THE IMPACT OF COMPETITION, OIL PRICE, AND FINANCIAL MARKET ON THE COST EFFICIENCY OF THE INSURANCE AND TAKAFUL INDUSTRY: EVIDENCE FROM GCC

BY

AHMAD F D Z R ALSHAMMARI

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

IIUM Institute of Islamic Banking and Finance (IIiBF)
International Islamic University Malaysia

SEPTEMBER 2019
ABSTRACT

The Gulf’s insurance and takaful industry has recorded significant growth since its introduction. However, the overall performance is relatively low. This study aims to examine the impact of three determinants, competition, oil price, and financial market, on the cost efficiency of the GCC insurance and takaful industry from 2009 to 2016. Also aiming to investigate whether there are differences between takaful operators and insurance companies in terms of impact of those three determinants on the cost efficiency in the GCC. This thesis uses non-parametric approach for estimation purposes, particularly Stochastic Frontier Analysis. In terms of functional form, Translog Cost Function is used in the analysis. Furthermore, the researcher uses a “one-step” by adopting Wang (2002) model, which the properties of the model allow exogenous variables to affect inefficiency by both mean and variance. The results show the relationship between competition and the efficiency is positive and supports the Quiet Life hypothesis, where managers in a less competitive market may utilise the market power of their firms and reduce their efforts. Furthermore, there are differences between takaful operators and conventional insurers concerning the impact of competition on cost efficiency. Moreover, the findings show that the relationship between the oil prices and efficiency is moved from positive to negative when the prices increase, whereas the relationship between the financial market and efficiency is negative. No clear evidence of the impact of the oil prices on efficiency arises from the differences between conventional insurance and takaful. However, there are differences regarding the financial market, negatively in conventional insurance and positively in takaful business. Resource curse hypothesis may justify these results, where firms utilize their resources inefficiently when opportunities are abundant e.g. infrastructure projects. The results have implications for regulators. The positive relationship between competition and cost efficiency may encourage the regulators to support a competitive insurance and takaful industry, which pushes the market players to improve their efficiency. Thus, the policy-makers should promote a competitive industry by having a conducive framework to endorse healthy competition among firms. They should be aware of the degree of competition and use the restrictions and requirements for market entry carefully. Furthermore, the oil prices and the financial market have an indirect impact to this industry, which should the market players develop robust strategies to deal with the external variables and use their resources efficiently regardless of the economic situation in the GCC.
حقق قطاع التأمين والتكافل منذ طرحه في دول مجلس التعاون الخليجي نموًا ملحوظًا، إلا أن الأداء الكلي ما زال منخفضًا نسبيًا. وتسعى هذه الدراسة إلى دراسة تأثير المنافسة، وسعر النفط، والسوق المالي على فعالية تكلفة صناعة التأمين في دول مجلس التعاون الخليجي ما بين 2009 و2016. كما تسعى الدراسة للتحقق فيما إذا كانت هناك اختلافات بين مشغلي التكافل وشركات التأمين من حيث تأثير المنافسة وأسعار النفط والسوق المالية على كفاءة التكلفة في دول مجلس التعاون الخليجي. تستخدم هذه الأطروحة نهج غير معلمي، وبالتحديد تحليل الحدود العشوائية، وذلك لأغراض التقدير. أما من حيث الشكل الوظيفي، تستخدم دالة تكلفة الترجمة في التحليل. علاوة على ذلك، يستخدم الباحث نموذج "خطوة واحدة" من خلال تبني نموذج وانج (2002) الذي يسمح خصائصه للمتغيرات الخارجية تأثير على عدم الكفاءة من خلال المتوسط والتباين. أظهرت النتائج أن العلاقة بين المنافسة والكفاءة هي علاقة إيجابية، وهذا يتماشي مع نظرية الحياة الهادئة، حيث يمكن للمدراء في سوق أقل تنافسية الاستفادة من القوة السوقية لشركاتهم وكذلك تقبل جهودهم. وعلاوة على ذلك، هناك تفاوتات بين مشغلي التكافل وشركات التأمين التقليدية فيما يتعلق بتأثير المنافسة على كفاءة التكلفة. بالإضافة إلى ذلك، توضح النتائج أن العلاقة بين أسعار النفط والكفاءة يتم إحالتها من الإيجابية إلى السلبية عندما ترتفع الأسعار، في حين أن العلاقة بين السوق المالية والكفاءة هي علاقة سلبية. حيث أنه لا يوجد دليل واضح على تأثير أسعار النفط على الكفاءة ناشئ بسبب اختلافاتبين التأمين التقليدي والتكافل. ومع ذلك، هناك اختلافات فيما يتعلق بالسوق المالي، وسُلبي في التأمين التقليدي و إيجابي في أعمال التكافل. هذا و تقرر فرضية لعنة الموارد هذه النتائج، حيث تستعرض الشركات مواردها بشكل غير فعال عندما يكون هناك وفرة من الفرص. على سبيل المثال، مشاريع البنية التحتية. وبناءً على نتائج هذه الدراسة، فقد تتأثر السلطات التنظيمية، حيث قد تسجح العلاقة الإيجابية بين المنافسة وفعالية تكلفة الجهات التنظيمية على دعم قطاع التأمين والتأمين التقليدي، مما يدفع الجهات الفاعلة في السوق إلى تحسين كفاءتهم. وبالتالي، يجب على واضعي السياسات تشجيع صناعة تنافسية من خلال وجود إطار متكامل لدعم المناطمة الفاعلة بين الشركات. كما يجب أن يكونوا على دراية بدرجة المنافسة واستخدام الفوائد والمتطلبات لدخول السوق بشكل واعي. علاوة على ذلك، فإن أسعار النفط والسوق المالية لها تأثير غير مباشر على هذه الصناعة، والتي ينبغي على الجهات الفاعلة في السوق تطوير استراتيجيات قوية للتعامل مع المتغيرات الخارجية واستخدام مواردهم بكفاءة بغض النظر عن الوضع الاقتصادي في دول مجلس التعاون الخليجي.
The thesis of Ahmad F D Z R Alshammari has been approved by the following:

