```

5. Hausman Test

. **hausman fe**

	---- Coefficients----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	.	Difference	S.E.
cta	-.0197647	-.0193882	-.0003765	.0047158
expat	-.0046119	-.0050389	.0004269	.0003672
lsme	-.1854589	-.1262531	-.0592058	.0509388
tlta	1.439162	1.432622	.0065398	.0053974
cnpl	.1910167	.1876185	.0033982	.0103966
gdp	-.0024045	-.0005149	-.0018896	.0024006
cpi	.0244433	.0296936	-.0052504	.0051282
blr	.1198778	.0758217	.0440561	.0416255

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(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 4.08

Prob>chi2 = 0.8495

6. Heteroscedacity Test

. **xttest3**

Modified Wald test for groupwise heteroskedasticity

in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (12) = 1699.46

Prob>chi2 = 0.0000

7. Autocorrelation Test

```
. xtserial cta expat lsme tlta cnpl gdp cpi blr

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      11) =    2399.549
           Prob> F =      0.0000
```

8. Regression for ROA model with robust standard errors

```
. xtreg roa cta expat lsme tlta cnpl gdp cpi blr, re robust

Random-effects GLS regression                   Number of obs      =       146
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.9242                         Obs per group: min =        10
       between = 0.3833                                        avg =      12.2
       overall = 0.8677                                        max =        13

                                                Wald chi2(8)       =   2247.57
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 12 clusters in code)
------------------------------------------------------------------------------
             |               Robust
         roa |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cta |  -.0193882   .0185935    -1.04   0.297    -.0558307    .0170543
       expat |  -.0050389   .0015722    -3.21   0.001    -.0081202   -.0019575
        lsme |  -.1262531   .0628141    -2.01   0.044    -.2493664   -.0031398
        tlta |   1.432622   .1694156     8.46   0.000     1.100573    1.76467
        cnpl |   .1876185   .1352245     1.39   0.165    -.0774167    .4526537
         gdp |  -.0005149   .0213469    -0.02   0.981    -.0423541    .0413243
         cpi |   .0296936   .0148521     2.00   0.046     .0005842    .0588031
         blr |   .0758217   .1214962     0.62   0.533    -.1623065    .3139499
       _cons |   1.674372    1.18761     1.41   0.159     -.653301    4.002045
-------------+----------------------------------------------------------------
     sigma_u |  .30492163
     sigma_e |  .31827598
         rho |  .47858107   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

9. Regression for NIM Model

. reg nim cta expat lsme tlta cnpl gdp blr cpi

Source	SS	df	MS	Number of obs	=	146
				F(8, 137)	=	4.06
Model	9.44794429	8	1.18099304	Prob> F	=	0.0002
Residual	39.8312564	137	.290739097	R-squared	=	0.1917
				Adj R-squared	=	0.1445
Total	49.2792006	145	.339856556	Root MSE	=	.5392

nim	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
cta	.0034666	.0605858	0.06	0.954	-.1163375	.1232708
expat	.0005553	.0048754	0.11	0.909	-.0090855	.0101961
lsme	-.1714131	.040573	-4.22	0.000	-.2516434	-.0911828
tlta	-.0070202	.0648468	-0.11	0.914	-.1352502	.1212098
cnpl	.0630075	.1171069	0.54	0.591	-.1685634	.2945783
gdp	.0423837	.0274744	1.54	0.125	-.011945	.0967125
blr	-.4640398	.1776859	-2.61	0.010	-.8154014	-.1126781
cpi	.0300683	.0451801	0.67	0.507	-.0592721	.1194088
_cons	7.515411	1.094884	6.86	0.000	5.350353	9.68047

. xttest0

Ereusch and Pagan Lagrangian multiplier test for random effects

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

Estimated results:

	Var	sd = sqrt(Var)
nim	.3398566	.5829722
e	.2342799	.4840247
u	.1065892	.3264801

Test: Var(u) = 0

chibar2(01) = 26.18

Prob> chibar2 = 0.0000

10. HausmanTest

. **hausman fe**

	---- Coefficients----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	.	Difference	S.E.
cta	-.0198051	-.0147825	-.0050226	.0116296
expat	.0021088	.0019358	.000173	.0009225
lsme	-.2363272	-.191303	-.0450242	.0905126
tlta	-.0029073	-.003174	.0002667	.0132139
cnpl	.0210271	.0224097	-.0013825	.0235791
gdp	.0428502	.0441013	-.0012511	.0053772
cpi	.0166713	.0219468	-.0052756	.0105904
blr	-.4209435	-.4558331	.0348896	.076895

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(8) = (b-B)' [(V_b-V_B)^(-1)] (b-B)

= 0.57

Prob>chi2 = 0.9998

11. Heteroscedacity Test

. xttest3

Modified Wald test for groupwise hetcroskedasticity in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

Chi2 (12) = 1519.76

Prob>chi2 = 0.0000

12. Autocorrelation Test

```
. xtserial cta expat lsme tlta cnpl gdp cpi blr

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

    F(  1,       11) =    2399.549

          Prob> F =       0.0000
```

