MEASURING THE EFFICIENCY BETWEEN CONVENTIONAL GENERAL INSURANCE AND GENERAL TAKAFUL IN MALAYSIA

By

CHEAH CHEE KEONG

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

(For Master Sciences by Coursework Candidate)

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

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
Abstract

One of recommendations to achieve the vision of The Financial Sector Blueprint launched by Bank Negara Malaysia (BNM) in year 2011 is to intensify the internationalization of Islamic finance through regional and global takaful/retakaful outreach in Malaysia. While these discussions continue, the performance, particularly in the general or non-life sector whether has consistently achieve a productivity level that outpaced the conventional general insurance in Malaysia. This thesis examines the efficiency of general insurance and takaful industry in Malaysia during the period 2009 to 2013. A total of 31 of general insurance and 8 general takaful operators are selected in this study which cover all the firms in the general insurance industry. The inputs of claim expenses and management expenses, outputs of premium/contribution earn and investment income are selected based on approach consistent with several literature to measure the efficiency scores. This study employed a non parametric approach which is Data Envelopment Analysis (DEA) base on input orientation measurement to estimate the technical efficiency, pure technical efficiency and scale efficiency to compare the difference between both industries sector. The model results based on constant return to scale (CRS) and variable return to scale (VRS) to assess the efficiency scores between both industries sector. The findings indicate that there is a significant difference in efficiency between takaful industry and insurance industry where that takaful has higher efficiency than conventional insurance throughout the year 2009 to 2013. The finding shows that the general takaful industry improves of their efficiency compare with previous literature where takaful have lower efficiency compare to conventional insurance. The Malmquist productivity index shows a significant improvement in overall productivity of both industry sectors. The study suggests diversified and more selective of risk business while underwrites the risk portfolio in general insurance and takaful industry in Malaysia reduce the claim ratio.

Key words: DEA, Efficiency, Insurance, Islamic, Takaful
Abstrak

Salah satu cadangan dalam pengantarabangsaan kewangan Islam di Malaysia untuk mencapai visi Pelan Sektor Kewangan yang dilancarkan oleh Bank Negara Malaysia (BNM) pada tahun 2011 adalah mengukuhkan integrasi kewangan serantau dan antarabangsa dalam bidang takaful. Padahal, sektor takaful am di Malaysia hari ini sama ada telah mencapai satu tahap produktiviti yang mengejar konvensional insurans am. Tesis ini mengkaji tahap kecekapan konvensional insurans am dan takaful am di Malaysia pada tahun 2009 hingga tahun 2013. Sebanyak 31 daripada syarikat konvensional insurans am dan 8 syarikat takaful am yang merangkumi semua syarikat di dalam industry dipilih dalam kajian ini. Perbelanjaan tuntutan dan perbelanjaan pengurusan dipilih sebagai faktor, sumbangan premi dan pendapatan perlaburan dipilih sebagai pendekatan untuk menguji skor kecekapan yang konsisten dengan kajian literatur terkenal. Kajian ini menggunakan Data Envelopment Analysis (DEA) berdasarkan penilaian input untuk menganggar kecekapan teknikal, kecekapan pure teknikal dan kecekapan skala untuk membuat perbandingan sama ada perbezaan antara sector konvensional insurans am dan takaful am. Model penilaian berdasarkan pulangan berterusan kepada skala (CRS) dan pulangan berubah kepada skala (VRS) digunakan untuk menilai skor kecekapan. Hasil kajian menunjukkan bahawa takaful mempunyai kecekapan yang lebih tinggi dari pada konvensional insurans kebelakangan ini. Hasil kajian juga menunjukkan bahawa industri takaful am mancapai peningkatan dalam kecekapan berbandingkan dengan literatur sebelumnya di mana takaful mempunyai skor kecekapan lebih rendah. Indeks Malmquist perubahan produktiviti juga menunjukkan peningkatan keseluruhan yang ketara bagi kedua-dua sektor. Kajian ini mencadangkan insurans am dan takaful am mempelbagaikan risiko dengan lebih berwaspada apabila nilai insurans baru untuk mengurangkan nisbah tuntutan.

Kata kunci: DEA, Kecekapan, Insurans, Islam, Takaful
Acknowledgments

First and foremost, I wish to express my deepest gratitude and sincere gratitude to my supervisor, Dr. Norshafizah Hanafi for her kind encouragement and patient while this thesis was in process. She provided me with invaluable guidance and support to develop my research skill while completing the project paper. Also special thanks to all the lectures and staff of the University Utara Malaysia for their teaching, guidance and assistance which help a lot to me.

I would like to thank my family especially my father A.L. Cheah for his encouragement. I will forever be grateful to my wife and my children for their patience and many sacrifices they made to enable me to complete my postgraduate study. Not forgetting, special thanks to all my friends in UUM Kuala Lumpur to make this learning process full of enjoyment.