_____________________________
Syed Musa Syed Jaafar Alhabshi
Supervisor

_____________________________
Buerhan Saiti
Co-Supervisor

_____________________________
Khaliq Ahmad
Internal Examiner

_____________________________
Mansor Ibrahim
External Examiner

_____________________________
Naziruddin Abdullah
External Examiner

_____________________________
Radwan Jamal Elatrash
Chairperson
DECLARATION

I hereby declare that this thesis is the result of my own investigation, 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.

Ahmad F D Z R Alshammari

Signature……………………………… Date ………………………
DECLARATION OF COPYRIGHT AND AFFIRMATION OF FAIR USE OF UNPUBLISHED RESEARCH

THE IMPACT OF COMPETITION, OIL PRICE, AND FINANCIAL MARKET ON THE COST EFFICIENCY OF THE INSURANCE AND TAKAFUL INDUSTRY: EVIDENCE FROM GCC

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

Copyright © 2019 Ahmad F D Z R Alshammari 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

i. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgement.

ii. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.

iii. 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 Ahmad F D Z R Alshammari

........................................  ........................................
Signature                                    Date
To my mother's soul ...

To my father for his continued support and encouragement ...

To my brothers and sisters ...

I will forever be grateful to all of you.
ACKNOWLEDGEMENTS

In the name of Allah the Most Gracious, the Most Merciful. Praise be to Allah, the Cherisher and Sustainer of the worlds for allowing the completion of this work. I would also like to convey my sincere Salam to His Messenger and Prophet, Muhammad (SAW).

I would like to express my sincere gratitude to my supervisors, Assoc. Prof. Dr. Syed Musa Syed Jaafar Alhabshi and Assoc. Prof. Dr. Buerhan Saiti, for their endless effort, support, inspiration, patience, and guidance throughout the duration of this research.

My heartfelt appreciation to my beloved father for being a constant source of unwavering support and encouragement. I am also deeply grateful to my dearest brothers and sisters, family and relatives for their countless love and motivation since I was little. Without them, I would not have been able to achieve my goals. I pray that the Almighty Allah reward you with long life, good health and deeds, and I pray to Almighty Allah to accept my mother’s soul and ensnroud her in his Infinite Mercy and Perpetual Blessing.

No words can express how thankful I am to have supportive friends and colleagues. They have been a source of enlightenment during times of difficulty faced during this academic journey. While I am blessed with many wonderful friends, I especially thank Dr. Basheer Altarturi, Dr. Othman Altwijry, Dr. Dauda Asafa, Dr. Kinan Salim, Dr. Mustapha Aydemir, Ahmed Sabree, and Hamza Altarturi, from whom I always seek advice and guidance.

