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**THE EFFECT OF INTELLECTUAL CAPITAL ON
MALAYSIAN BANKS FINANCIAL PERFORMANCES:
COMPARATIVE STUDY ON CONVENTIONAL AND
ISLAMIC BANKS**



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**MASTER OF SCIENCE (BANKING)
UNIVERSITI UTARA MALAYSIA
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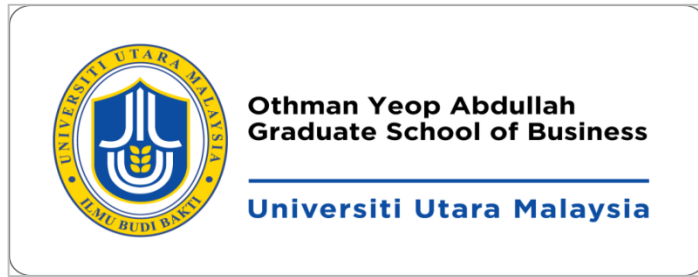
**THE EFFECT OF INTELLECTUAL CAPITAL ON MALAYSIAN BANKS
FINANCIAL PERFORMANCES: COMPARATIVE STUDY ON
CONVENTIONAL AND ISLAMIC BANKS**



By
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**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
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in Partial Fulfillment of the Requirement for the Master of Science (Banking)**



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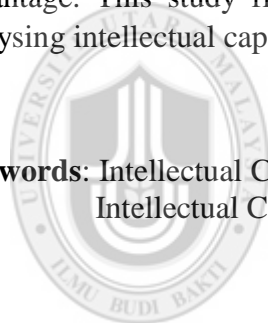


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ABSTRACT

In ultra competitive banking industry nowadays, banks could not solely rely on monetary capital for competitive advantage. In this respect, intellectual capital (intangible asset) emerged as viable resources for banks. AFAS (ASEAN Framework Agreement on Services) which will commence in 2020 has put prominence on intellectual capital. This research aims to examine relationship between intellectual capital and financial performances of 32 Malaysian banks (conventional and Islamic) for eight years from 2008 to 2015. In this respect, comparative study between conventional and Islamic banks are undertaken. Value added intellectual coefficient (VAIC) technique is utilised to compute banks' value added performances. Profitability proxies such as return on asset, return on equity, and data envelopment analysis' efficiency are used. The banks intellectual capital (human capital, structural capital) and physical capital (capital employed) effect on banks financial performances had been computed by utilisation of panel data estimation method. The results of this research study showed relationships between intellectual capital and banks financial performances between Malaysian conventional and Islamic banks are varied. Moreover, study findings implied intellectual capital is crucial for banks competitive advantage. This study findings can assist banks decision makers and investors in analysing intellectual capital position of Malaysian financial institutions.

Keywords: Intellectual Capital, Return on Asset, Return on Equity, Value Added Intellectual Coefficient

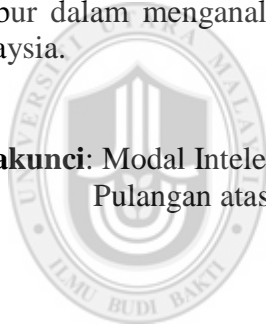


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ABSTRAK

Dalam industri perbankan yang sangat kompetitif pada masa kini, bank tidak boleh hanya bergantung pada modal kewangan untuk memperoleh kelebihan daya saing. Dalam hal ini, modal intelek (aset tidak ketara) muncul sebagai sumber yang penting untuk bank. AFAS (Perjanjian Rangka Kerja Perkhidmatan ASEAN) yang akan bermula pada tahun 2020 telah menonjolkan kepentingan modal intelek. Objektif kajian ini adalah untuk mengkaji hubungan antara modal intelek dan prestasi kewangan 32 bank Malaysia (konvensional dan Islam) selama lapan tahun daripada tahun 2008 hingga 2015. Dalam hal ini, kajian perbandingan di antara bank konvensional dan Islam telah dijalankan. Teknik nilai pekali intelek tambahan (VAIC) telah digunakan untuk mengira nilai prestasi tambahan bank. Proksi-proksi keuntungan seperti pulangan atas aset, pulangan atas ekuiti, dan kecekapan analisis kecekapan telah digunakan. Kesan modal intelektual bank (modal insan, struktur modal) dan modal fizikal (modal kewangan) terhadap prestasi kewangan bank telah dikira dengan menggunakan kaedah anggaran data panel. Keputusan kajian ini telah menunjukkan hubungan antara modal intelek dan prestasi kewangan antara bank konvensional dan Islam di Malaysia adalah berbeza. Selain itu, keputusan kajian telah menunjukkan modal intelek adalah penting untuk kelebihan daya saing bank. Keputusan kajian ini akan dapat membantu bank dan pelabur dalam menganalisis kedudukan modal intelek dalam institusi kewangan di Malaysia.

