

**FACTORS INFLUENCING RISK-TAKING BEHAVIOUR  
IN MALAYSIAN ISLAMIC AND CONVENTIONAL  
BANKS**

BY

**HARKATI RAFIK**

A thesis submitted in fulfillment of the requirement for the  
degree of Doctor of Philosophy in Islamic Banking and  
Finance

**IIUM Institute of Islamic Banking and Finance  
International Islamic University Malaysia**

**FEBRUARY 2021**

## ABSTRACT

The adoption of a dual banking system in Malaysia has ignited research on stability and instability brought about by the two different banking sectors in the financial system. Islamic banking is very short spanning a period of nearly five decades since its inception, and it is still developing its strategies and financial instruments based on *Shariah* principles to position itself in competitive stance in the face of the conventional counterpart that dates back more than four centuries earlier. The views are controversial in terms of which banking system is more risk-taking inclined, and whether Islamic banks risk-taking behaviour mimics that of conventional ones. While there are views supporting the distinction between Islamic banking system and its conventional counterpart owing to the former's equity-based unique business contracts. Others maintain that conventional banking system is more efficient given its long historical record and the availability of various financial instruments. This thesis investigates the influence of assets, deposit and loans/financing concentration on risk-taking behaviour of Islamic and conventional banks, the influence of competition condition in the banking sector on risk-taking behaviour of Islamic and conventional banks, the influence of capital adequacy ratio stipulated in Basel III on risk-taking behaviour of Islamic and conventional banks, and the influence of economic freedom on risk-taking behaviour of Islamic and conventional banks. Employing General Least Square technique (GLS) on a panel data of 54 banks, 17 Islamic and 37 conventional, for the period 2011-2017, this study revealed that both concentration-instability and competition-instability views hold for both types of banks. Capital adequacy ratio found to discourage risk-taking behaviour of both types of banks, while economic freedom found to encourage risk-taking of both types of banks. The size of influence for the four variables on risk-taking behaviour is higher for Islamic banks indicating that Islamic banks are more vulnerable than their conventional counterparts. The findings of the study also lend support to the notion that Islamic banks mimic conventional banks risk-taking behaviour. Therefore, both concentration-fragility and competition-fragility hypotheses can coexist. Moral hazard is not triggered in the Malaysian banking sector even though banks possess huge capital buffers implying successfulness of Basel III in controlling risk-taking behaviour of banks. Finally, Economic freedom should be considered as turns significant in determining risk behaviour of banks regardless of their type. Lastly, findings of the study have direct implications for banks, policymakers and decision makers in the banking industry, locally as well as globally. Islamic banks need further promotion to foster their market share (further penetration); this in turn will pave the way into a more competitive environment where banks can be more efficient and profitable in the face of increasing competition especially from their conventional counterparts. Since banks possess considerable capital buffers that serve as a supporting pillar, they are provided with enough flexibility to embark on wider business opportunities. The level of concentration and contestability in the Malaysian banking environment may need reconsideration to prepare Islamic banks for a future fierce competition. The number of Islamic banks in the industry needs further investigation. The level of economic freedom needs to be set at the best possible level that better serves banking stability and lessens banks inclination towards risk-taking.