Thank you for everything!
TABLE OF CONTENTS

Abstract ......................................................................................................................... ii
Abstract in Arabic .......................................................................................................... iii
Approval Page ................................................................................................................ iv
Declaration ....................................................................................................................... v
Copyright Page .............................................................................................................. vi
Dedication ....................................................................................................................... vii
Acknowledgements ....................................................................................................... viii
List of Tables .................................................................................................................. xi
List of Figures ............................................................................................................... xiii

CHAPTER ONE: INTRODUCTION .............................................................................. 1
  1.1 Introduction ............................................................................................................. 1
  1.2 Problem Statement ................................................................................................. 2
  1.3 Research Objectives ............................................................................................... 5
  1.4 Research Questions ................................................................................................. 5
  1.5 Significance of the Study ......................................................................................... 6
  1.6 Organization of the Thesis ..................................................................................... 8
  1.7 Summary ................................................................................................................ 10

CHAPTER TWO: BACKGROUND .............................................................................. 11
  2.1 Introduction ............................................................................................................. 11
  2.2 Insurance and takaful ............................................................................................. 11
    2.2.1 History of Insurance ......................................................................................... 11
    2.2.2 Operation of Insurance .................................................................................. 15
    2.2.3 Does Conventional Insurance Comply with Islamic Principles? .................. 16
    2.2.4 Shariah Basis ................................................................................................... 18
    2.2.5 Definition and Concept of Takaful .................................................................. 19
    2.2.6 Models of Takaful .......................................................................................... 21
    2.2.7 Comparison Between Takaful And Insurance ............................................. 26
  2.3 Insurance and Takaful in GCC .............................................................................. 28
    2.3.1 Kingdom of Saudi Arabia .............................................................................. 28
    2.3.2 Kingdom of Bahrain ...................................................................................... 31
    2.3.3 The Sultanate of Oman .................................................................................. 33
    2.3.4 United Arab Emirates (UAE) ......................................................................... 34
    2.3.5 State of Kuwait ............................................................................................... 36
    2.3.6 State of Qatar ................................................................................................ 38
    2.3.7 Comparison and Discussion ......................................................................... 40
  2.4 Summary ................................................................................................................ 45

CHAPTER THREE: LITERATURE REVIEW ................................................................. 46
  3.1 Introduction ............................................................................................................. 46
  3.2 Efficiency ................................................................................................................ 46
  3.3 Theoretical Background of Competition, Oil Price, and Financial Market on
      Efficiency ................................................................................................................ 49
3.4 Empirical Studies Relating Competition, Oil Price and Financial Market on Efficiency.......................................................................................................................... 55
3.5 Gap Analysis on the Current Literature ................................................................................................................................. 62

CHAPTER FOUR: RESEARCH METHODOLOGY ........................................... 64
4.1 Introduction .......................................................................................... 64
4.2 Data ........................................................................................................ 64
   4.2.1 Unit of Analysis ............................................................................ 64
   4.2.2 Operating Costs .......................................................................... 64
   4.2.3 Variables Selection ..................................................................... 65
4.3 Estimation methodology ....................................................................... 71
   4.3.1 Cost Function ............................................................................ 73
   4.3.2 Functional Form and Distributional Assumptions ....................... 74
   4.3.3 Estimation Methodology .............................................................. 76
4.4 Summary ............................................................................................... 82

CHAPTER FIVE: ANALYSIS, RESULTS, AND FINDINGS ....................... 83
5.1 Introduction .......................................................................................... 83
5.2 Descriptive analysis ............................................................................ 83
5.3 The impact of competition, oil price and financial market on inefficiency in insurance and takaful industry in GCC .................................................. 90
   5.3.1 Basic Results ............................................................................ 90
   5.3.2 The Non-Linear Impact of Competition, Oil Price And Financial Market on Inefficiency ................................................................. 111
5.4 The impact of competition, oil price and financial market on inefficiency in terms of comparing takaful operators with insurance companies in GCC 117
   5.4.1 Basic Results ............................................................................ 117
   5.4.2 The Non-Linear Impact of Competition, Oil Price and Financial Market on Inefficiency in Terms of Comparing Takaful Operators with Insurance Companies in GCC ....................................................... 122
5.5 Robustness Checks ........................................................................... 126
5.6 Summary ............................................................................................... 133

