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**The Determinants of Solvency and Profitability of
Takaful Firms in the GCC and Malaysian Markets**

By

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Abstract

This thesis investigates the determinants of solvency and profitability of Takaful (Islamic insurance) firms in the GCC and Malaysia. A database of financial accounting data was constructed by the author for a sample of 41 Takaful firms in the GCC and 11 Takaful firms in Malaysia for the period 2011 to 2016.

Robust regressions were run, using standard measures of solvency (Net Assets/Net Contributions) and profitability (ROA) for the dependent variables. A breakdown of the participants' fund for both markets was undertaken in order to derive explanatory variables, including Wakala Fees, Commission Paid, and Risk Retention Ratio, expected to be significant in explaining variation in the dependent variables. Other explanatory variables, motivated by previous empirical studies, include selected macroeconomic variables and ratios computed from the financial accounting data.

The main results of the study indicate that gross claims, re-Takaful contribution ceded and Wakalah fees are the main factors that contribute to the GCC participants' fund output. Their contributions are 33.3%, 24.35% and 8.44%, respectively. Gross claims paid, Wakalah fees, re-Takaful contribution ceded, management expenses and commission paid are the main factors contributing to the Malaysian participants' fund output. Their contributions are 38.4%, 16%, 12%, 10% and 7%, respectively.

The findings show that risk retention, contribution growth, Takaful leverage and Wakalah fees are statistically significant determinants for the solvency of GCC Takaful firms, while, Wakalah fees, contribution growth, commission paid, management expenses and risk retention are statistically significant for the solvency of the Malaysian Takaful firms.

Company size and GDP are significant determinants for the profitability of GCC Takaful companies, while company age, Wakalah fees, investment income and contribution growth are important determinants to explain the profitability of Malaysian Takaful firms.

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CHAPTER 1 Introduction:

1.1 Background:

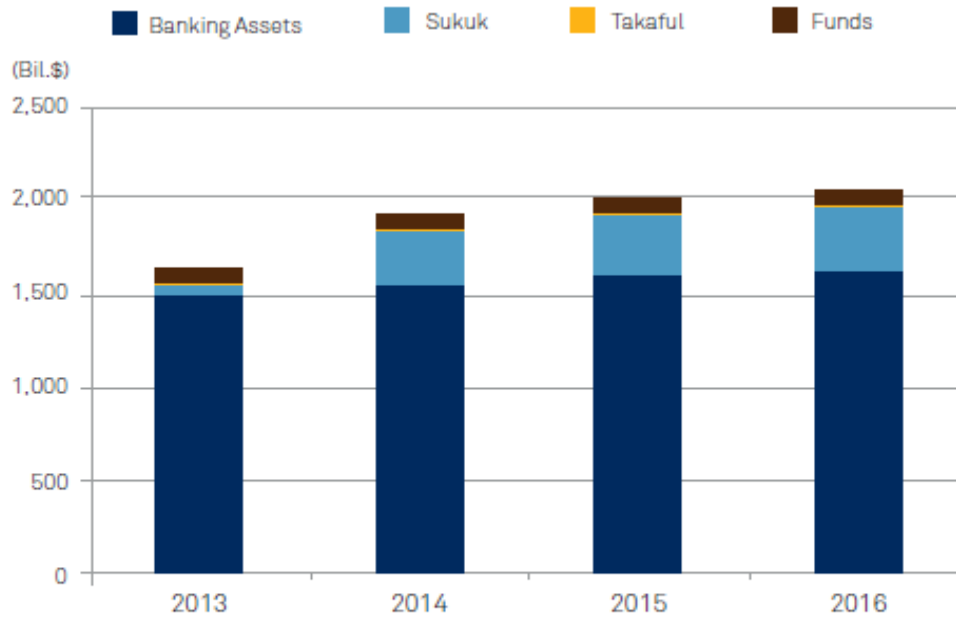
Islamic finance has emerged as a result of the belief that the conventional financial system is in conflict with the Islamic Sharia law. Since its existence, and by the evidence of its

sustainability, efficiency and stable growth, Islamic finance has become an alternative to conventional finance for a wide range of people throughout the world and has become a viable competitor to the conventional finance sector (Hasan, 2014).