## خلاصة البحث

أدى اعتماد نظام مصرفي مزدوج في ماليزيا إلى إثارة البحوث المتعلقة بالاستقرار وعدم الاستقرار الذي يحدثه النظامان المختلفان في النظام المالي ككل. لا يزال النظام المصرفي الإسلامي في مراحله الأولى بسبب نقص الأدوات مقارنة بالنظام التقليدي وهذا يرجع إلى كون النظام المصرفي الإسلامي يخضع لمبادئ الشريعة الإسلامية. الآراء مثيرة للجدل فيما يخص أي نظام مصرفي يميل أكثر إلى المخاطرة وما إذا كان سلوك المخاطرة للبنوك الإسلامية يحاكي سلوك نظيرتها التقليدية. في حين أن بعض الباحثين يساند النظام المصرفي الإسلامي بسبب عقوده التجارية الفريدة، يرتئي آخرون أن النظام المصرفي التقليدي في وضع أفضل نظرا لتاريخه العريق بالإضافة إلى الأدوات المالية المختلفة المستخدمة في هذا النظام. تبحث هذه الأطروحة تأثير تركيز الأصول، والودائع، و القروض/التمويل على سلوك المخاطرة للبنوك الإسلامية والتقليدية، وتأثير ظروف المنافسة في القطاع المصرفي على سلوك المخاطرة للبنوك الإسلامية والتقليدية، وتأثير نسبة كفاية رأس المال المنصوص عليها في بازل 3 على سلوك المخاطرة للبنوك الإسلامية والتقليدية، وتأثير الحرية الاقتصادية على سلوك المخاطرة للبنوك الإسلامية والتقليدية. باستخدام تقنية التأثير الثابت أو العشوائي (GLS) على بيانات سلسلة مقطعية (Panel Data) متكونة من 54 مصرفاً، 17 إسلامياً و 37 تقليدياً، للفترة 2011-2017، تكشف هذه الدراسة وتؤكد أن فرضيتي عدم استقرار التركيز وعدم استقرار المنافسة ساريتا المفعول في كلا النظامين. بالإضافة إلى ذلك، تفرض نسبة كفاية رأس المال ضغطاً إيجابياً على سلوك المخاطرة لكلا النوعين من البنوك. علاوة على ذلك، تفرض الحرية الاقتصادية ضغوطاً غير مواتية على كلا النظامين. ومع ذلك، فقد تبين أن حجم تأثير المتغيرات الأربع على سلوك المخاطرة أكثر حدة بالنسبة للمصارف الإسلامية؛ وهذا يعني أن البنوك الإسلامية أكثر هشاشة من البنوك التقليدية. كما تدعم نتائج الدراسة فكرة أن البنوك الإسلامية تحاكي سلوك المخاطرة لدى البنوك التقليدية. نظرياً، يمكن أن تتعايش كل من فرضيتي عدم استقرار التركيز وعدم استقرار المنافسة. غياب الخطر الأخلاقي في القطاع المصرفي الماليزي على الرغم من امتلاكهم احتياطات رأسمالية ضخمة مما يعني نجاعة بازل 3 في السيطرة على سلوك البنوك. يجب أن تؤخذ الحرية الاقتصادية في الاعتبار لأنها مهمة في تحديد سلوك المخاطر للبنوك بغض النظر عن نوعها. وأخيراً، فإن نتائج الدراسة لها آثار مباشرة على البنوك وواضعي السياسات وصناع القرار في النظام المصرفي الماليزي، الذين يمكنهم الاستفادة من نتائج الدراسة لوضع عتبات أفضل للبقاء على المخاطرة في البنوك تحت السيطرة. تحتاج البنوك الإسلامية إلى مزيد من الترويج لتعزيز حصتها في السوق (مزيد من الاختراق في السوق)؛ وهذا بدوره سيمهد الطريق إلى بيئة أكثر منافسة حيث يمكن للبنوك أن تكون أكثر كفاءة وربحية في مواجهة البنوك التقليدية. نظراً لأن البنوك تمتلك مخزونات كبيرة من رأس المال، والتي تعد بمثابة دعامة تزودها بمرونة كافية للشروع في فرص أعمال أوسع. يجب على صناع السياسات وصناع القرار إعادة النظر في مستوى التركيز والمنافسة في البيئة المصرفية الماليزية لإعداد البنوك الإسلامية لمنافسة شرسة في المستقبل، وهذا يتطلب من المنظمين إعادة النظر في عدد البنوك الإسلامية في القطاع المصرفي. ينبغي أيضاً على واضعي السياسات إعادة النظر في مستوى الحرية الاقتصادية لتحديد أفضل مستوى ممكن يخدم الاستقرار المصرفي ويقلل من ميل البنوك للمخاطرة.

## APPROVAL PAGE

The thesis of Harkati Rafik has been approved by the following:

---

Syed Musa Syed Jaafar Alhabshi  
Supervisor

---

Salina Hj Kassim  
Co-Supervisor

---

Noraini Mohd Ariffin  
Internal Examiner

---

Fauzias Mat Not  
External Examiner

---

Zulkarnain Muhammad Sori  
External Examiner

---

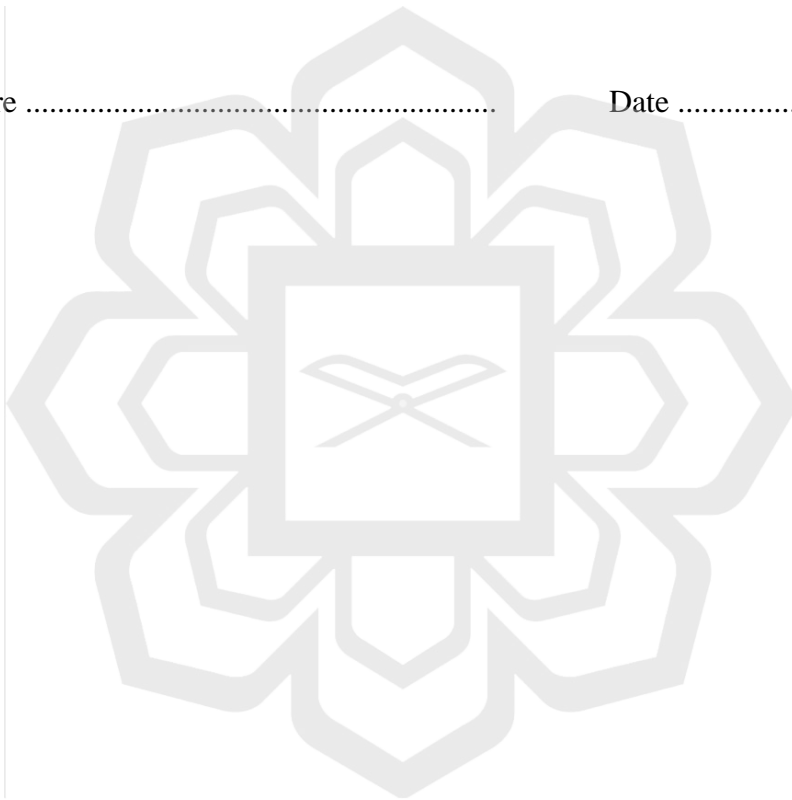
Radwan Jamal Elatrash  
Chairman

## DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Harkati Rafik

Signature ..... Date .....



**INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA**

**DECLARATION OF COPYRIGHT AND AFFIRMATION OF  
FAIR USE OF UNPUBLISHED RESEARCH**

**FACTORS INFLUENCING RISK-TAKING BEHAVIOUR IN  
MALAYSIAN ISLAMIC AND CONVENTIONAL BANKS**

I declare that the copyright holders of this thesis are jointly owned by the student and IIUM.

Copyright © 2021 Harkati Rafik and International Islamic University Malaysia. All rights reserved.

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below


1. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgement.
2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.
3. The IIUM library will have the right to make, store in a retrieved system and supply copies of this unpublished research if requested by other universities and research libraries.

By signing this form, I acknowledged that I have read and understand the IIUM Intellectual Property Right and Commercialization policy.

Affirmed by Harkati Rafik

.....  
Signature

.....  
Date



*I would like to dedicate my thesis to my Beloved parents and family*

## ACKNOWLEDGEMENTS

Praise be to Allah for giving me strength and perseverance in undergoing this academic journey, without which I may not have been able to complete this humble work to fulfil the requirement from my doctorate degree. His mercy provided me with supervisors, friends, and lecturers who assist me in alleviating the burden of my work.

Among them, my gratitude goes to my dedicated main supervisor Assoc. Prof. Dr. Syed Musa Alhabshi and co-supervisor Assoc. Prof. Dr. Salina Kassim for their relentless guidance and assistance through which I had the drive to persevere the arduous journey. I am indebted to them for the wisdom and experience they shared with me throughout my PhD journey at IIUM. I owe much to their patience in reading, giving comments, and making corrections that invariably improved the drafts until the manuscript culminated in its final form. I am also deeply indebted to the internal examiner and post-viva supervisor Assoc. Prof. Dr. Noraini Mohd Ariffin for her dedication, expansiveness, and highly appreciated constructive comments.

My deepest gratitude goes to my beloved family, especially my mother and father, who contributed significantly to who I am today, and have constantly supported my education. I genuinely love you both and appreciate your prayers, support, and love. Never will I manage to repay your kindness and pray that Almighty Allah grant them the highest ranks in paradise. Lastly, my gratitude goes to those who contributed directly or indirectly to the completion of this humble work, may Allah reward them all.

# TABLE OF CONTENTS

Abstract .....	ii
Abstract in Arabic .....	iii
Approval Page .....	iii
Declaration .....	v
Declaration of Copyright .....	vi
Dedication .....	vi
Acknowledgements .....	viii
List of Tables .....	xiii
List of Figures .....	xv
List of Abbreviations .....	xvi
<b>CHAPTER ONE: INTRODUCTION .....</b>	<b>1</b>
1.1 Background of the Study .....	1
1.2 Statement of the Problem .....	10
1.3 Research Objectives .....	13
1.4 Research Questions .....	13
1.5 Significance of the Study .....	14
1.6 Contributions of the Study .....	15
1.7 Organization of the Study .....	17
<b>CHAPTER TWO: THE MALAYSIAN BANKING SECTOR .....</b>	<b>20</b>
2.1 Introduction .....	20
2.2 Change in Market Structure of the Malaysian Banking Sector .....	22
2.2.1 History and Development of the Banking System in Malaysia .....	23
2.2.2 Islamic Banking System in Malaysia .....	27
2.3 Risk-Taking Behaviour of Banks in Malaysia .....	29
2.4 Economic Freedom Index in Malaysia .....	39
2.5 Summary .....	42
<b>CHAPTER THREE: LITERATURE REVIEW .....</b>	<b>44</b>
3.1 Introduction .....	44
3.2 Concentration and Risk-Taking Behaviour .....	47
3.2.1 Concentration, Profitability and Risk-Taking Behaviour .....	57
3.2.2 Concentration, Competition and Risk-Taking Behaviour .....	62
3.2.3 Islamic and Conventional Deposit Market Concentration and Risk-Taking Behaviour .....	72
3.2.4 Islamic and Conventional Loans/Financing Market and Risk-Taking Behaviour .....	76
3.2.5 The Gap from Empirical Literature on Concentration and Risk-Taking Behaviour .....	77
3.3 Capital Requirements and Risk-Taking Behaviour .....	78
3.3.1 Capital Requirements, Profitability and Risk-Taking Behaviour .....	83
3.3.2 Capital Requirements, Capitalization and Risk-Taking Behaviour .....	86