CHAPTER SIX: CONCLUSION ................................................................... 134
6.1 The Issue ............................................................................................. 134
6.2 The Inquiry .......................................................................................... 136
6.3 The Empirical Findings ...................................................................... 137
6.4 Implications .......................................................................................... 141
6.5 Limitations and Future Research .......................................................... 142

REFERENCE .............................................................................................. 143
APPENDIX ...................................................................................................... 162
LIST OF TABLES

Table 2.1  Comparison between Takaful and Insurance  27
Table 2.2  Overview of insurance and takaful players in GCC region in 2015  41
Table 2.3  The growth of Insurance and takaful in GCC region in 2015  42
Table 2.4  Types of businesses of insurance and takaful players in GCC region in 2015  43
Table 4.1  Summary of Outputs and Prices of Inputs  68
Table 4.2  Summary on All Key Variables  71
Table 5.1  Number of Insurance Firms & Takaful operators over the study period  84
Table 5.2  Summary statistics on key variables  84
Table 5.3  HHI Index of Market Concentration  85
Table 5.4  Market Share  87
Table 5.5  Average Total Index Return in GCC Stock Markets from 2009-2016  88
Table 5.6  Stock Market Cap to GDP in GCC from 2009-2016  89
Table 5.7  The Efficiency Scores of Insurance and Takaful Operators  90
Table 5.8  Comparison of Efficiency Scores within GCC Countries  90
Table 5.9  Cost Function Estimation (Concentration on Inefficiency)  93
Table 5.10  Cost Function Estimation (Market Share on Inefficiency)  96
Table 5.11  Cost Function Estimation (Oil Price on Inefficiency)  100
Table 5.12  Cost Function Estimation (The Average Total Index Rate on Inefficiency)  104
Table 5.13  Cost Function Estimation (The Stock Market Cap to GDP on Inefficiency)  108
Table 5.14  Cost Function Estimation (The Determinants of Inefficiency Including Dummy Variable for Takaful Operators)  118
<table>
<thead>
<tr>
<th>Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.15</td>
</tr>
<tr>
<td>5.16</td>
</tr>
<tr>
<td>5.17</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 2.1   The Wakalah Model ........................................... 211
Figure 2.2   The Mudarabah Model ........................................ 233
Figure 2.3   The Hybrid Model in General Takaful ...................... 255
Figure 2.4   The Hybrid Model in Family Takaful ...................... 266
Figure 5.1   Concentration over the period by country ................ 85
Figure 5.2   Oil prices over the Sample Period ......................... 87
Figure 5.3   Average Total Index Return .............................. 88
Figure 5.4   Stock market Cap to GDP ................................ 89
Figure 5.5   Marginal Effect of HHI on Efficiency ...................... 112
Figure 5.6   Marginal Effect of Market Share on Efficiency .......... 113
Figure 5.7   Marginal Effect of Oil Price on Efficiency ............... 114
Figure 5.8   Marginal Effect of Average Total Index Rate on Efficiency 115
Figure 5.9   Marginal Effect of Stock Market Cap to GDP on Efficiency 116
Figure 5.10  Comparing Marginal Effect of HHI (Takaful Operators & Insurance Companies) on Efficiency 123
Figure 5.11  Comparing Marginal Effect of Market Share (Takaful Operators & Insurance Companies) on Efficiency 123
Figure 5.12  Comparing Marginal Effect of Oil Price (Takaful Operators & Insurance Companies) on Efficiency 124
Figure 5.13  Comparing Marginal Effect of Average Total Index Return (Takaful Operators & Insurance Companies) on Efficiency 125
Figure 5.14  Comparing Marginal Effect of Stock Market Cap to GDP (Takaful Operators & Insurance Companies) on Efficiency 126
CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION

The insurance industry plays a significant role in any financial sector. Its principal function is to manage and absorb risks to support the growth of other sectors. The availability of insurance services adds value and robustness to any economy. Skipper (1997) highlights seven perspectives on how insurance services enhance an economy “… (1) Promotes financial stability and reduces anxiety; (2) Can substitute for government security programs; (3) Facilitates trade and commerce; (4) Mobilises savings; (5) Enables risk to be managed more efficiently; (6) Encourages loss mitigation; (7) Fosters a more efficient capital allocation …”. He added that a sound insurance industry is a robust foundation for economic growth.