The field of Islamic finance is composed of four main sectors, Islamic banking, Takaful (an Islamic form of insurance based on the principle of mutual assistance), Sukuk (Islamic bonds), and Islamic equities and equity investment funds. All of these sectors employ Islamic contracts based on the type of services offered.

Islamic finance remains concentrated primarily in the oil-exporting countries, with the Gulf Cooperation Council (GCC), Malaysia, and Iran accounting for more than 80% of the industry's assets (Damak, 2018). According to a survey conducted with managers of leading Islamic financial institutions, (Divanna and King, 2015), Islamic finance is continuing to develop in the right direction, with improving access, delivery, and promotion of financial services which are in compliance with the Islamic Sharia rules. Sharia-compliant financial services continue to develop in various parts of the world, albeit at different rates of growth. Much of the variability in market growth can be attributed to a handful of factors; emerging market complexities, economic slowdowns, varying levels of technological financial infrastructure, and a wide range of regulatory regimes. This is due in part to differences in Sharia interpretations, which, however can also be regarded as one of the strengths of Islamic finance and of Sharia scholars' ability to adapt it. The strong growth trend of the Islamic finance industry continues, with its total worth exceeding US\$2 trillion at the end of 2017, compared to US\$1.62 trillion by the end of 2013 (Islamic Finance Services Board, 2018). Grewal (2006) observed that the increase in Sharia-compliant assets worldwide was estimated at US\$700 billion in 2007 and US\$150 billion in 1990. Islamic finance has become a vital part of the international financial system, with more than 300 Islamic financial institutions globally, and with the total value of the Islamic finance industry expected to reach USD 6.7 trillion by the end of 2020 (Damak, 2018). This reflects the rapid growth of this sector among Muslim communities, organisations, and some governments to realize the role and the importance of Islamic finance.

The following figure illustrates the global Islamic finance industry assets for the period 2013 to 2016.



Source: S&P Global Ratings, S&P Global Market Intelligence, The Islamic Financial Services Board, and Thomson Reuters.

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FIGURE 1-GLOBAL ISLAMIC FINANCE INDUSTRY ASSETS FOR THE PERIOD 2013 TO 2016

The following figure illustrates the distribution of Islamic financial services around the world

Region	Banking Assets	Shukūk Outstanding	Islamic Funds' Assets	Takāful Contributions	Total	Share (%)
Asia	232.0	239.5	24.8	3.3	499.6	24.4
GCC	683.0	139.2	26.8	12.6	861.6	42.0
MENA (ex. GCC)	569.0	17.8	0.1	9.5	596.4	29.1
Africa (ex-North)	27.1	2.0	1.6	0.7	31.4	1.5
Others	46.4	1.5	13.3	0.0	61.3	3.0
Total	1,557.5	399.9	66.7	26.1	2,050.2	100.0

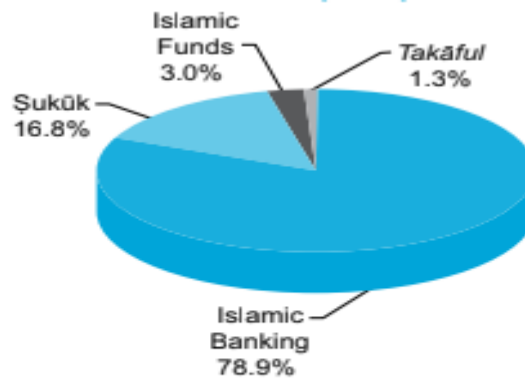
*Data for shukūk outstanding and Islamic funds' assets are for the full year 2017; data for Islamic banking are for the six months ended June 2017 (1H2017); and data for takāful are as at end-2016.