3.3.3 Interest Rate, Profitability and Risk-Taking Behaviour.....	89
3.3.4 The Gap from Empirical Literature on Capital Requirements and Risk-Taking Behaviour.....	96
3.4 Economic Freedom and Risk-Taking Behaviour .....	97
3.4.1 Economic Freedom, Competition and Risk-Taking Behaviour....	97
3.4.2 Evidence on Ownership and Risk-Taking Behaviour.....	99
3.4.3 The Gap from Empirical Literature on Economic Freedom and Risk-Taking Behaviour.....	103
3.5 Financial Stability and Risk-Taking Behaviour .....	104
3.6 Summary.....	105

## **CHAPTER FOUR: CONCEPTUAL FRAMEWORK AND**

### **HYPOTHESES DEVELOPMENT .....107**

4.1 Introduction.....	107
4.2 Concepts and Hypotheses .....	108
4.2.1 Concentration-Stability and Concentration-Fragility Hypotheses.....	108
4.2.2 Competition-Stability and Competition-Fragility Hypotheses .....	110
4.2.3 Concentration and Competition Relationship .....	111
4.2.4 Structure-Performance-Conduct Paradigm and Efficiency Hypothesis .....	112
4.2.5 Moral Hazard and Capital Buffer.....	113
4.2.6 Economic Freedom .....	115
4.3 Hypotheses and Measurements .....	116
4.3.1 Research Hypotheses .....	116
4.3.1.1 Concentration Model and Hypothesized Relationships....	117
4.3.1.1.1 Banking Sector Concentration and Risk-Taking Behavior of Banks .....	117
4.3.1.1.2 Competition and Risk-Taking Behavior of Banks... ..	118
4.3.1.1.3 Banks Profitability and Risk-Taking Behavior.....	119
4.3.1.1.4 Banks Capitalization and Risk-Taking Behavior....	119
4.3.1.2 Capital Requirements Model and Hypothesized Relationships.....	121
4.3.1.2.1 Capital Requirements and Banks Risk-Taking Behavior .....	121
4.3.1.2.2 Interest Rate and Risk-Taking Behavior of Banks ..	124
4.3.1.2.3 Profitability and Risk-Taking Behavior of Banks ...	126
4.3.1.3 Economic Freedom Model and Hypothesized Relationships.....	126
4.3.1.3.1 Economic Freedom and Risk-Taking Behaviour of Banks .....	127
4.3.1.3.2 Banking Sector Concentration and Risk-Taking Behaviour of Banks .....	128
4.3.1.3.3 Ownership of Banks and Risk-Taking Behavior .....	129
4.3.1.3.4 Banks Capitalization and Risk-Taking Behaviour... ..	132
4.3.1.3.5 Profitability and Risk-Taking Behaviour of Banks .	133
4.3.2 Summary of the Expected Effect of Variables on Risk-Taking....	134
4.4 Summary.....	135

<b>CHAPTER FIVE: RESEARCH METHODOLOGY.....</b>	<b>136</b>
5.1 Introduction.....	136
5.2 Quantitative Research Approach .....	137
5.3 Research Design .....	138
5.4 Sample Selection and Data Collection .....	141
5.4.1 Data .....	142
5.4.2 Sample Selection.....	143
5.4.3 Data Collection .....	144
5.4.4 Definition of Variables.....	144
5.4.4.1 Independent Variables .....	144
5.4.4.1.1 Banking Sector Concentration .....	144
5.4.4.1.2 Capital Requirements.....	146
5.4.4.1.3 Economic Freedom .....	147
5.4.4.1.4 Bank Ownership.....	147
5.4.4.1.5 Banking Sector Competition.....	148
5.4.4.1.6 Bank Profitability.....	151
5.4.4.1.7 Interest Rate .....	152
5.4.4.1.8 Bank Capitalization.....	152
5.4.4.2 Dependent Variable .....	153
5.4.4.2.1 Risk-Taking Behaviour.....	153
5.4.4.3 Summary of the Variables Used in the Study and their Sources.....	154
5.5 Research Techniques: Panel Regression Analysis .....	155
5.5.1 Assets Concentration Model .....	157
5.5.2 Deposits Concentration Model.....	157
5.5.3 Loans/Financing Concentration Model.....	157
5.5.4 Capital Requirements Model .....	157
5.5.5 Economic Freedom Model.....	158
5.6 Summary .....	159
<b>CHAPTER SIX: RESULTS AND DISCUSSIONS .....</b>	<b>160</b>
6.1 Introduction.....	160
6.2 Estimation of Competition in the Malaysian Banking Sector .....	161
6.2.1 Equilibrium Condition in the Banking Sector of Malaysia.....	173
6.2.2 H-statistic Estimation Results .....	175
6.3 Concentration Condition in Malaysia.....	176
6.3.1 Herfindahl-Herschman Index Based on Total Assets .....	176
6.3.2 Herfindahl-Herschman Index Based on Total Deposits .....	178
6.3.3 Herfindahl-Herschman Index Based on Total Loans/Financing... ..	180
6.3.4 Herfindahl-Herschman Index for the Largest 3 and 5 Banks .....	182
6.3.5 CAR Mean Values Trend 2011-2017 .....	185
6.3.6 Trend of Z-score Mean Values .....	186
6.4 Empirical Results.....	187
6.4.1 Descriptive Statistics.....	187
6.4.2 Empirical Results of Concentration Model: Banking Sector.....	187
6.4.3 Empirical Results of Concentration Model: Islamic Banks.....	190
6.4.4 Empirical Results of Concentration Model: Conventional Banks .....	192
6.4.5 Empirical Results of Capital Requirements Model.....	195