The insurance industry provides a necessary layer of protection against unseen uncertainties and risks. However, Muslims are reluctant to subscribe to conventional insurance due to contained elements prohibited by the Shariah. In order to cater to the needs of Muslims, takaful products were developed. The first takaful company was established in Sudan, in 1979. Takaful is an alternative model of insurance that is structured in line with Shariah (Islamic Law) principles. Conventional insurance consists of elements that are prohibited in Islamic transactions such as Riba (interest), Gharar (uncertainty), and Maysir (gambling). The takaful business model operates based on the concept of cooperation and mutual responsibility and it has been adopted by 305 takaful and retakaful operators, including 93 takaful windows (IFSB, 2017).
The scope of this dissertation is the Gulf region, comprising of six countries, Kuwait, Bahrain, Saudi Arabia, United Arab Emirates (UAE), Qatar and Oman. Also, it will focus on the insurance and takaful industry.

1.2 PROBLEM STATEMENT

The insurance industry in the Gulf Cooperation Council (GCC) has recorded significant growth since its introduction. It has grown parallel to the overall economic growth of the region, population growth, greater awareness, and a supportive legal environment. In 2016 the GCC insurance industry witnessed a 12.1% Compound Annual Growth Rate (CAGR) in Gross Written Premium (GWP) valued at US$ 26.2 billion (Alpen Capital, 2017). Forecasts for 2021 anticipate that the GCC insurance industry will grow 10.9% in CAGR to reach US$ 44.0 billion. Market penetration is expected to improve from 1.9% in 2016 to 2.5% in 2021, where the insurance density is expected to increase at a CAGR of 8.4% to US$ 729.6.

The GCC is the region with the highest volume (compared to other regions e.g. South Asia, Africa) regarding gross written contributions and number of takaful operators, with 47% and 24% respectively. The market grew 21% in 2015 and 18% in 2014 compared to an increase of 10% for conventional insurance premiums during the same duration. The GCC has a significant market share of takaful operators that represent over 47% of the global takaful market.

Despite such impressive growth in the GCC countries, the profitability is still relatively low (EY, 2014; Alpen Capital, 2017) and is not in tandem with the forecasted positive market. Finance Forward (2016) states that competition, oil price and financial market may be potential factors impacting the performance of the insurance and takaful industry.
According to Augustine (2017) and Moody’s (2017) with a high level of competition in the GCC, foreign players and new local players have entered the market to gain market share. This process leads insurers and *takaful* operators to reduce their profit margins when they determine the pricing of premiums/contributions against the accepted risks (Idris, 2016; Kearney, 2008). Finance Forward (2016) highlighted that competition has driven down the performance of this industry in the GCC. It can be added that price wars and competition are the leading business risks faced by this industry, especially in the GCC. These risks are correlated. High competition among insurers and *takaful* operators will lead them to reduce their profit margins to sustain in their market presence. However, such reductions may lead to solvency. This dilemma is should be one of great concern and a focus of research for regulators and market players.

In general, the connection between competition and cost efficiency is well-established in the literature. Weill (2004) states having a high degree of competition will lead to lowering the degree of monopoly in the market and will be reflected in an overall decrease in prices. Hence, he encourages firms in competitive environments to reduce their costs to improve their cost efficiency. Furthermore, Cummins et al. (2017) mention that the lowering of insurance prices due to the high competition may not lead to a decline in profitability if competition operates to improve and increase in cost efficiency. Greene & Segal (2004) stated that cost efficiency affects profits through the negative effect of wasted resources on earnings and cash flows. It means that efficient insurers obtain higher profit due to having lower operating costs for a given amount of outputs and thus have higher profit margins.

Oil prices may also influence the performance of the insurance and *takaful* industry. In particular, Gulf countries depend heavily on oil as their primary source of
revenue. This reliance hurts other sectors (Khamis & Hamdan, 2016). The drop of oil price shrunk the revenues of GCC governments in 2014. The International Monetary Fund (IMF) estimated that lower oil prices might have withered away US$340 billion of GCC government revenues in 2015 and 2016 (Vohra, 2017). Such reductions in revenue will reduce government expenditure and investment in infrastructure development and other sectors, e.g. Saudi Arabia canceled $20 billion in projects in 2016 (PWC, 2016). Therefore, insurance and takaful firms have to compete even more for limited opportunities. The relationship between oil prices and efficiency in the past has been investigated by the banking sector only (Said, 2015; Kaffash et al., 2019).