13. Regression for NIM model with robust standard errors

```
. xtreg nim cta expat lsme tlta cnpl gdp cpi blr, re robust

Random-effects GLS regression                   Number of obs      =       146
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.1379                         Obs per group: min =        10
       between = 0.2998                                        avg =      12.2
       overall = 0.1895                                        max =        13

                                                Wald chi2(8)       =    135.97
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                  (Std. Err. adjusted for 12 clusters in code)
------------------------------------------------------------------------------
             |               Robust
         nim |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cta |  -.0147825   .0134669    -1.10   0.272    -.0411772    .0116121
       expat |   .0019358   .0007081     2.73   0.006     .0005479    .0033237
        lsme |   -.191303   .0910396    -2.10   0.036    -.3697374   -.0128685
        tlta |   -.003174   .0295541    -0.11   0.914    -.0610989    .0547509
        cnpl |   .0224097   .1142492     0.20   0.844    -.2015146    .2463339
         gdp |   .0441013   .0503809     0.88   0.381    -.0546434    .1428461
         cpi |   .0219468   .0189944     1.16   0.248    -.0152815    .0591752
         blr |  -.4558331   .3498043    -1.30   0.193    -1.141437    .2297707
       _cons |   7.779518   1.298331     5.99   0.000     5.234837    10.3242
-------------+----------------------------------------------------------------
     sigma_u |  .32648009
     sigma_e |  .48402465
         rho |  .31269846   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

ISLAMIC BANKING

1. Description

. xtsum roa nim ta exp sme pat tl npl

Variable		Mean	Std. Dev.	Min	Max	Observations	
roa	overall	.7798148	1.011559	-8.96	3.78	N =	162
	between		.4122345	.0492857	1.602143	n =	12
	within		.9286409	-8.229471	2.957672	T-bar =	13.5
nim	overall	2.043067	1.115444	-6.18	4.57	N =	150
	between		.3513431	1.5025	2.583077	n =	12
	within		1.063037	-6.372318	4.577682	T-bar =	12.5
ta	overall	2.04e+07	2.99e+07	838956	2.02e+08	N =	162
	between		2.33e+07	1651518	8.80e+07	n =	12
	within		2.01e+07	-4.56e+07	1.35e+08	T-bar =	13.5
exp	overall	201242.5	251861.1	840	1340351	N =	162
	between		205024.3	2824.714	620951.8	n =	12
	within		157150.7	-399127.3	920641.7	T-bar =	13.5
sme	overall	1484490	2562555	0	1.71e+07	N =	161
	between		2002767	23584.08	7553800	n =	12
	within		1720278	-3650637	1.11e+07	T-bar =	13.4167
pat	overall	159449.5	285374.9	-1307963	1737084	N =	162
	between		202099.3	25903.64	748224.8	n =	12
	within		211474.6	-1351532	1148309	T-bar =	13.5
tl	overall	1.38e+07	2.36e+07	12666	1.64e+08	N =	162
	between		1.82e+07	388426.1	6.81e+07	n =	12
	within		1.61e+07	-3.73e+07	1.09e+08	T-bar =	13.5
npl	overall	2.298148	2.858044	.1	24.92	N =	162
	between		1.456115	1.028462	5.556429	n =	12
	within		2.485667	-2.32828	23.37738	T-bar =	13.5

2. Correlation

. cor eta expat lsme tlta cnpl gdp cpi blr

	cta	cxpat	lsme	tlta	cnpl	gdp	cpi	blr
cta	1.0000							
expat	-0.0857	1.0000						
lsme	0.0688	0.0944	1.0000					
tlta	-0.1755	-0.0063	0.5786	1.0000				
cnpl	0.0177	0.0211	-0.0462	-0.0834	1.0000			
gdp	0.0475	-0.1123	-0.0025	0.0759	0.0303	1.0000		
cpi	-0.0123	-0.1419	-0.0142	0.0058	-0.1521	0.3833	1.0000	
blr	-0.0553	-0.0593	0.2137	0.2470	-0.0384	0.5694	0.5220	1.0000

3. Regression for ROA model

```
. reg roa eta expat lsme tlta cnpl gdp cpi blr
```

Source	SS	df	MS	Number of obs	=	145
Model	7.94494839	8	.993118549	F(8, 136)	=	0.97
Residual	139.110249	136	1.02286948	Prob> F	=	0.4614
				R-squared	=	0.0540
				Adj R-squared	=	-0.0016
Total	147.055197	144	1.02121665	Root MSE	=	1.0114

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
cta	.185722	.400038	0.46	0.643	-.6053775	.9768214
expat	-.0766125	.0507213	-1.51	0.133	-.1769169	.0236918
lsme	-.0963056	.0617964	-1.56	0.121	-.2185117	.0259005
tlta	.3690294	.6832588	0.54	0.590	-.9821564	1.720215
cnpl	.0014022	.0601704	0.02	0.981	-.1175883	.1203928
gdp	.0063982	.0503148	0.13	0.899	-.0931024	.1058987
cpi	-.1421877	.0845752	-1.68	0.095	-.3094403	.0250648
blr	.2314339	.3381817	0.68	0.495	-.4373409	.9002087
_cons	.7736585	1.92006	0.40	0.688	-3.023377	4.570693

4. Variance Inflation Factor