Finally, a sincere appreciation to Ministry of Education Malaysia to provide the MyBrain 15 scholarship which the financial support helping a lot for me to complete the study.
CONTENTS

LIST OF TABLES .................................................................................................................. IX
LIST OF FIGURES ................................................................................................................ XI
LIST OF ABBREVIATIONS/NOTATION/GLOSSARY OF TERM ........................................ XII
CHAPTER ONE ......................................................................................................................... 1
INTRODUCTION ........................................................................................................................ 1

1.1 Introduction ....................................................................................................................... 1

1.2 Background of the Study ................................................................................................. 1

1.1.1 Conventional Insurance Industry ............................................................................. 2

1.1.2 Takaful Industry ......................................................................................................... 4

1.3 Problem Statement .......................................................................................................... 6

1.4 Research Question .......................................................................................................... 7

1.5 Research Objective ......................................................................................................... 8

1.6 Significance of Study ..................................................................................................... 8

1.6.1 Scope and Limitations of the Study ......................................................................... 10

1.6.2 Input Limitation ......................................................................................................... 10

1.6.3 Country Limitation ..................................................................................................... 10

1.6.4 Lack of Information Sauce ....................................................................................... 11

1.7 Organization of the Thesis ............................................................................................. 11

CHAPTER TWO .................................................................................................................... 13

LITERATURE REVIEW ........................................................................................................... 13

2.0 Introduction ..................................................................................................................... 13

2.1 Agency Theory ............................................................................................................... 13

2.2 Efficiency Measurement Theory .................................................................................. 15

2.3 Insurance ......................................................................................................................... 17

2.4 Takaful ............................................................................................................................ 19

2.5 Malaysia Studies ............................................................................................................. 21

2.6 International Studies on Conventional Insurance Efficiency .................................... 23

2.6 International Studies on Takaful Efficiency ................................................................. 29

2.7 Chapter Summary ......................................................................................................... 30

CHAPTER THREE ................................................................................................................. 32

METHODOLOGY ................................................................................................................... 32

3.0 Introduction ..................................................................................................................... 32
3.1 Research Framework ................................................................. 32
3.2 Hypotheses/Propositions Development ....................................... 33
3.3 Research Design .................................................................... 34
3.4 Operational Definition ................................................................ 35
  3.4.1 Data Envelopment Analysis (DEA) ......................................... 35
  3.4.2 Decision Making unit (DMU) ................................................ 36
  3.4.3 Constant Returns to Scale (CRS) .......................................... 36
  3.4.4 Variable Returns to Scale (VRS) .......................................... 36
  3.4.5 Technical Efficiency (TE) ..................................................... 36
  3.4.6 Pure Technical Efficiency (PTE) ........................................... 36
  3.4.7 Scale Efficiency (SE) ........................................................ 36
  3.4.8 Malmquist Index ............................................................... 37
3.5 Measurement of Variables/Instrumentation .................................... 37
3.6 Data Collection ......................................................................... 39
3.7 Sampling .................................................................................. 39
3.8 Data Collection Procedures .......................................................... 42
3.9 Techniques of Data Analysis ....................................................... 43
  3.9.1 The Constant Returns to Scale (CRS) Model ......................... 45
  3.9.2 The Variable Returns to Scale (VRS) DEA Model .................. 46
  3.9.3 Technical Efficiency, Pure Technical Efficiency and Scale Efficiency
        46
  3.9.4 Malmquist Index ................................................................ 48
  3.9.5 Software application ............................................................ 50
3.10 Chapter Summary ...................................................................... 51
CHAPTER FOUR ............................................................................ 52
RESULTS AND DISCUSSION .......................................................... 52
  4.0 Introduction ............................................................................ 52
  4.1 Demographic Profile Analysis ................................................... 53
  4.2 DEA Result Analysis ............................................................... 58
  4.3 Performance of Total Productivity Change .................................. 68
  4.4 Chapter Summary ................................................................... 70
CHAPTER FIVE ............................................................................... 73
CONCLUSION AND RECOMENDATION ........................................ 73
  5.0 Introduction ............................................................................ 73
5.1 Finding on Efficiency ................................................................. 73
5.2 Theoretical and Practical Contribution........................................ 75
5.3 Recommendations for Future Research ...................................... 76
5.4 Conclusion ............................................................................. 76
REFERENCE .................................................................................. 77
APPENDIX ..................................................................................... 84
LIST OF TABLES

Table 1.1: Premium and contribution between conventional general insurance and general takaful in Malaysia. 03

Table 3.1: Conventional insurers combine life and general business 40

Table 3.2: Conventional insurers for general business only 40

Table 3.3: Takaful operators combine family and general business 41

Table 3.4: M&A in general insurance and takaful in Malaysia 2009-2013 41

Table 4.1: Descriptive statistics comparison of inputs and outputs 57

Table 4.2: Technical efficiency scores 2009-2013 58

Table 4.3: Technical efficiency scores base on size 2009-2013 60

Table 4.4: Technical efficiency scores base on foreign and local firm 2009-2013 61