The financial market is a keystone factor that affects the overall economy of a country, as well as the performance of individual companies (Naceur et al., 2014). It plays a significant role in resource allocation. In the case of Gulf countries, insurers and takaful operators allocate their investments heavily toward equity and real estate, because of the lack of development in the financial market (Finance Forward, 2016). These asset classes can be profitable when economic conditions are sound. However, when an economic slowdown occurs, the higher economic risk affects investment (Mensi, 2017). This high allocation of assets to equity and real estate is an area of weakness for Shariah-compliant fixed-income instruments e.g. sukuk. Hence, having an appropriate capital market — including an Islamic capital market — with sufficient diversity of instruments for fixed income is an ideal solid platform for firms to diversify their investment. Diversification reduces risk by allocating investments into different financial instruments with different characteristics. It seeks to maximize returns by investing in different opportunities, which react differently to the same event. Finance Forward (2016) states that takaful firms in the GCC have limited investment options and invest heavily in real estate investment and unit trusts, interestingly, takaful firms
in the GCC keep a high percentage of their assets in cash, as much as 17% compared to 10% in Malaysia. This lack of instruments affects overall performance of GCC takaful companies. In this context, the literature provides evidence on the connection between financial market and cost efficiency in banking and insurance sectors by Vardar (2013) and Gaganis et al. (2013) respectively.

Due to the abovementioned elements, it is essential to look at the impact of the three factors that influence cost efficiency of the insurance and takaful industry in the GCC that operate in a dual system where the takaful operators are operating alongside the conventional (except for Saudi which operates fully with Shariah principles).

1.3 RESEARCH OBJECTIVES
This thesis is designed to achieve the following objectives:

i. To examine the impact of competition on the cost efficiency of the GCC insurance and takaful industry from 2009 to 2016;

ii. To study the impact of oil price on the cost efficiency of the GCC insurance and takaful industry from 2009 to 2016;

iii. To appraise the impact of the financial market on the cost efficiency of the insurance and takaful industry in the GCC from 2009 to 2016; and

iv. To investigate whether there are differences between takaful operators and insurance companies in terms of the impact of competition, oil price and financial market on cost efficiency in the GCC.

1.4 RESEARCH QUESTIONS

i. Does competition have an impact on the cost efficiency of the GCC insurance and takaful industry?
ii. Does oil price have an impact on the cost efficiency of insurance and *takaful* in the GCC?

iii. Does the financial market have an impact on the cost efficiency of the GCC insurance and *takaful* industry?

iv. Is there a difference between *takaful* operators and insurance companies in terms of the impact of competition, oil price, and financial market on cost efficiency in GCC?

### 1.5 SIGNIFICANCE OF THE STUDY

This research focuses on the impact of three determinants, i.e. competition, oil price, and financial market, on cost efficiency. In particular, the impact of competition on cost efficiency of the Gulf insurance and *takaful* industry has not been addressed by researchers, although it has been examined in different countries (Berry-stölzle et al., 2011; Fenn et al., 2008; Alhassan & Biekpe, 2016). Besides, the dominant role of oil revenues cannot be neglected in this region, mainly because it plays a substantial role in the whole system which may impact the efficiency of the industry. The connection between oil price and efficiency has been examined in the banking sector of the Middle East and North Africa (MENA) (Said, 2015; Kaffash et al., 2019). Similarly, exploring the effect of the performance of financial market on cost efficiency is essential due to the intermediary function of insurers and *takaful* operators. The link of these variables has been examined in few pieces of research (Vardar, 2013; Gaganis et al., 2013).

Interestingly, there has been no previous study that has examined the impact of any determinant on the cost efficiency of the insurance and *takaful* industry in the Gulf. However, there is a limited number of researches that discuss the overall efficiency of the insurance industry in the Gulf region. Al-Amri et al. (2012) discuss technical
efficiency only of GCC insurance companies during 2005-2007. It is worthwhile to state that their sample was 39 companies while there is a total of around 217 companies. Moreover, Al-Amri (2015) examined the Gulf *takaful* sector in which has only 115 firm-year observations for the period 2004-2009. In terms of comparing efficiency of *takaful* and conventional insurance, there are a few research papers that studied the Malaysian and Pakistani markets (Saad et al., 2006; Baharin & Isa, 2013; Khan & Noreen, 2014). The comparison between those businesses in the GCC are untouched, although the region represents a significant percentage, i.e. 47%, of the global *takaful* market (IFSB, 2017).