```
. vif
```

Variable	VIF	1/VIF
blr	1.98	0.503819
tlta	1.69	0.592209
lsme	1.66	0.601311
gdp	1.57	0.638119
cpi	1.50	0.668804
cta	1.11	0.900635
expat	1.05	0.949421
cnpl	1.04	0.958547
Mean VIF	1.45	

5. Regression for ROA model with robust standard errors

```
. xtreg roa cta expat lsme tlta cnpl gdp cpi blr, re robust

Random-effects GLS regression                   Number of obs      =       145
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.0373                         Obs per group: min =         8
       between = 0.7439                                        avg =      12.1
       overall = 0.1342                                        max =        13

                                                Wald chi2(8)       =    125.95
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                          (Std. Err. adjusted for 12 clusters in code)
------------------------------------------------------------------------------
             |               Robust
         roa |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cta |   .0224733   .1761552     0.13   0.898    -.3227845    .3677312
       expat |  -56.01278   23.71445    -2.36   0.018    -102.4922   -9.533318
        lsme |   -.086537   .0555557    -1.56   0.119    -.1954242    .0223502
        tlta |   .6859858   .8507479     0.81   0.420    -.9814494    2.353421
        cnpl |   .0137752   .0102469     1.34   0.179    -.0063083    .0338586
         gdp |   .0372492   .0298216     1.25   0.212    -.0212001    .0956985
         cpi |   -.187358   .0969489    -1.93   0.053    -.3773744    .0026584
         blr |    .070436   .3426374     0.21   0.837     -.601121     .741993
       _cons |   1.94433    1.766924     1.10   0.271    -1.518777    5.407436
-------------+----------------------------------------------------------------
     sigma_u |           0
     sigma_e |  .96569037
         rho |           0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

6. Regression for NIM model

```
. reg nim cta expat lsme tlta cnpl gdp cpi blr
```

Source	SS	df	MS	Number of obs	=	142
				F(8, 133)	=	1.76
Model	15.8628267	8	1.98285334	Prob > F	=	0.0912
Residual	150.136579	133	1.12884646	R-squared	=	0.0956
				Adj R-squared	=	0.0412
Total	165.999406	141	1.17730075	Root MSE	=	1.0625

nim	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
cta	-.0712898	.4219449	-0.17	0.866	-.9058804	.7633007
expat	.0304971	.0533832	0.57	0.569	-.0750927	.1360869
lsme	-.0784268	.0652785	-1.20	0.232	-.2075451	.0506915
tlta	1.220436	.7187901	1.70	0.092	-.2013028	2.642175
cnpl	.0059898	.0634371	0.09	0.925	-.1194863	.1314659
gdp	.0935955	.0529891	1.77	0.080	-.0112149	.1984059
cpi	-.2161528	.0894005	-2.42	0.017	-.3929835	-.0393221
blr	-.2137327	.358511	-0.60	0.552	-.9228535	.4953881
_cons	3.847621	2.039637	1.89	0.061	-.1867025	7.881944

7. Regression for NIM model with robust standard errors

```
. xtreg nim cta expat lsme tlta cnpl gdp cpi blr, fe robust

Fixed-effects (within) regression               Number of obs      =       142
Group variable: code                            Number of groups   =        12

R-sq:  within  = 0.1359                         Obs per group: min =         8
       between = 0.1066                                        avg =      11.8
       overall = 0.1128                                        max =        13

                                                F(8,11)           =     42.13
corr(u_i, Xb)  = -0.3388                        Prob > F          =    0.0000

                                    (Std. Err. adjusted for 12 clusters in code)
------------------------------------------------------------------------------
             |               Robust
         nim |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         cta |   .0707361   .1914036     0.37   0.719    -.3505404    .4920125
       expat |   68.25846   42.86135     1.59   0.140    -26.07872    162.5956
        lsme |  -.0800822   .0583562    -1.37   0.197    -.2085232    .0483589
        tlta |  -.2628486   1.142917    -0.23   0.822    -2.778392    2.252695
        cnpl |   -.001707   .0161059    -0.11   0.917    -.0371559    .0337418
         gdp |   .0573505   .0311946     1.84   0.093    -.0113084    .1260094
         cpi |  -.1639384   .1378207    -1.19   0.259    -.4672798    .1394031
         blr |   .1134903   .4175489     0.27   0.791    -.8055287    1.032509
       _cons |   1.996333   2.107547     0.95   0.364    -2.642346    6.635013
-------------+----------------------------------------------------------------
     sigma_u |  .38812305
     sigma_e |  1.0297511
         rho |  .12438991   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```