Katakunci: Modal Intelek, Nilai Pekali Intelek Tambahan, Pulangan atas Aset, Pulangan atas Ekuiti



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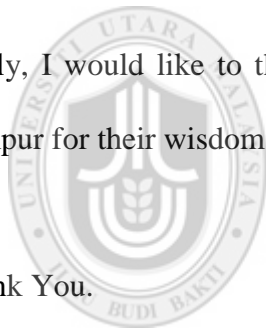


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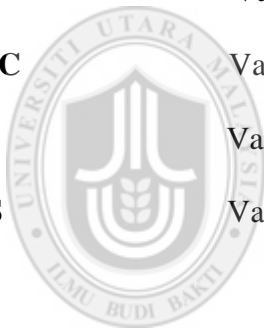
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LIST OF ABBREVIATIONS

AFAS	ASEAN Framework Agreement on Services
AFTA	Association of Southeast Asian Nations Free Trade Area
ASEAN	Association of Southeast Asian Nations
BCC	Banker, Charnes and Cooper Model
BIMB	Bank Islam Malaysia Berhad
BMMB	Bank Muamalat Malaysia Berhad
BNM	Central Bank of Malaysia
CE	Capital Employed
CEE	Capital Employed Efficiency
DEA	Data Envelopment Analysis
DFI	Development Financial Institutions
DFIA	Development Financial Institutions Act
EFF	Efficiency
FSMP	Financial Sector Master Plan
GDP	Gross Domestic Product
GLC	Government Linked Companies
GLS	Generalised Least Squares
HC	Human Capital
HCE	Human Capital Efficiency
IBS	Islamic Banking Scheme
IFSB	Islamic Financial Services Board
IV	Independent Variables
LEV	Leverage

MYR	Malaysia Ringgit
OLS	Ordinary Least Squares
PLS	Profit and Loss Sharing
ROA	Return on Asset
ROE	Return on Equity
SAB	Shari'ah Advisory Body
SAC	Shari'ah Advisory Council
SC	Structural Capital
SCE	Structural Capital Efficiency
SE	Standard Error
VA	Value Added
VAIC	Value Added Intellectual Coefficient
VIF	Variance Inflation Factor
VRS	Variable Return to Scale



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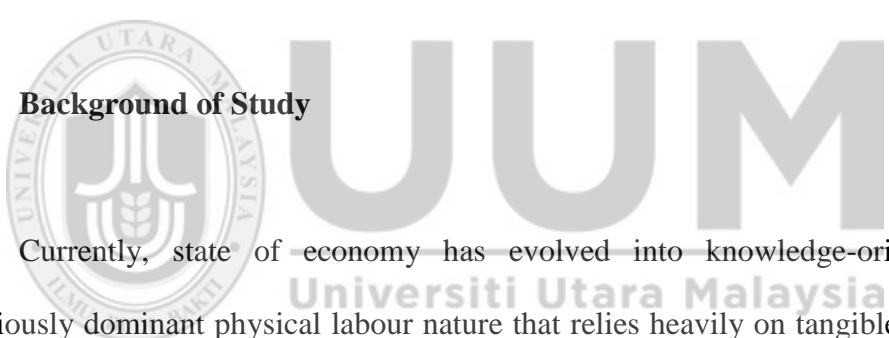
CHAPTER ONE

INTRODUCTION

1.0 Introduction

This introductory chapter aims to provide an overall picture of area of study. The chapter is organised into eight sections. It essentially describes research study' background, problem statement, research questions, research objectives, significant of study, scope and limitations, and thesis organisation. Finally, chapter summary is presented.

1.1 Background of Study



Currently, state of economy has evolved into knowledge-oriented from previously dominant physical labour nature that relies heavily on tangible asset. This scenario places more importance towards knowledge, skilled employees and information technology systems. Thus, according to Guthrie and Petty (2000), most developed economies in the world had put prominence on intangible asset (service-oriented field) in relative to physical-oriented industry such as commodity and manufacturing. This is evident as service industries significantly dominating developed countries' gross domestic product (GDP).

According to Cardinal (2001), it is inevitable for firms to face competitive environment nowadays as a result of rapid globalization and technology improvement. This scenario has placed significant importance on intellectual capital (intangible asset).