This research will assist GCC regulators, academicians, insurers and *takaful* operators, as well as those who have an interest in the GCC, benefiting from the results and implications of frontier efficiency studies. For regulators, it is known that having efficient players in the market helps to ensure the stability of the economy, which is the main objective of the regulator. The importance of this research relies on showing whether competition, oil price, and financial market impact cost efficiency, consequently reflecting on the performance of the industry. Understanding the impact may enlighten regulators on which strategies are better to adopt in improving efficiency.

For academicians, it is fairly apparent that the insurance and *takaful* industry is being neglected compared to the banking industry. Not only that but also the target area, GCC, has a lack of studies focusing on the *takaful* and insurance industry. For that reason, this research may enrich the body of literature on the matter. Academicians have a central role in providing empirical studies and addressing the gaps in the industry. These are all valuable insights which eventually will be used by regulators. The last category is the management of insurance and *takaful* companies. The research will give
a clear picture to market participants about the GCC industry and how efficiency is a crucial pillar that needs to be achieved to maintain the sustainability of the industry.

1.6 ORGANIZATION OF THE THESIS

The thesis is organized into six chapters:

Chapter One: Introduction
This chapter provides an overview of the takaful and insurance industry as well as its importance to the financial system. Later there is an analysis of the issues faced by the takaful and insurance industry in the GCC with a highlight on the possible reasons for the dragging down of the performance. It contains the problem statement, objectives, questions, significance and organization of the research.

Chapter Two: Background
This chapter represents two main sections. The first section highlights the history of insurance, the nature of its business and also discusses the takaful business by scoping on its concept, and the different models used in the market. The second section zooms in on the historical and current stage of insurance and takaful in the GCC.

Chapter Three: Literature Review
This chapter consists of four sections: the first section discusses the background of efficiency through emphasising on both its concept and types. Furthermore, highlighting the common studies of efficiency within insurance and takaful sector. The second section deliberates the theoretical background of the relationship of the three determinants, competition, oil price, and financial market, with the efficiency of
insurance and *takaful* industry while the third section presents the empirical studies for those relationships. The last section demonstrates the gap in the current literature.

**Chapter Four: Research Methodology**

This chapter provides a discussion on choosing the suitable approach that can be used for measuring cost efficiency by determining inputs and outputs. Furthermore, it shows the selection of variables that will be used to achieve the objectives of the research.

**Chapter Five: Analysis, Results, and Findings**

This chapter illustrates the results of the research data analysis. Firstly, descriptive analysis is conducted to provide an overview of competition, oil price, and capital market development. After that, we study the effect of competition, oil price and capital market development on efficiency through using stochastic frontier cost function. Next, we calculate the marginal effect of competition, oil price and capital market development to analyze the non-linear effect of these three determinants of efficiency. Later we conduct another analysis to examine the impact of the determinants on the efficiency of *takaful* operators and insurance companies separately.

**Chapter Six: Conclusion**

This chapter provides an overview of the thesis by summarizing the issue, inquiry, and findings of this research. Furthermore, the implications of this thesis are a central point in this chapter due to its importance to policymakers and other market participants.
1.7 SUMMARY

This chapter presents an overview of the cost efficiency and the three possible factors—competition, oil price, and financial market— that might drag down the overall performance of the insurance and *takaful* industry. The researcher has identified the gaps in the literature which will be filled based on the research objectives.
CHAPTER TWO
BACKGROUND

2.1 INTRODUCTION
This chapter consists of two main sections. The first section highlights the history of insurance, the nature of its business and also discusses the takaful business by scoping its concept and the different operating models used in the market. This section is crucial because the comparison of these two business models, takaful and conventional insurance, is one of the cornerstones of this thesis. The second section focuses on the historical and current landscape of insurance and takaful in the GCC. It provides an overview of the industry in each country in order to understand the structure of each market on the number of players, dominated business areas and other aspects that may be useful in the analysis later.

2.2 INSURANCE AND TAKAFUL
Insurance and takaful are well-known risk management tools. They mainly provide protection for general businesses while the investment element is added for life/family line. The result might be seen as similar between insurance and takaful, but the whole process definitely consists of various differences. This section will provide an overview of the fundamentals of insurance and takaful.

2.2.1 History of Insurance
This section illustrates the history of insurance with a review of the literature. Insurance by means of providing coverage against potential risks is not a new concept. It can be classified into three eras: