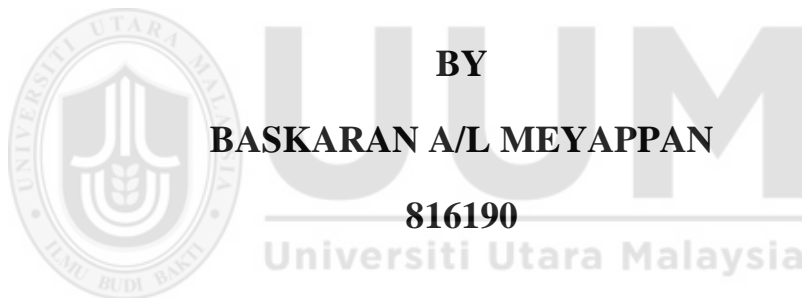


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**DETERMINANTS OF NON-INTEREST INCOME IN  
MALAYSIAN BANKING INDUSTRY: A COMPARATIVE  
ANALYSIS ON CIMB BANK AND RHB BANK**



**Thesis Submitted to**  
**Othman Yeop Abdullah Graduate School of Business,**  
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**In Partial Fulfilment of the Requirement for the Master of Sciences**  
**(Banking)**



Othman Yeop Abdullah  
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## ABSTRACT

We have analysed the determinants of non-interest income among banking industry in Malaysia. A comparative analysis between CIMB Bank and RHB Bank has been conducted from the period of 2004 till 2015.

The main objective of this study is to identify the relationship between non-interest income of CIMB Bank and RHB Bank with factors such as bank size, total loan, total equity, net interest margin and inflation in the short run and long run. This study employs time series analysis techniques such as Vector Error Correction Model (VECM), Johanssen Co-Integration Analysis and Forecast Error Variance Decomposition (FEVD) Analysis to identify the relationship among variables in the short run and long run. Based on our analysis bank size, total equity capital, net interest margin and inflation are the significant factors determine non-interest income of CIMB Bank whereas only bank size and net interest margin are the significant factor determines non-interest income of RHB Bank in the long run. According to FEVD analysis in the short run, total loan is the only significant factor in determining the non-interest income of CIMB Bank whereas bank size and inflation are the significant factor determining the non-interest income of RHB Bank. This study finds that each bank has their unique determinants of non-interest income. Both in the long run and short run the determinants of non-interest income differ between CIMB Bank and RHB Bank. The determinants of non-interest income differ between the banks may be due to policy of the banks towards non-interest business or the types of non-interest products the banks involved in. The findings are consistent with the industry expert opinion where banks are increasing their share of non-interest income in the areas which they have additional strength and competitive advantage—

**Keywords:** Non-Interest Income, Total Equity Capital, Net Interest Margin (NIM), Vector Error Correction Model (VECM), Forecast Error Variance Decomposition (FEVD)

## ABSTRAK

Kita telah menjalankan kajian tentang faktor-faktor yang menentukan pendapatan bukan faedah bagi industry perbankan di Malaysia. Kajian perbandingan telah dijalankan di antara CIMB Bank dan RHB Bank daripada tahun 2004 hingga 2015.

Objektif utama kajian ini adalah untuk mengenalpasti hubungan di antara pendapatan bukan faedah CIMB Bank dan RHB Bank dengan faktor seperti saiz bank, jumlah pinjaman, jumlah ekuiti, *net interest margin* dan inflasi. Kajian ini menggunakan teknik siri masa seperti VECM, FEVD dan Analisis Integrasi Johansen untuk mengenal pasti hubungan di antara pembolehubah pada jangka waktu pendek dan jangka waktu panjang. Mengikut analisis yang dijalankan saiz bank, jumlah ekuiti, *net interest margin* dan inflasi adalah faktor yang menentukan pendapatan bukan faedah CIMB Bank pada jangka waktu panjang manakala saiz bank dan *net interest margin* adalah faktor yang menentukan pendapatan bukan faedah RHB Bank pada jangka waktu panjang. Mengikut analisis FEVD, pada jangka waktu pendek jumlah pinjaman adalah satu-satunya faktor yang menentukan pendapatan bukan faedah bagi CIMB Bank manakala saiz bank and inflasi adalah faktor yang menentukan pendapatan bukan faedah bagi RHB Bank. Kajian ini mendapati setiap bank mempunyai factor-faktor unik yang menentukan pendapatan bukan faedah. Faktor-faktor yang menentukan pendapatan bukan faedah agak berbeza bagi CIMB Bank dan RHB Bank pada jangka waktu pendek and jangka waktu panjang. Faktor-faktor in berbeza bagi setiap bank mungkin disebabkan oleh polisi yang diamalkan oleh bank berkenaan untuk pendapatan bukan faedah atau jenis produk pendapatan bukan faedah yang dijalank oleh bank. Hasil kajian ini selari dengan pendapat daripada pakar industry perbankan bahawa bank akan meningkatkan pendapatan bukan faedah di bidang yang mereka mempunyai kelebihan.

**Kata Kunci :** Pendapatan Bukan Faedah, Jumlah Ekuiti, *Net Interest Margin*, *Vector Error Correction Model (VECM)*, *Forecast Error Variance Decomposition (FEVD)*

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## LIST OF ABBREVIATIONS

NII	Non-Interest Income
BNM	Bank Negara Malaysia
IB	Investment Banks
ICT	Information and Communication Technology
NIM	Net Interest Margin
CAR	Capital Adequacy Ratio
FEVD	Forecast Error Variance Decomposition Analysis
VECM	Vector Error Correction Model
OECD	Organisation for Economic Co-operation and Development
OBS	Off Balance Sheet
GDP	Gross Domestic Products
BLR	Base Lending Rate
OPR	Overnight Policy Rate
CPI	Consumer Price Index
NIITR	Non-Interest Income Over Total Revenue
LNBS	Bank Size



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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Commercial banks source of income are basically from interest income and non-interest income. These two components are the main sources of income for banks in all the countries. Banks earn interest income from loan disbursed by them and non-interest incomes are derived from fees and charges from offering various types of financial services and products (Kwast, 1989). Traditional source of income for banks are interest income and are derived from all types of lending which are offered by financial institutions. Lending to corporate includes business loans, working capital loan, term loan, venture capital lending, syndication etc. Whereas lending to retails include real estate loan, hire purchase loan for vehicles, personal loan for various purpose, education loan etc.

Due to globalization, competition and global economic environment, banks need to diversify their operations to earn other than interest income. Theoretically, diversification is preferred by banks because fee based products are not related to traditional banking operations. Therefore revenue diversification gives banks additional income stream other than interest based income. So, banks start to venture into other operations such as insurance, unit trust, brokerage service, trade finance service, foreign exchange, advisory service, fiduciary or private banking etc. All these services give revenue to the bank in the form of fee or service charges which are classified as non-interest income. The contribution of non-interest income to banks

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## References

- Aisha, Ismail, Rahila Hanif, Sadaf Choudhary & Nisar Ahmad. (2015). Income Diversification In Banking Sector of Pakistan: A Blessing or Curse: *The Journal of Commerce* 7, 11-22.
- Abdelaziz Hakimi, Helmi Hamdi & Mouldi Djellassi.(2012).Modelling Non-Interest Income At Tunisian Banks:*Asian Economic and Financial Review*,2(1),88-99.
- Anthony Saunders, Markus Schmid & Ingo Walter.(2014).Non-Interest Income And Bank Performance: Is Bank's Increased Reliance On Non-Interest Income Bad?"
- Swiss Institute of Banking and Finance, Working Paper on Finance No.2014/17
- Busch, R & Kick, T. (2009). Income Diversification In The Germany Banking Industry, Deutsche Bundesbank Discussion Paper Series 2 : Banking and Financial Studies.
- Basil, Senyo Damankah, Olivia Anku-Tsde & Albert Amankwaa.(2014).Analysis of Non-Interest Income of Commercial Banks in Ghana: *International Journal of Academic Research in Accounting, Finance and Management Science*, 4(4), 263-271.
- Boyd, Levine R. & Smith, B.D. (2001). The Impact Of Inflation On Financial Sector Performance : *Journal of Monetary Economics* 47, 221-248.
- Baltagi, B.H.(2012).Econometric Analysis of Panel Data, 4<sup>th</sup> Edition, New York: John Wiley and Sons Press.
- Celine Meslier, Ruth Tacneng & Amine Tarazi.(2014).Is Bank Income Diversification Beneficial ? Evidence From An Emerging Economy: *Journal of International Financial Markets Institutions and Money*, 31, 97-126.
- Chiorrazo, V, Milani & C.Salvani, F. (2008). Income Diversification And Bank Performance: Evidence From Italian Banks: *Journal of Financial Service Research*, 33,181-203.



- Craigwell, R. & Maxwell, C. (2006). Non- Interest income And Financial Performance At Commercial Banks In Barbados: *Saving and Development*, 3(1), 309-328.
- Coakes & S.J.Steed. (2007). SPSS Analysis Without Anguish ,Version 7, 7-5
- EU Bank's Income Structure, (2000), European Central Bank.
- Gurbuz,A.O., Yanik, S, & Ayturk,Y.(2013). Income Diversification And Bank Performance: Evidence From Turkish Banking Sector: *Journal of BSRA Banking and Financial Markets*, 7(1), 9-29.
- Huang, L.W., & Chen Y.K (2006). Does Bank Performance Benefits From Non-Traditional Activities ? A Case of Non-Interest Income In Taiwan Commercial Banks: *Asian Journal of Management and Humanity Sciences*, 1 (3), 359-378.
- I Gusti, Ngurah Agung. (2004). Time Series Data Analysis Using E-Views , John Wiley & Sons (Asia) Pte Ltd, Singapore.
- Joon, Ho Hahm, (2008). Determinants and Consequences of Non-Interest Income Diversification of Commercial Banks in OECD Countries : *Journal of International Economic Studies*, 12 ,1-32.
- Josephat, Mboya Kiweu.(2012). Income Diversification In The Banking Sector and Earnings Volatility: Evidence from Kenyan Commercial Banks, Kenya Bankers Association Centre for Research of Financial Markets and Policy.
- Kevin J., Stiroh. (2006).A Portfolio View of Banking With Interest and Non-Interest Activities: *Journal of Money, Credit and Banking* , 38 (5), 1351-1361.
- Kunt, Huizinga, H.( 2010). Bank Activity and Funding Strategy : The Impact On Risk And Return : *Journal of Financial Economics* 98, 625-650.
- Karim & Gee, C.S. (2007). Off-Balance Sheet Activities And Performance Of Commercial Banks in Malaysia: *The ICFAI Journal of Financial Economics*, 5 (4), 67-80.

- Kwast, Myron.(1989).The Impact Of Underwriting And Dealing On Bank Returns and Risk: *Journal of Banking & Finance*, 13, 101-125.
- Li Li & Yu Zhang.(2013). Are There Diversification Benefits Of Increasing Non Interest Income In The Chinese Banking Industry? : *Journal of Empirical Finance* 24,151-165.
- Merton, R.C., & Bodie, Z (1992). On The Management Of Financial Guarantees. *Financial Management* 21, 87-109.
- Mishkin, F.S. (2007). The Economics Of Money, Banking and Financial Markets, 8<sup>th</sup> Edition, Pearson Education Inc. USA.
- Mercieca,S., Klaus Schaek & Simon Wolfe. (2007). Small European Banks: Benefit From Diversification : *Journal of Banking and Finance* 37, 1975-1998.
- Markus Brunnermeier, Gang Dong & Darius Palia.(2010).Bank's Non-Interest Income And Systemic Risk, Princeton University, NJ, USA.
- Nguyen My, Michael Skully & Shrimal Perera.(2012).Bank Market Power And Revenue Diversification: Evidence From Selected ASEAN Countries: *Journal of Asian Economics* 22(4), 897-912.
- Pennathur , A.K & Subrah, M.V. (2012).Income Diversification and Risk: Does Ownership Matter ? An Empirical examination Of Indian banks: *Journal of Banking and Finance*, 36(4), 2203-2215.
- Robert, De Young & Karin Roland. (2001).Product Mix and Earning Volatility At Commercial Banks: Evidence From A Degree Of Leverage Model: *Journal of Financial Intermediation*, 10,54-58.
- Robert, DeYoung & Tara Rice. (2004). Noninterest Income and Financial Performance at US Commercial Banks: *Financial Review*, 39,101-127.
- Rogers, K. & Sinkey Jr. F.J. (1999). An Analysis Of Non-Traditional Activities At US Commercial Banks :*Review of Financial Economics* 8, 25-29.

- Robert Webb, Kumbirai Mabwe & Kalsoom Jaffar. (2014). Changing Bank Income Structure: Evidence From Large UK Banks: *Asian Journal of Finance & Accounting* 6, 195-215.
- Robert F. Engle & C.W.J.Granger. (1987). Co-Integration And Error Correction: Representation, Estimation and Testing :*Econometrica* 55(2), 251-276.
- Rifat Gorenor & Sungho Choi.(2013).Risk, Return and Income Mix At Commercial Banks: Cross Country Evidence: *Journal of Applied Business & Economics* 14(3), 123-152.
- Sherene, A. Bailey Tapper.(2010).Non-Interest Income, Financial Performance & The Macro Economy: Evident on Jamaican Panel Data, Financial Stability Department, Bank of Jamaica.
- Smith, R., Staikouras C. & Wood G. (2003).Non-Interest Income And Total Income Stability, Bank of England, Working Paper No 198.
- Sanya, S. & Wolfe S. (2010).Can Bank In Emerging Economies Benefit From Revenue Diversification? International Monetary Fund, Washington DC.
- Stiroh, Kevin J.(2002).Diversification In Banking Is Non Interest Income The Answer? , Federal Reserve Bank of New York, No 154.
- Sarath Delpachitra & Laurence Lester.(2013).Non Interest Income : Are Australian Banks Moving Away From Their Traditional Business : *Economic Paper* 32 (2),190 -199.
- Tortusa, Ausina, E. (2003). Non-Traditional Activity and Bank Efficiency Revisited: A Distributional Analysis For Spanish Financial Institutions: *Journal of Economics and Business*, 55, 371-395.
- Walter Enders. (1996). Rats Handbook For Econometrics Time Series, John Wiley & Sons Inc. New York, NY, US