Table 4.5: Pure technical efficiency scores 2009-2013 62

Table 4.6: Pure technical efficiency scores base on size 2009-2013 64

Table 4.7: Pure technical efficiency scores base on foreign and local firm 2009-2013 65

Table 4.8: Scale efficiency scores 2009-2013 66

Table 4.9: Scale efficiency scores base on size 2009-2013 67

Table 4.10: Scale efficiency scores base on foreign and local firm 2009-2013 68

Table 4.11: Malmquist Index summary of annual means 68
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.12</td>
<td>Malmquist Index summary of firms means</td>
<td>69</td>
</tr>
<tr>
<td>A1</td>
<td>Efficiency scores 2009</td>
<td>84</td>
</tr>
<tr>
<td>A2</td>
<td>Efficiency scores 2010</td>
<td>85</td>
</tr>
<tr>
<td>A3</td>
<td>Efficiency scores 2011</td>
<td>86</td>
</tr>
<tr>
<td>A4</td>
<td>Efficiency scores 2012</td>
<td>87</td>
</tr>
<tr>
<td>A5</td>
<td>Efficiency scores 2013</td>
<td>88</td>
</tr>
<tr>
<td>A6</td>
<td>Premium and contribution of general insurance and takaful 2009-2013</td>
<td>89</td>
</tr>
<tr>
<td>A7</td>
<td>Investment income of general insurance and takaful 2009-2013</td>
<td>90</td>
</tr>
<tr>
<td>A8</td>
<td>Management expenses of general insurance and takaful 2009-2013</td>
<td>91</td>
</tr>
<tr>
<td>A9</td>
<td>Net Claims of general insurance and takaful 2009-2013</td>
<td>92</td>
</tr>
<tr>
<td>A10</td>
<td>M&amp;A in general insurance industry in Malaysia, 2010 – 2013</td>
<td>93</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 3.1: Research Framework 33
Figure 3.2: CRS, VRS and Scale Efficiency 47
Figure 3.3: Malmquist Index 50
Figure 4.1: Premium and contribution growth 53
Figure 4.2: Investment income growth 54
Figure 4.3: Management expenses comparison 55
Figure 4.4: Claim ratio comparison 56
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNM</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>CSR</td>
<td>Constant Returns to Scale</td>
</tr>
<tr>
<td>DEA</td>
<td>Data Envelopment Analysis</td>
</tr>
<tr>
<td>EFFCH</td>
<td>Efficiency Change</td>
</tr>
<tr>
<td>M&amp;A</td>
<td>Merger and Acquisition</td>
</tr>
<tr>
<td>MII</td>
<td>Malaysia Insurance Institute</td>
</tr>
<tr>
<td>MTA</td>
<td>Malaysia Takaful Association</td>
</tr>
<tr>
<td>PECH</td>
<td>Pure Efficiency Change</td>
</tr>
<tr>
<td>PTE</td>
<td>Pure Technical Efficiency</td>
</tr>
<tr>
<td>TE</td>
<td>Technical Efficiency</td>
</tr>
<tr>
<td>TECHCH</td>
<td>Technical Efficiency Change</td>
</tr>
<tr>
<td>TFP</td>
<td>Total Factor Productivity</td>
</tr>
<tr>
<td>TFPCH</td>
<td>Total Factor Productivity Change</td>
</tr>
<tr>
<td>SE</td>
<td>Scale Efficiency</td>
</tr>
<tr>
<td>SECH</td>
<td>Scale Efficiency Change</td>
</tr>
<tr>
<td>VRS</td>
<td>Variable Returns to Scale</td>
</tr>
</tbody>
</table>
CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides introduction to the conventional insurance and takaful background of Malaysia and international context. The problem statement and research question are also discussed followed by the research objectives, research methodology, the current scope and possible limitations of the study, and finally the layout of the research of overall study.

1.2 Background of the Study

Since early 1960, Malaysia insurance industry has grown dramatically in the recent decades which bring economic growth and national income increase. A remarkable progress of the Malaysia insurance industry which began in the year 1988 when Bank Negara Malaysia (BNM) started to regulate and supervise the industry. Before this, the insurance industry in Malaysia had been facing a period of structural changes under the unregulated environment, and now towards a significant regulated sector similar to the banking industry as controlled by central bank. An Insurance sector Master Plan of Malaysia (IMP) designed by BNM since 1990s with its main objective to build local insurers to gain a competitive advantage in the global insurance market. On the other hand, consumers also being protected by the insurance products purchase and served by a wide range of the products development (BNM).
The contents of the thesis is for internal user only
REFERENCE