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REFERENCES

- Ahmad, S. and Khanal, D.R. (2007), "Services Trade in Developing Asia: A Case Study of the Banking and Insurance Sector in Bangladesh," *Asia-Pacific Research and Training Network on Trade*, Vol.38, pp. 1-38.
- Akhtar, M. H. (2010), "Are Saudi Banks Productive and Efficient?" *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 3, No. 2, pp. 95-112.
- Akpinar, A.T. and Akdemir, A. (1999), "Intellectual Capital," *Third European Conference*, pp. 332-340.
- Al-Musali, M.A.K. and Ismail, K.N.I.K. (2014), "Intellectual Capital and Its Effect on Financial Performance of Banks: Evidence from Saudi Arabia," *Procedia - Social and Behavioural Sciences*, Vol.164, pp. 201 – 207.
- Andriessen, D. (2004), "IC Valuation and Measurement: Classifying the State of the Art," *Journal of Intellectual Capital*, Vol.5, No.2, pp. 230-242.
- Avkiran, N. K. (2008), "Assessing the Real Profit Efficiency of Banks in Less Regulated Markets," *Journal of Applied Finance*, Vol. 1, pp. 35-39.
- Banker, R. D., Charnes, A. and Cooper, W. W. (1984), "Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis", *Management Science*, Vol. 30, pp. 1078–1092.
- Barney, J. (1991), "Firm Resources and Sustainable Competitive Advantage," *Journal of Management*, Vol.17, No.1, pp. 99-120.
- Becker, B.E., Huselid, M.A. and Ulrich, D. (2001), "The HR Scorecard: Linking People, Strategy and Performance," Harvard Business Press Books
- Bharadwaj, A.S. (2000), "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation," *MIS Quarterly*, Vol.24, No.1, pp. 169-196.

- Bontis, N. (1998), "Intellectual Capital: An Exploratory Study that Develops Measures and Models," *Management Decision*, Vol.36, No.2, pp. 63-76.
- Bontis, N. (1999), "Managing Organizational Knowledge by Diagnosing Intellectual Capital: Framing and Advancing the State of the Field," *International Journal of Technology Management*, Vol.18, No.5-8, pp. 433-463.
- Bontis, N., Keow, W. C. C. and Richardson, S. (2000), "Intellectual Capital and Business Performance in Malaysian Industries," *Journal of Intellectual Capital*, Vol.1, No. 1, pp. 85-100.
- Bozbura, F.T. (2004), "Measurement and Application of Intellectual Capital In Turkey," *The Learning Organization*, Vol. 11, No. 4-5, pp. 357-67.
- Bueno, E., Salmador, M. P., Rodríguez, Ó., and Castro, G. M.D. (2006), "Internal Logic of Intellectual Capital: A Biological Approach," *Journal of Intellectual Capital*, Vol.7, No.3, pp. 394-405.
- Burgman, R. J., Roos, G., Ballow, J. J. and Thomas, R. J. (2005), "No Longer 'Out of Sight, Out of Mind' Intellectual Capital Approach In Asset Economics Inc. and Accenture LLP," *Journal of Intellectual Capital*, Vol.6, No.4, pp. 588-614.
- Cabrita, M. and Vaz, J. (2005), "Intellectual Capital and Value Creation: Evidence from the Portuguese Banking Industry," *The Electronic Journal of Knowledge Management*, Vol.4, No.1, pp.11-20.
- Cardinal, L.B. (2001), "Technological Innovation in the Pharmaceutical Industry: The Use of Organizational Control in Managing Research and Development," *Organization Science*, Vol.12, No.1, pp. 19-36.
- Chan, K. H. (2009), "Impact of Intellectual Capital on Organizational Performance: An Empirical Study of Companies in the Hang Seng Index (Part 1)," *The learning Organization*, Vol.16, No.1, pp. 4-21.
- Chen, M. C., Cheng, S. J. and Hwang, Y. (2005), "An Empirical Investigation of the Relationship between Intellectual Capital and Firms' Market Value and Financial Performance," *Journal of Intellectual*

Capital, Vol.6, No.2, pp. 159–176.

Chong, B.S. and Liu, M.H. (2009), “Islamic Banking: Interest-Free or Interest Based?,” *Pacific-Basin Finance Journal*, Vol.17, pp. 125–144.

Choudhury, J. (2010), “Performance Impact of Intellectual Capital: A Study of Indian IT Sector,” *International Journal of Business and Management*, Vol.5, No.9, pp. 72-80

Coelli, T. (1996), “A Guide to DEAP Version 2.1: A Data Envelopment Analysis (Computer) Program,” *Centre for Efficiency and Productivity Analysis Working Paper*, pp 1-49.

Conner, K.R., and Prahalad, C.K. (1996), “A Resource-Based Theory of the Firm: Knowledge versus Opportunism,” *Organisation Science*, Vol.7, No.5, pp. 477-501.

Core, J., Holthausen, R. and Larcker, D. (1999), “Corporate Governance, Chief Executive Officer Compensation and Firm Performance,” *Journal of Financial Economics*, Vol.51, pp.371-406.

Coskun, A.Y.M. (2007), “Intellectual Capital Performance of Quoted Banks on the Istanbul Stock Exchange Market,” *Journal of Intellectual Capital*, Vol. 8, No. 2, pp. 256 – 271.

Dar, H.A., and Presley, J.R. (2000), “Lack of Profit Loss Sharing in Islamic Banking: Management and Control Imbalances,” *International Journal of Islamic Financial Services*, Vol.2, No.2, pp. 4-27.

Edvinsson, L. and Sullivan, P. (1996), “Developing a Model for Managing Intellectual Capital,” *European Management Journal*, Vol.14, No.4, pp. 356-364.

El-Bannany, M. (2008), “A Study of Determinants of Intellectual Capital Performance in Banks: The UK Case,” *Journal of Intellectual Capital*, Vol.9, No.3, pp. 487-498.

El-Bannany, M. (2012), “Global Financial Crisis and the Intellectual Capital Performance of UAE Banks,” *Journal of Human Resource Costing and Accounting*, Vol.16, No.1, pp. 20-36.

- Evanoff, D. D. and Israilevich, P. R. (1991), "Productive Efficiency in Banking. Federal Reserve Bank of Chicago," *Economic Perspectives*, Vol.15, No. 4, pp. 11-32.
- Fethi, M.D. and Pasiouras, F. (2010), "Assessing Bank Efficiency and Performance with Operational Research and Artificial Intelligence Techniques: A Survey," *European Journal of Operational Research*, Vol. 204, pp. 189-198.
- Firer, S. and Williams, S.M. (2003), "Intellectual Capital and Traditional Measures of Corporate Performance," *Journal of Intellectual Capital*, Vol.4, No.3, pp. 348-360.
- Gigante, G. and Previati, D. (2011), "A Knowledge-Oriented Approach to the Investigation of Italian Banks Performances," *International Journal of Economics and Finance*, Vol.3, No.5; pp.12-23.
- Goh, P. C. (2005), "Intellectual Capital Performance of Commercial Banks in Malaysia," *Journal of Intellectual Capital*, Vol.6, No.3, pp. 385-396.
- Grant, R.M. (1991), "The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation," *California Management Review*, Vol.33, No.3, pp.114-135.
- Guthrie, J. and Petty, R. (2000), "Intellectual Capital: Australian Annual Reporting Practices," *Journal of Intellectual Capital*, Vol.1, No.3, pp. 241-251.
- Guthrie, J. (2001), "The Management, Measurement and the Reporting of Intellectual Capital," *Journal of Intellectual Capital*, Vol.2, No.1, pp. 27-41.
- Guthrie, J., Petty, R., and Ricceri, F. (2006), "The Voluntary Reporting of Intellectual Capital: Comparing Evidence from Hong Kong and Australia," *Journal of Intellectual Capital*, Vol.7, No.2, pp. 254-271.
- Hadjimanolis, A. (2000), "A Resource-Based View of Innovativeness in Small Firms," *Technology Analysis and Strategic Management*, Vol.12, No.2, pp. 263-281.

- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L. (1992), "Multivariate Data Analysis," 3rd edn, Pearson Prentice Hall, New Jersey.
- Ika, S.R., and Abdullah, N. (2011), "A Comparative Study of Financial Performance of Islamic Banks and Conventional Banks in Indonesia," *International Journal of Business and Social Science*, Vol.2, No.15, pp. 199-207.
- Iqbal, M. and Molyneux, P. (2005), "Thirty Years of Islamic Banking: History, Performance and Prospects," *Journal of King Abdulaziz University: Islamic Economics*, Vol.19, No.1, pp. 37-39.
- Ismail, M. B. (2005), "The Influence of Intellectual Capital on the Performance of Telekom Malaysia," PhD Thesis, Universiti Teknologi Malaysia.
- Jemric, I. and Vujcic, B. (2002), "Efficiency of Banks in Croatia: A DEA Approach," Croatian National Bank Working Paper 7, Zagreb.
- Joshi, M., Cahill, D. and Sidhu, J. (2010), "Intellectual Capital Performance in the Banking Sector: An Assessment of Australian Owned Banks," *Journal of Human Resource Costing and Accounting*, Vol.14, No.2, pp. 151-170.
- Joshi, M., Cahill, D., Sidhu, J. and Kansal, M. (2013), "Intellectual Capital and Financial Performance: An Evaluation of the Australian Financial Sector," *Journal of Intellectual Capital*, Vol.14, No.2, pp. 264-285.
- Kamath, G.B. (2007), "The Intellectual Capital Performance of the Indian Banking Sector," *Journal of Intellectual Capital*, Vol.8, No.1, pp. 96-123.
- Kaplan, R.S. and Norton, D.P. (2001), "Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I," *Accounting Horizons*, Vol.15, No.1, pp. 87-104.
- Khairunnisa, A.Z., Hamizah, H. and Ismail, A. (2014), "Intellectual Capital Amongst Commercial Banks In Malaysia," Proceedings Book of ICETSR, Malaysia Handbook on the Emerging Trends in Scientific Research, PAK Publishing Group.