Source: IFSB Secretariat Workings

Note: Data are mostly taken from primary sources (regulatory authorities' statistical databases, annual reports and financial stability reports, official press releases and speeches, etc. and including IFSB's PSIFI database). Where primary data are unavailable, third-party data providers have been used, including Bloomberg. Takāful contributions are used as a basis to reflect the growth in the takāful industry. The breakdown of Islamic funds' assets is by domicile of the funds, while shukūk outstanding is broken down by domicile of the obligor.

FIGURE 2-ISLAMIC FINANCE SERVICES DISTRIBUTION AROUND THE WORLD

The following figure illustrates the Islamic finance services shares in the world.



Source: IFSB Secretariat Workings

FIGURE 3-SECTORAL COMPOSITION OF THE GLOBAL IFSI (2016)

The research presented in this thesis is concerned with the Islamic insurance sector. During the period covered by this study, 2011 - 2016, there were 305 Takaful operating companies in the world. Of these, 74 were located in the GCC market, the largest Takaful market, representing 77% of the global Takaful market by the end of 2016 (Ismail et al., 2017).

The Takaful industry has registered rapid growth in recent years, with an average annual growth rate of 14%. However, despite its rapid growth, the Takaful sector currently accounts for only a tiny fraction of the total global market for insurance services. According to the Islamic Bankers Association (2016) the total global premiums from insurance, including Takaful, was estimated at US\$4.7 trillion as at the end of 2014. Of this US\$4.7 trillion total, insurance premiums of only US\$73 billion came from countries in which Takaful operates, with the Takaful contributions at US\$14 billion giving market share for Takaful of approximately 20% in these countries.

The current small size of the Takaful industry is indicative, not only of its great potential for future growth, but also of a range of problems and challenges facing the Takaful industry, and which need to be overcome in order for the Takaful industry to fully achieve its potential.

1.2 Problem Statement:

The importance of this research is to focus on one of the biggest issues concerning the development of Islamic financial institutions, and in particular, for developing a deeper

understanding of the Takaful insurance sector. The major emerging Takaful sectors in the GCC and Malaysia have attracted a great deal of attention in the last two decades. However, in terms of the global Islamic finance developments, a key concern is that, in contrast to the more developed Islamic banking sector, the Takaful sector remains less developed, with a smaller asset base and more variable performance. Thus, the Takaful market is still struggling to establish itself in the highly competitive insurance market.

In particular, the opening up of the Takaful sector has raised serious concerns about the profitability and solvency of Takaful firms. A financially sound Takaful company is able to meet its obligations towards the participants. However, in practice, the participants' funds have suffered deficits due to poor underwriting management, high Wakalah fees, and poor technical performance. For the aggregate group of Takaful firms, in each year, shareholders' funds have generally achieved a profit whereas participants' funds have often shown an annual deficit. Continued annual deficits in the participants' funds are increasing the level of accumulated deficit and therefore weakening the financial strength of the participants' fund, and hence of the Takaful firm itself. According to Mistry and Duncley (2016), during the year 2013, the accumulated deficit for GCC Takaful firms increased by 51%. The survey research of Alokla and Daynes (2017) reports that senior managers of Takaful firms state that the risk of a deficit in the participants' fund is one of the major risk factors facing Takaful companies. The growing number of Takaful firms that have collapsed highlights the concerns over the profitability and solvency, not only for the Takaful sector but also for the Islamic finance industry as well (Ismail, 2013).

There is a great lack of empirical studies on Takaful. Much of the research in Islamic finance has been conducted in the Islamic banking sector. Of the Takaful research literature that does exist, nearly all studies on Takaful are focused mainly on theoretical, rather than empirical issues, including discussions of the meaning of Takaful, Takaful models, and on the differences between Takaful and conventional insurance (Maysami and Kwon, 1999; Basov and Bhatti, 2016; Patrick, 2014; and Aziz, 2017). While conventional insurer insolvencies have received extensive study in the conventional insurance literature (Browne et al., 2001), there have been only a few studies in the academic literature on Takaful operating characteristics and the factors that are related to Takaful solvency and profitability. Defining appropriate measures of solvency and profitability can be seen as problematic, as is identifying and analysing those factors contributing to the solvency and profitability of Takaful firms.