6.4.6 Empirical Results of Economic Freedom Model.....	197
6.5 Discussion and Comparison .....	199
6.5.1 Assets Concentration and Risk-Taking.....	199
6.5.2 Deposits Concentration and Risk-Taking .....	200
6.5.3 Loans/Financing Concentration and Risk-Taking .....	201
6.5.4 Islamic and Conventional Banks in Light of Competition Influence on Z-score.....	201
6.5.5 Islamic and Conventional Banks in Light of Capital Requirements Influence on Z-score.....	202
6.5.6 Islamic and Conventional Banks in Light of Economic Freedom Influence on Z-score.....	203
6.6 Summary.....	204
<b>CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS.....</b>	<b>205</b>
7.1 Introduction.....	205
7.2 Summary of Major Findings.....	206
7.2.1 Assets, Deposits and Loans/Financing Concentration.....	207
7.2.2 Panel Data Regressions .....	208
7.2.2.1 Assets, Deposits and Loans/Financing Concentration Model.....	208
7.2.2.2 Capital Requirements Model.....	209
7.2.2.3 Economic Freedom Model .....	210
7.3 Implications of Findings .....	213
7.4 Limitations of The Study .....	218
7.5 Recommendations for Future Research.....	218
7.6 Concluding Remarks .....	220
<b>REFERENCES.....</b>	<b>222</b>
<b>LIST OF APPENDICES .....</b>	<b>243</b>

## LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
2.1	Milestones of the Malaysian Islamic banking to date	24
2.2	Number of institutions in the Malaysia banking sector	26
2.3	Percentage market share of conventional and Islamic banking	27
2.4	Summary of recent literature on the Malaysian banking sector risk-taking	41
3.1	Applications of the Panzar-Rosse methodology in banking studies of emerging economies	71
3.2	Interpreting the H-statistic of Panzar-Rosse	72
3.3	Minimum capital adequacy ratios set by BNM	79
3.4	Summary of recent empirical literature on Quiet Life Hypothesis	96
4.1	Summary of the expected effect of variables on risk-taking	134
5.1	Summary of the variables used in the study and their sources	154
6.1	Definition of variables used in P-R model	161
6.2	Summary statistics of variables used in P-R model: banking sector	162
6.3	Correlation matrix of the variables used in P-R model: banking sector	163
6.4	Summary statistics of variables used in P-R model: Islamic and conventional banks	164
6.5	Correlation matrix of the variables used in P-R model: Islamic banks	166
6.6	Correlation matrix of the variables used in P-R model: conventional banks	168
6.7	Summary of results: results of panel data analysis for H-statistics Dependent variable: total income (OLS model)	169
6.8	Summary of results: results of panel data analysis for H-statistics Dependent variable: total income (fixed effect model)	172

6.9	Panel regression results of equilibrium condition for the banking sector in Malaysia	174
6.10	H-statistic (P-R model)	175
6.11	Herfindahl-Herschman Index based on total assets	177
6.12	Herfindahl-Herschman Index based on total deposits	179
6.13	Herfindahl-Herschman Index based on total loans/financing	180
6.14	Herfindahl-Herschman Index based on CR3 assets, CR3 deposits and CR3 loans/financing	182
6.15	Herfindahl-Herschman Index based on CR5 assets, CR5 deposits and CR5 loans/Financing	184
6.16	Summary statistics of variables used in the models	187
6.17	Results of panel data analysis for concentration model: banking sector	190
6.18	Results of panel data analysis for concentration model: Islamic banks	192
6.19	Results of panel data analysis for concentration model: conventional banks	194
6.20	Results of panel data analysis for capital requirements model: banking sector, Islamic and conventional banks	196
6.21	Results of panel data analysis for economic freedom model: banking sector, Islamic and conventional banks	198
7.1	Research objectives, questions, hypotheses results	211

## LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
2.1	Islamic banking assets: share of the entire banking system 2005-2016	28
2.2	Islamic banking deposits: share of the entire banking system 2005-2016	28
2.3	Islamic banking financing: share of the entire banking system 2005-2016	29
2.4	Malaysia economic freedom index	41
3.1	Economic freedom index trend	99
4.1	Conceptual framework summary	116
4.2	Concentration model	120
4.3	Capital requirements model	126
4.4	Economic freedom model	133
6.1	Plot graph of H-statistic: banking sector, Islamic and conventional banks	176
6.2	Plot graph of mean values of HHI assets: banking sector, Islamic and conventional banks	178
6.3	Plot graph of mean values of HHI deposits: banking sector, Islamic and conventional banks	180
6.4	Plot graph of mean values of HHI loans/financing: banking sector, Islamic and conventional banks	182
6.5	Plot graph of CR3 assets, CR3 deposits and CR3 loans/financing	183
6.6	Plot graph of CR5 assets, CR5 deposits and CR5 loans/financing	184
6.7	Plot graph of mean values of capital requirements: banking sector, Islamic and conventional banks	185
6.8	Plot graph of mean values of Z-score: banking sector, Islamic and conventional banks	186

## LIST OF ABBREVIATIONS

BNM	Bank Negara Malaysia
BIMB	Bank Islam Malaysia Berhad
PLS	Profit and Loss Sharing
SPTF	Skim Perbankan Tanpa Faedah (interest-free banking scheme)
SPI	Skim Perbankan Islam
IBS	Islamic Banking Scheme
BMMB	Bank Muamalat Malaysia Berhad
MENA	Middle East and North Africa
FVT	Franchise Value Theory
QLH	Quiet Life Hypothesis
RWA	Risk Weighted Asset Ratio
CAR	Capital Adequacy Ratio
SCP	Structure-Conduct-Performance
P-R	Panzar-Rosse
LGD	Loss Given Default
RWA	Risk-Weighted Asset
IRB	Internal Ratings Based
LR	Leverage Ratio
CCBs	Credit Cooperative Banks
FDIC	Federal Deposit Insurance Corporation
LOLR	Lender-of-Last-Resort
LLP	Loan Loss Provisions
NPL	Non-Performing Loan
ESH	Efficient Structure Hypothesis
TBTF	Too Big to Fail
CR	Capital Requirements
IMF	International Monetary Fund
GMM	Generalized Method of Moments
LLP	Loan Loss Provisions

# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

The global banking and financial crises, namely the Asian financial crisis in 1997, the subprime crisis of 2007-2009, and the Euro-zone debt crisis in 2010 have raised the concerns of the financial regulators to investigate some key factors that function as the driving force of banks conduct, especially risk-taking behaviour (Abdul Wahab et al., 2017). Repercussions of the banking market concentration on banks risk-taking behaviour had gained special attention amongst researchers during the crisis period. It resulted in revisiting theories related to banking sector concentration and risk behaviour in literature. On the one hand, those who maintain that high concentrated banking market is desirable claim that, banks efficiency improves as the market gets more concentrated (Demergick-Kunt & Levine, 2000). They are of the view that, highly concentrated banking sector, a sector with fewer banks, is less prone to banking crises as compared to a banking sector that comprises many small banks (Allen & Gale, 2004). Fewer large banks in a certain system are robust owing to their ability to diversify in comparison with many small banks (Beck et al. 2003). Banks in a highly concentrated market make more profit, and hence become less fragile to shocks (Beck et al., 2003). It is easier to oversee a banking system with fewer large banks than many small ones (Beck et al. 2003). On the other hand, high concentration in the banking sector has several drawbacks. First, it causes credit supply to shrink as the banking sector gets more concentrated (Berger, 1995). Second, financial services are very expensive in a high concentrated banking sector because of pricing strategies, thereby resulting in a loss in social economic welfare. In addition, “too big to fail”

(TBTF) is an attribute that characterizes a market with few large banks. This attribute renders banks difficult to observe as compared to many small banks (Boyd & Runkle, 1993). Finally, high concentrated banking systems are associated with lower level of competition, and therefore discouraging economic advancement (Smith, 1998).

The most prominent approach used to investigate the implications of concentration for the banking system is *Structure-Conduct-Performance (SCP) paradigm* (Bikker & Haaf, 2002a; Bikker & Haaf, 2002b). Based on this paradigm, collusive behaviour among banks affects competition due to concentration; it is known as “collusion hypothesis” (Bikker & Haaf, 2002b). This paradigm implies a negative relationship between concentration and competition. The assumptions in this approach “Structural Model” are based on the market structure. In light of this model, banks can earn higher profit due to their tendency towards collusion (Al-Muharrami et al., 2006). Even though contestable banking sector is of a great benefit to society in terms of prices and financial products quality (Boyd & Nicol’o, 2005), its effect on financial stability is still controversial in literature. There are two prominent views related to this theme. While some researchers stated that, competition fuels banks risk-taking as it forces them to run with minimal capital buffer (Hellmanetal, 2000; Allen & Gale, 2004), others maintain that crises are less probable to take place in banking system where competition is high (Becketal, 2006; Boyd & Nicol’o, 2005).

The very first accord set by Basel Committee on Banking Supervision (BCBS) was Basel I in 1988, it is mainly a risk-based capital regulation. The key point in Basel I accord had to do with credit risk of major bank and attached minimum capital requirements to the asset portfolio risk of the bank. The first risk-based capital regulation has been changed many times. It was adjusted in 1996 to incorporate premium for bank market risk into risk-capital requirements. In order to deal with the

shortcomings of Basel I, Basel II was accomplished in 2004. Its primary function is rendering risk-based capital requirements more effective. Basel II incorporated premium for bank operational risk into risk-based capital calculations in addition to credit and market risks. Additionally, Basel II introduced supervisory review and market discipline mechanisms. Basel II capital standard was adopted by some countries for their banking sectors, while others were planning to adopt it that the global financial crisis takes place in 2007. Basel I and II have been immensely under critique concerning two aspects: first, there is the likelihood of regulatory capital arbitrage by means of financial innovations such as securitization (Jones, 2000). Secondly, being pro-cyclical risk-based capital requirements can boost the intensity of economic cycles (Jokipii & Milne, 2011). In the after-crisis discussions on how to fortify banking stability, capital regulation carried on functioning as a key role. In September 2010, Basel Committee on Banking Supervision introduced Basel III Accord. In Basel III both the quantity and the quality of regulatory capital have been improved. Extant literature that examines the impact of minimum capital requirements on risk-taking behaviour of commercial banks is largely divided. Some studies suggest that higher capital requirements encourage banks to take on more risk.

Economic freedom is, basically, represented by an index made up of ten constituents, these components mirrors policy and main institutional areas in the country. These ten components fall into four broad categories, namely Rule of Law (property rights, government integrity, judicial effectiveness), Government Size (government spending, tax burden, fiscal health), Regulatory Efficiency (business freedom, labour freedom, monetary freedom), Open Markets (trade freedom, investment freedom, financial freedom). In other words, it obviously defines the significant role of the government. In this regard, researchers have completely

overlooked how the level of economic freedom in a country influences risk-taking. The common understanding among previous studies that addressed economic freedom influence on variables at different levels of economic freedom is that, a country with high level of economic freedom enjoys superior outcomes in the years lie ahead. In the field of finance, economic freedom indices have been utilized as a control factor in many cases (Jones & Stroup, 2010). Even though the economic freedom is the same for both conventional and Islamic banking systems operating in the same regulator environment, the restrictions on assets and liabilities sides may hinder their risk-taking. For instance, Islamic banks are found to fare comparatively worse than conventional banks, the case is more pronounced during the crisis (Hasan & Dridi, 2010). However, observers argued that, the close linkage between financial transactions and productive flows embedded in Islamic finance was effective in protecting them from the severe consequences of the crisis (Akthar Aziz, 2009). These remarks find backup in some studies, which stated that economic freedom places a positive and significant effect on the performance of Islamic banks (Sufian & Abdul Majid, 2011). In addition, the unique risk inherent in the activities of Islamic banks that stems from the unique nature of investment deposits, whose capital value and rate of return are not assured. This trait, linked with information asymmetry rising out of the unrestricted *Mudaraba* contract (i.e., on banks' liabilities side) where banks run depositors' funds based on their preferences, considerably escalate the probability for moral hazard and engender a motive for risk taking for financial institutions without sufficient capital. Investment depositors in Islamic banks do not hold the same rights as compared to equity investors in conventional investment companies, but they do experience the same risks. Accordingly, this applies to demand depositors in the Two-Tier *Mudaraba* model. Under these circumstances, corporate governance is arduous to

practice and the likelihood for high risk-taking and moral hazard is boosted. Based on these studies, it is pre-assumed that Islamic banks could be more risk-inclined than conventional ones (Sundararajan & Errico, 2002).

What is notable after going through literature pertinent to this theme of risk-taking of banks, either Islamic or conventional is that, the influence of concentration in deposits and financing markets has not been accounted for in Malaysia. In this study, the major emphasis is on the effect of concentration of assets, deposits and financing on risk-taking behaviour of the Malaysian banking sector of both Islamic and conventional sectors. In addition, competition in the Malaysia banking sector has been transformed after the consolidation and merger processes that led to a reduction in the number of banks, particularly conventional commercial ones, and therefore a change in the manner banks take risk. Risk-taking differs between Islamic and conventional banks due to the nature of their activities and principles to be adhered to. The following questions are pertinent: Has competition trend been favourable for the two types of banks? How are they being affected by the change in the market power? In addition, Basel III was introduced due to the shortcoming in Basel II; will the increase in capital adequacy ratio push banks to be risk-averse or risk-takers? Finally, a high level of economic freedom implies the entry of new rivals, thereby making competition more acute in the banking sector. Hence, what is the implication of economic freedom level in Malaysia for the risk-taking of both Islamic and conventional banks?