- Kwan, S.H. (2003), "Operating Performance of Banks among Asian Economies: An International and Time Series Comparison," *Journal of Banking and Finance*, Vol.27, No.3, pp. 471-489.
- Joo, L.K. and Lin, J.L.M. (2014), "Study Materials for Certificate in Internal Auditing for Financial Institutions," Third edition, Institut Bank-Bank Malaysia.
- Leightner, J.E., Lovell, C.A.K. (1998), "The Impact of Financial Liberalization on the Performance of Thai Banks," *Journal of Economics and Business*, Vol. 50, pp. 115–131.
- Lokman, M. and Clarke, B. (1999), "Market Competition, Management Accounting Systems and Business Unit Performance," *Management Accounting Research*, Vol. 10, No.2, pp. 137-158.
- Maditinos, D., Chatzoudes, D., Tsairidis, C. and Theriou, G. (2011), "The Impact of Intellectual Capital on Firms' Market Value and Financial Performance," *Journal of Intellectual Capital*, Vol.12, No.1, pp. 132-151.
- Maheran, N. and Amin, K. (2009), "Intellectual Capital Efficiency and Firm's Performance: Study on Malaysian Financial Sectors," *International Journal of Economics and Finance*, Vol.1, No.2, pp. 206-212.
- Main, B., Bruce, A. and Buck, T. (1996), "Total Board Remuneration and Company Performance," *Economic Journal*, Vol.106, pp. 1627-1644.
- Marr, B., Gray, D., and Neely, A. (2003), "Why Do Firms Measure Their Intellectual Capital?," *Journal of Intellectual Capital*, Vol.4, No.4, pp. 441-464.
- Marr, B., Schiuma, G. and Neely, A. (2004), "The Dynamics of Value Creation: Mapping Your Intellectual Performance Drivers," *Journal of Intellectual Capital*, Vol.5, No.2, pp. 312-325.
- Matthews, K. and Ismail, M. (2006), "Efficiency and Productivity Growth of Domestic and Foreign Commercial Banks in Malaysia," *Cardiff Economics Working Papers*.

- Maudos, J., Pastor, J.M., Perez, F. and Quesda, J. (2002), "Cost and Profit Efficiency in European Banks," *Journal of International Financial Markets, Institutions and Money*, Vol.12, No.1, pp. 33-58.
- Mousa, G.A. (2015), "Financial Ratios versus Data Envelopment Analysis: The Efficiency Assessment of Banking Sector in Bahrain Bourse," *International Journal of Business and Statistical Analysis*, Vol.2, pp. 75-84.
- Mavridis, D.G. (2004), "The Intellectual Capital Performance of the Japanese Banking sector," *Journal of Intellectual Capital*, Vol.5, No.1, pp. 92–115.
- Mavridis, D.G. and Kyrmizoglou, P. (2005), "Intellectual Capital Performance Drivers in the Greek Banking Sector," *Management Research News*, Vol. 28, No. 5, pp. 43–62.
- McGregor, J., Tweed, D. and Pech, R. (2004), "Human Capital in the New Economy: Devil's Bargain?," *Journal of Intellectual Capital*, Vol.5, No.1, pp. 153-164.
- Mokhtar, H.A., Abdullah, N. and Al-Habshi, S. (2006), "Efficiency of Islamic Banking in Malaysia: A Stochastic Frontier Approach," *Journal of Economic Cooperation*, Vol.27, No.2, pp. 37-70.
- Mondal, A. and Ghosh, S.K. (2012), "Intellectual Capital and Financial Performance of Indian Banks," *Journal Of Intellectual Capital*, Vol.13, No.4, pp. 515 – 530.
- Montequin, V.R., Fernandez, F.O., Cabal, V.A. and Gutierrez, N.R. (2006), "An Integrated Framework for Intellectual Capital Measurement and Knowledge Management Implementation in Small and Medium-Sized Enterprises," *Journal of Information Sciences*, Vol.32, No.6, pp. 525-538.
- Muhammad, N.M.N., Isa, F.M. and Ismail, N.R.N. (2009), "Intellectual Capital Efficiency Level of Malaysian Financial Sector: Panel Data Analysis (2002-2006)," Retrieved from http://www.academia.edu/414795/Intellectual_Capital_Efficiency_Level_of_Malaysian_Financial_Sector_Panel_Data_Analysis_2002-2006_.
- Najibullah, S. (2005), "An Empirical Investigation of the Relationship between

Intellectual Capital and Firms' Market Value and Financial Performance in Context of Commercial Banks of Bangladesh," Independent University, Bangladesh.

Nelson, R.R., and Winter, S.G. (1982), "An Evolutionary Theory of Economic Change," *The Belknap Press of Harvard University Press*.

Ongore, V.O. and Kusa, G.B. (2013), "Determinants of Financial Performance of Commercial Banks in Kenya," *International Journal of Economics and Financial Issues*, Vol. 3, No. 1, pp.237-252.

Ozkan, N., Cakan, S. and Kayacan, M. (2016), "Intellectual Capital and Financial Performance: A Study of the Turkish Banking Sector," *Borsa Istanbul Review*.

Pandya, A. M. and Rao, N.V. (1998), "Diversification and Firm Performance: An Empirical Evaluation," *Journal of Financial and Strategic Decisions*, Vol.11, No.2, pp.67-81.

Pennings, J.M., Lee, K., and Witteloostuijn, A.V. (1998), "Human Capital, Social Capital and Firm Dissolution," *The Academy of Management Journal*, Vol.41, No.4, pp. 425-440.

Peteraf, M.A. (1993), "The Cornerstones of Competitive Advantage: A Resource-Based View," *Strategic Management Journal*, Vol.14, No.3, pp. 179-191.

Pirayesh, R. and Khojasteh, S.Z. (2016), "The Relationship between Intellectual Capital and Marketing and Financial Performance of Banks Operating in the Tehran Stock Exchange during 2009-2014," *International Journal Of Humanities And Cultural Studies*, pp. 1132-1144.

Pulic, A. (1998), "Measuring the Performance of Intellectual Potential in the Knowledge Economy," *The 2nd McMaster World Congress on Measuring and Managing Intellectual Capital*.

Puntillo, P. (2009), "Intellectual Capital and Business Performance: Evidence from Italian Banking Industry," *Business*, Vol.4, No. 12, pp. 97-115.

Riahi-Belkaoui, A. (2003), "Intellectual Capital and Firm Performance of US Multinational Firms: A Study of the Resource-Based and Stakeholder

Views,” *Journal of Intellectual Capital*, Vol.4, No.2, pp. 215- 226.

Roos, G. and Roos, J. (1997), “Measuring Your Company’s Intellectual Performance,” *Long Range Planning*, Vol.30, No.3, pp. 413-426.

Roslender, R. and Fincham, R. (2004), “Intellectual Capital Accounting in the UK: A Field Study Perspective,” *Accounting, Auditing and Accountability Journal*, Vol.17, No.2, pp. 178-209.

Rosly, S.A. and Abu Bakar, M.A. (2003), “Performance of Islamic and Mainstream Banks in Malaysia,” *International Journal of Social Economics*, Vol.30, No. 12, pp. 1249-1265.

Saengchan, S. (2008), “The Role of Intellectual Capital in Creating Value in the Banking Industry,” *International Review of Business Research*, Vol.7, No.2, pp. 157-169.

Saenz, J. (2005), “Human Capital Indicators, Business Performance and Market-to-Book Ratio,” *Journal of Intellectual Capital*, Vol.6, No.3, pp. 374-384.

Said, R.M. and Tumin, M.H. (2011), “Performance and Finance Ratios of Commercial Banks in Malaysia and China,” *International Review of Business Research Papers*, Vol.7, No.2, pp. 157-169.

San, O.T., Theng, L.Y., and Heng, T.B. (2011), “A Comparison on Efficiency of Domestic and Foreign Banks in Malaysia: A DEA Approach,” *Business Management Dynamics*, Vol.1, No.4, pp. 33-49.

Seleim, A., Ashour, A. and Bontis, N. (2004), “Intellectual Capital in Egyptian Software Firms,” *The Learning Organisation*, Vol.11, No.4/5, pp. 332-346.

Serenko, A. and Bontis, N. (2004), “Meta-Review of Knowledge Management and Intellectual Capital Literature: Citation Impact and Research Productivity Rankings,” *Knowledge and Process Management*, Vol.11 No.3, pp. 185-198.

Shamsudin, L.I. and Yian, R.Y.M. (2013), “Exploring the Relationship between Intellectual Capital and Performance of Commercial Banks in

Malaysia,” *Review of Integrative Business and Economics Research*, Vol.2, No.2, pp. 326-372.

- Sharabati, A.A.A., Nour, A.N.I. and Shamari, N.S. (2013), “The Impact of Intellectual Capital on Jordanian Telecommunication Companies’ Business Performance,” *American Academic and Scholarly Research Journal*, Vol.5, No.3, pp. 32-46.
- Shih, K.H., Chang, C.J. and Lin, B. (2010), “Assessing Knowledge Creation and Intellectual Capital in Banking Industry,” *Journal of Intellectual Capital*, Vol.11, No.1, pp. 74-89.
- Siegel, L. R. (2004), “Measuring and Managing Intellectual Capital in the US Aerospace Industry,” Massachusetts Institute of Technology.
- Sufian, F. (2007), “The Efficiency of Islamic Banking Industry in Malaysia,” *Humanomics*, Vol.23, No.3, pp. 174 – 192.
- Sufian, F. (2009), “Determinants of Bank Efficiency during Unstable Macroeconomic Environment: Empirical Evidence from Malaysia,” *Research in International Business and Finance*, Vol. 23, pp 54–77.
- Sveiby, K. E. (1997), “The Invisible Balance Sheet,” Retrieved from <http://www.sveiby.com/articles/InvisibleBalance.html>.
- Sveiby, K.E. (2001), “A Knowledge-Based Theory of the Firm to Guide in Strategy Formulation,” *Journal of Intellectual Capital*, Vol.2, No.4, pp. 344 – 358.
- Teece, D. J. (2007), “Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance,” *Strategic Management Journal*, Vol.28, No.3, pp. 1319-1350.
- Ting, I. W. K., and Lean, H. H. (2009), “Intellectual Capital Performance of Financial Institutions in Malaysia,” *Journal of Intellectual Capital*, Vol.10, No.4, pp. 588-599.
- Verico, K. (2012), “Opinion: Can ASEAN Achieve Economic Community?,” *The Jakarta Post*, Retrieved from <http://www.thejakartapost.com/news/2012/12/24/can-asean-achieve->

economic-community.html.

- Wernerfelt, B. (1984), "A Resource-Based View of the Firm," *Strategic Management Journal*, Vol.5, No.2, pp. 171-180.
- Wheelock, D. and Wilson, P. (2000), "Why do Banks Disappear: The Determinants of U.S. Bank Failures and Acquisitions," *Review of Economics and Statistics*, pp. 127-138.
- Widen-Wulff, G. and Suomi, R. (2003), "Building a Knowledge Sharing Company – Evidence from the Finnish Insurance Industry," *Proceedings of the 36th Hawaii International Conference on System Sciences*.
- Winship, C. (2009), *Generalised Least Squares*, lecture notes distributed in Sociology 203 at Harvard University.
- Yalama, A. and Coskun, M. (2007), "Intellectual Capital Performance of Quoted Banks on the Istanbul Stock Exchange Market," *Journal of Intellectual Capital*, Vol.8, No.2, pp. 256-271.
- Youndt, M.A., Snell, S.A., Dean, J.W.J., and Lepak, D.P. (1996), "Human Resource Management, Manufacturing Strategy, and Firm Performance," *The Academy of Management Journal*, Vol.39, No.4, pp. 836–866.
- Youndt, M.A., and Snell, S.A. (2004), "Human Resource Configurations, Intellectual Capital, and Organizational Performance," *Journal of Managerial Issues*, Vol.16, No.3, pp. 337–360.
- Yudistira, D. (2004), "Efficiency in Islamic Banking: An Empirical Analysis of Eighteen Banks," *Islamic Economic Studies*, Vol.12, No.1, pp. 1-19.
- Zaher, T.S., and Hassan, M.K. (2001), "A Comparative Literature Survey of Islamic Finance and Banking," *Financial Markets, Institutions and Instruments*, Vol.10, No.4, pp. 155–199.
- Zeghal, D. and Maaloul, A. (2010), "Analyzing Value Added as an Indicator of Intellectual Capital and Its Consequences on Company Performance," *Journal of Intellectual Capital*, Vol.11, No.1, pp. 39-60.

Zyl, C.V. (2005), "Structural Capital Management Creates Sustainable Competitiveness and Prolonged Firstmover Advantage," *Intellectual Capital Management Series*, Acta Commercii, pp. 84-95.



APPENDICES

APPENDIX A

List of Malaysian Banks

Commercial Banks

Name	Ownership
1. Affin Bank Berhad	Local
2. Alliance Bank Malaysia Berhad	Local
3. AmBank (M) Berhad	Local
4. Bangkok Bank Berhad	Foreign
5. Bank of America Malaysia Berhad	Foreign
6. Bank of China (Malaysia) Berhad	Foreign
7. Bank of Tokyo-Mitsubishi UFJ (Malaysia) Berhad	Foreign
8. BNP Paribas Malaysia Berhad	Foreign
9. CIMB Bank Berhad	Local
10. Citibank Berhad	Foreign
11. Deutsche Bank (Malaysia) Berhad	Foreign
12. Hong Leong Bank Berhad	Local
13. HSBC Bank Malaysia Berhad	Foreign
14. India International Bank (Malaysia) Berhad	Foreign
15. Industrial and Commercial Bank of China (Malaysia) Berhad	Foreign
16. J.P. Morgan Chase Bank Berhad	Foreign
17. Malayan Banking Berhad	Local
18. Mizuho Bank (Malaysia) Berhad	Foreign
19. National Bank of Abu Dhabi Malaysia Berhad	Foreign
20. OCBC Bank (Malaysia) Berhad	Foreign
21. Public Bank Berhad	Local
22. RHB Bank Berhad	Local
23. Standard Chartered Bank Malaysia Berhad	Foreign
24. Sumitomo Mitsui Banking Corporation Malaysia Berhad	Foreign
25. The Bank of Nova Scotia Berhad	Foreign
26. The Royal Bank of Scotland Berhad	Foreign
27. United Overseas Bank (Malaysia) Bhd.	Foreign

Investment Banks

Name	Ownership
1. Affin Hwang Investment Bank Berhad	Local
2. Alliance Investment Bank Berhad	Local
3. AmInvestment Bank Berhad	Local
4. CIMB Investment Bank Berhad	Local
5. Hong Leong Investment Bank Berhad	Local
6. KAF Investment Bank Berhad	Local
7. Kenanga Investment Bank Berhad	Local
8. MIDF Amanah Investment Bank Berhad	Local
9. Maybank Investment Bank Berhad	Local
10. Public Investment Bank Berhad	Local
11. RHB Investment Bank Berhad	Local

Islamic Banks

Name	Ownership
1. Affin Islamic Bank Berhad	Local
2. Alkhair International Islamic Bank Bhd	Foreign
3. Alliance Islamic Bank Berhad	Local
4. Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	Foreign
5. AmBank Islamic Berhad	Local
6. Asian Finance Bank Berhad	Foreign
7. Bank Islam Malaysia Berhad	Local
8. Bank Muamalat Malaysia Berhad	Local
9. CIMB Islamic Bank Berhad	Local
10. Deutsche Bank Aktiengesellschaft	Foreign
11. Hong Leong Islamic Bank Berhad	Local
12. HSBC Amanah Malaysia Berhad	Foreign
13. Kuwait Finance House (Malaysia) Berhad	Foreign
14. Maybank Islamic Berhad	Local
15. OCBC Al-Amin Bank Berhad	Foreign
16. PT. Bank Syariah Muamalat Indonesia, Tbk	Foreign
17. Public Islamic Bank Berhad	Foreign
18. RHB Islamic Bank Berhad	Local
19. Standard Chartered Saadiq Berhad	Foreign

Development Financial Institutions

Name	Ownership
1. Bank Kerjasama Rakyat Malaysia Berhad	Local
2. Bank Pembangunan Malaysia Berhad	Local
3. Bank Pertanian Malaysia Berhad (Agrobank)	Local
4. Bank Perusahaan Kecil & Sederhana Malaysia Berhad (SME Bank)	Local
5. Bank Simpanan Nasional	Local
6. Export-Import Bank of Malaysia Berhad (EXIM Bank)	Local



APPENDIX B

List of 32 Malaysian Commercial Banks (Conventional and Islamic) utilised in Research Study

Conventional Banks

Name	Ownership
1. Affin Bank Berhad	Local
2. Alliance Bank Malaysia Berhad	Local
3. AmBank (M) Berhad	Local
4. Bangkok Bank Berhad	Foreign
5. CIMB Bank Berhad	Local
6. Citibank Berhad	Foreign
7. Deutsche Bank (Malaysia) Berhad	Foreign
8. Hong Leong Bank Berhad	Local
9. HSBC Bank Malaysia Berhad	Foreign
10. J.P. Morgan Chase Bank Berhad	Foreign
11. Malayan Banking Berhad	Local
12. OCBC Bank (Malaysia) Berhad	Foreign
13. Public Bank Berhad	Local
14. RHB Bank Berhad	Local
15. Standard Chartered Bank Malaysia Berhad	Foreign
16. The Royal Bank of Scotland Berhad	Foreign
17. United Overseas Bank (Malaysia) Bhd.	Foreign

Islamic Banks

Name	Ownership
1. Affin Islamic Bank Berhad	Local
2. Alkhair International Islamic Bank Bhd	Foreign
3. Alliance Islamic Bank Berhad	Local
4. Al Rajhi Banking & Investment Corporation (Malaysia) Berhad	Foreign
5. Asian Finance Bank Berhad	Foreign
6. Bank Islam Malaysia Berhad	Local
7. Bank Muamalat Malaysia Berhad	Local
8. CIMB Islamic Bank Berhad	Local
9. Hong Leong Islamic Bank Berhad	Local
10. HSBC Amanah Malaysia Berhad	Foreign
11. Kuwait Finance House (Malaysia) Berhad	Foreign
12. Maybank Islamic Berhad	Local
13. OCBC Al-Amin Bank Berhad	Foreign
14. RHB Islamic Bank Berhad	Local
15. Standard Chartered Saadiq Berhad	Foreign



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