Malaysia adopted a dual banking system, where Islamic and conventional banking systems operate within the same regulatory environment. According to Mokhtar et al. (2008), the adopted dual banking system in Malaysia has been considered by many Islamic countries as a prototype that will be adopted by many

Muslim countries in the future. Islamic-based banking activities are being implemented either by full-fledged Islamic banks or through Islamic windows and subsidiaries that have been established by traditional banks. The establishment of Islamic banking system in the country of Malaysia is seen as a considerable development step, which altered the banking system landscape in the country.

In 1963 the government of Malaysia set up *Tabung Haji* (the Pilgrims Management and Fund Board) marking the beginning of Islamic finance history in Malaysia. The establishment of the Islamic banking system have gone through three stages (Mokhtar et al., 2008). The first stage is named the familiarization phase (1983-1992). This period marked the establishment of Bank Islam Malaysia Berhad (BIMB), and the Islamic banking operations commenced in line with *Shariah* principles. In the second stage, during the period 1993 to 2003, the aim was to originate an auxiliary-contestable sphere among banks and spread public awareness, particularly amongst the Muslims regarding the advantages of Islamic banking. This stage witnessed the establishment of the second full-fledged Islamic bank, Bank Muamalat Malaysia Berhad (BMMB) in October 1999 as a result of Bank Bumiputera restructuring. In the third stage, institutional expansion concentrated on existing local Islamic banking divisions and the foreign bank participation in Islamic banking industry.

The number of institutions and the range of their activities have changed, owing to upgrading and restructuring of Islamic banking operations of conventional banks from units to divisions, then to subsidiaries, in addition to full-fledged banks. Consequently, this altered the structural landscape of Islamic banking industry. Meanwhile, liberalization process carried on to the influx of large foreign banks and paved the way into the banking sector. These developments have resulted in intensive banking market concentration within this industry. The restructuring of Islamic

banking operation from Islamic subsidiary to full-fledged Islamic banks has also improved the competitiveness in the market. Shifting to full-fledged Islamic banks has altered activities range of banks leading to the transformation of their market power (Mohammed & Muhammad, 2018). The alterations in the market power, be it increase or decrease, is examined using concentration indicators of market within this sector. The upgrading and restructuring of the system under the *Financial Sector Master Plan* (2001-2010) in light of the liberalization wave has caused the number of players regardless of whether domestic or international to increase in the Islamic banking system of Malaysia (Mokhtar et al., 2008). The increased number of institutions together with the range of banking activities implies a considerable implication for both competition and concentration within the Islamic banking industry.

The banking sector of the developed world was exposed to a severe turmoil because of the 2007-2009 global financial crisis. The financial crisis of 2007-2009 has triggered and fuelled public policy discourses about problems related to banking market concentration, competition, performance, risk-taking, regulation, and financial stability. One of the issues cited in the banking sector literature is the variation of risk-taking behaviour of different banks, and the factors that cause banks to adopt different structures of risk such as diversification and focus strategies (Zhang et al., 2013). Knight (1921) was the first to coin a precise definition of the risks and uncertainties. He defines risk and risk-taking “Risks and risk-taking are two co-related while relatively independent concepts. The core proposition of enterprise decision-making is how to maximize the values under the condition of limited internal resources. At the same time companies have to face external uncertainties, which may bring either benefits or losses”. Schonberg et al. (2011) defines risk as the exposure to negative outcomes, or/and the variations of outcomes due to the undertaken decision.

According to Basel Accord II (2003), the main risks for banks fall into three categories, credit risk, market risk and operational risk. Credit risk is the risk of loss brought about by the failure of a counterpart to meet the obligations set in the contractual agreement. Second, market risk is the risk of loss that stems from the changes in the price of financial assets and liabilities. Third, operational risk is the risk of loss stemming out of imperfect conducts or difficulties of internal procedures, personnel, systems, or external events.

Due to the 2007-2009 financial crisis, the financial regulators were alarmed to relook into, among others, the capital adequacy ratio of banks to absorb unforeseen losses from the excessive risk assumed by banks. The essentials of regulatory capital requirements have always been counted on to promote the constancy of banking system and realize stability. In addition, along with the regulations that have to be revised, there are many factors that fuel the risk-taking behaviour of banks, be it macroeconomic, industry or banks specifics. For example, economic freedom, franchise value, size, ownership, exit and entry of banks from the industry, deposit insurance, type of the bank, return on equity and net profit margin, just to name a few.

Abedifar et al. (2013) stated that, commitments of Islamic banks to depositors, investment account holders, do not resemble those of conventional ones; hence, they encounter dissimilar risks. Conventional banks have to meet their obligations to depositors regardless of whether their operations result in losses or gains. In contrast, Islamic banks share the profit/loss with investment account holders. This unique linkage can make Islamic banks effectively disciplined and may encounter higher withdrawal risk by their depositors. Practically, to avert withdrawal risk, Islamic banks have tendency to partly depart from the PLS. They pay a relatively contestable rate of return to their investment account holders with no link to the realized