As solvency and profitability are major areas of concern in the Takaful sector, this study aims to contribute to our understanding of the determinants of Takaful profitability and solvency. This is especially important in view of the current financial landscape that is becoming increasingly challenging. The research is also particularly relevant in view of the fact that the Takaful industry in both the GCC and Malaysia has yet to make a significant impact, despite the fact that the GCC and Malaysia have numerous Islamic financial institutions and large Sharia-compliant asset bases.

1.3 Aims, Objectives, and Research Questions:

The aim of this research is to explore the financial strength of Takaful operating companies in the GCC and Malaysia for the period of 2011 to 2016, in particular, by focusing on the determinants of solvency and profitability.

As can be seen from Chapter 2, where the main Takaful business models are reviewed, the financial strength of Takaful firms is significantly impacted by the deficit/surplus of the participants' fund, an issue that is not present in the case of conventional insurers. Therefore, in order to understand the determinants of the solvency and profitability of the Takaful firm, this study as well identifies the main inflows and outflows contributing to the deficit/surplus of the participants' fund. Thus, the aim of this study is to contribute to finding answers to the following research questions, formulated into two main objectives as follows:

1- What are the major inflows and outflows that determine the deficit/surplus in the participants' fund in the GCC and Malaysian Takaful markets, and which impact on the financial stability and profitability of the Takaful firm itself?

The research questions relating to the second objective are:

2(a) – What are the major determinants of solvency for Takaful firms in the GCC and Malaysian markets.

2(b) – What are the major determinants of profitability for Takaful firms in the GCC and Malaysian markets.

1.4. Research Methodology:

The deductive research methodology is employed in this study. The deductive methodology is dominant in empirical research in economics and finance, and is therefore well understood by researchers in these fields. Therefore, the deductive

methodology will be discussed quite briefly. Although the deductive methodology is widely used and understood, there are some differences in emphasis among different researchers. Therefore, in this section the steps followed in applying the deductive methodology in this research are outlined and discussed, in order to make clear the methodology followed in this research.

The deductive methodology is implemented by following Steps 1 to six, as follows.

Step 1: According to Karl Popper (Popper, 1959 and 1999), the philosopher of science most associated with the deductive method, all research begins with a problem, or a question, or a series of related problems or questions. The research questions that motivate the research of this thesis are outlined in the previous Section 1.3 and discussed further in Section 1.5 below.

An essential feature of Step 1 in the deductive method is that the questions raised must be worth asking. This is a value judgement. The author argues in the problem statement in Section 1.2 that Islamic finance, and the Takaful industry in particular, are worth studying, and that the questions raised on identifying the factors determining the solvency and profitability of Takaful are of significant interest and value.

Popper himself does not generally discuss in much depth the issue of the value of the research problems and questions raised. This is perhaps due to his main interest in the methodology of the physical sciences, especially physics, where the problems are, to some degree, provided objectively by nature. When applying the deductive methodology to the social sciences, however, the issue of the importance and value of the research questions is discussed more explicitly.

Step 2: Step 2 of the deductive methodology is to summarise what is known already about the solutions/answers to the problems/questions raised in Step 1. In this research, what is already known is derived from the following main resources:

- 1) The author's extensive knowledge and professional experience in the insurance and Takaful industries.
- 2) Relevant knowledge of:
 - a) The principles of Islamic finance, Takaful, and the range of Takaful business models currently employed. This material is presented in Chapter 2.

- b) Relevant background knowledge of the political, economic, institutional and legal frameworks in the countries studied. This material is presented in Chapter 3.
- c) The literature on Islamic finance and Takaful published in academic journals and professional journals. The relevant literature review material is presented in Chapters 4 and 5.

Step 3: Step 3 concerns hypothesis development. Based on Step 2 a number of provisional answers to the research questions are proposed. The provisional answers imply certain testable hypotheses, which are then critically tested. In this research, the hypotheses are defined and critically tested in the multiple regression analysis reported in Chapters 4 and 5. The critical testing of testable hypotheses derived from provisional answers is a key step in the deductive methodology.

Step 4: Step 4 is the part of the deductive methodology where the exact details of the tests to be carried out are presented. The use of multiple regression analysis in economics and finance is standard and requires relatively little discussion. More extensive discussion is required for the data. One of the reasons for the relative lack of empirical research in Islamic finance and Takaful is the unavailability of relevant data. This acquisition of the data required for the present study was one of the major challenges to be overcome. The details of the regression models applied, and the discussion of the sources of data used in the study are presented in Chapter 4.

Step 5: Step 5 concerns the rejection or provisional acceptance of the hypotheses based on results of the critical tests of the hypotheses carried out in Step 4. The result of the critical tests of the hypotheses may lead, broadly speaking to three outcomes:

- a) A hypothesis may be rejected.
- b) A hypothesis may be not rejected, i.e. it may be provisionally accepted.
- c) The results may be “mixed”, in which case no clear conclusion can be drawn.

Step 5 of the deductive methodology is more problematic for social science research than it is for the physical sciences. Popper, when discussing the application of the deductive methodology to physics, often talks as if the outcome of a critical experiment is always clear-cut, i.e. that the experimental results will conclusively falsify (reject) a hypothesis, or else will clearly corroborate (fail to reject) a given hypothesis. In finance research,

rejection or provisional acceptance of a hypothesis usually involves a further probabilistic judgement. A hypothesis is rejected if the p-value, the probability of getting the results obtained assuming the hypothesis to be true, is “small enough” (equivalently, if the observed t-value, or other test statistic, is “big enough”). In other words, it is plausible to reject a hypothesis if the results observed are “very unlikely” assuming that the hypothesis is true. While researchers often use a 1% or 5% cut-off point for the p-value, the decision to reject or provisionally accept a hypothesis depends on the researcher’s judgement on what is appropriate for the particular research question under consideration. In this research the significance of the results using the standard cut-off points of 0.1%, 1% and 5% are reported.

Step 5, the critical discussion of the empirical results is presented on Chapter 4 and 5. A brief outline of the main conclusions is presented in Chapter 1, section 1.6 below.

Step 6: The deductive research methodology involves a never-ending feedback loop. The results reported in Step 5 leads back to Step 2, since what is now known about possible solutions/answers to the problems/question raised has now increased. As a result of this research, hypotheses are revised, and further research questions are raised.

Some results that been provisionally accepted may be applied in practice. For example, regulators, investors, customers, and managers of Takaful firms may apply the results of research to practical decision-making. These issues are discussed in the critical discussion of Chapters 4 and 5 and in the concluding Chapter 6.

It was indicated above that the deductive research methodology, when applied to social science research, should be regarded as a set of guidelines rather than as a strict set of rules. While the deductive methodology cannot be applied in the strict way that Popper demands of research in physics, the deductive methodology provides one clear and logical path to undertaking finance research, and which sets out the logical framework for research which is followed in the Takaful study presented here.

1.5 Motivation and Contribution of the Research:

There are many factors driving the motivation to conduct research in the Islamic insurance industry.

Firstly, the Islamic insurance industry is a fundamental part of the Islamic finance domain. The Takaful market has grown remarkably in the last two decades; its assets are

expected to continue to increase significantly in the near future, while the number of Takaful operators providing Islamic insurance services operating worldwide has risen dramatically. The Takaful industry has diversified internationally, with non-Muslim countries such as the United Kingdom taking a leading role, with London developing into the hub of the growing number of Islamic finance centres around the world (Osborne, 2013).

The international growth of the Takaful industry has gained the attention of the main players in the conventional international finance system, with conventional international insurers and reinsurers creating Takaful subsidiaries or opening Takaful windows, including Munich Re, Hannover Re, Swiss Re, the American Insurance Group and the Lloyd's insurance market (Tolefat and Asutay, 2013).

Thirdly, the fast-expected economic growth in the oil-exporting Islamic countries, particularly in the GCC after the recovery in the oil price, promises an optimistic future for the Takaful industry to develop and thrive. Several large-scale infrastructure projects in the GCC are planned, in line with the future economic visions of many GCC countries, including the Saudi vision 2030, the Bahrain vision 2030, the Qatar vision 2030, the Abu Dhabi vision 2030, the Kuwait vision 2035, and the Oman vision 2040. The opportunities for Takaful insurance and reinsurance resulting from the implementation of these long term economic plans promises a secure future for the development of Takaful industry (Elkaftangui and Mohamed, 2019; Busaidi et al., 2018; Alshuwaikhat et al., 2016; Diab, 2015; Goodman, 2015 and Alobaidi et al., 2015).

However, despite the importance of the Takaful industry as a key part of the Islamic finance market, there is a severe lack of academic research related to this industry. The growth of the Takaful industry is not adequately supported by academic research, particularly by empirical research (Maysami and Kwon, 1999; Basov and Bhatti, 2016; Patrick, 2014 and Aziz, 2017). The research gap extends even to basic research questions about the structure of Takaful. For example, there have been no controlled empirical studies comparing the different business models in Takaful or detailed investigations of the arrangements for re-Takaful within Takaful operations (Pasha and Hussain, 2013; Habib and Shaukat, 2016; Puspitasari et al., 2016; Isa et al., 2017; El Hachloufi and El Msiyah, 2017; Billah and Basodan, 2017 and Mohamad et al., 2018).

Major research challenges facing the Takaful industry include identifying and measuring the factors determining the solvency and profitability of Takaful firms, the financial stability of the participants' fund, the limited availability of Sharia-compliant investment opportunities, the lack of comprehensive and reliable credit ratings for Islamic financial products and institutions, and the inadequate number of re-Takaful providers. The deficit on the participants' fund can be regarded as a high priority alert, because it has a strong relationship with solvency and profitability of the Takaful firm. This issue, if not addressed, can lead, not only to the failure of individual Takaful firms, but also create an existential risk for the Takaful industry as a whole. Thus, the focus of this research is on the factors determining the solvency and profitability of Takaful firms, including factors derived from considerations of the impact on solvency and profitability of the deficit on the participants' fund.

There are, in particular, very few quantitative empirical studies on the Takaful industry, while empirical studies of solvency and profitability are major themes in contemporary research on conventional insurance firms (Barros et al., 2005 and Cummins and Zi, 1998). Many conventional insurance studies have been conducted in developed countries, with a significant and growing body of literature on conventional insurers in emerging markets. Furthermore, while there are some similarities between Takaful and conventional insurance, the differences between Islamic and conventional insurance are sufficiently large that the body of academic research on conventional insurance cannot simply be carried over to answer the research problems that arise for the Takaful industry.

A main reason for the lack of empirical research on Takaful is the lack of adequate empirical data, not only for Takaful but also for research on Islamic finance generally (Tolefat and Asutay, 2013). One of the main challenges, as well as one of the motivations for this research, was to construct a database that can be considered as adequate for the starting phase of empirical investigations into the participants' fund, and on the solvency and profitability determinants of Takaful firms.

Thus, the purpose of this study is to contribute to the literature by analysing the participants' fund inflows and outflows, and to identify and measure the solvency and profitability determinants for the Takaful industry, covering the two geographical regions of the GCC and Malaysia, and covering the period 2011 to 2016. The sample comprises 41 Takaful firms from the GCC, and 11 Takaful firms from the Malaysian

market, covering 100% of all Takaful firms operating in these markets for the time period covered in this study. According to the researcher's best knowledge, this is the most extensive data set yet used in the study of Takaful. The new data set motivates the use of some new explanatory variables, such as Wakalah fees, commission paid, and management expenses that have not been used in previous studies.

The Takaful data set used also suffers from a number of limitations. In particular, in comparison with the data available for conventional insurance studies, the Takaful sample size is small, and the time period covered is limited to 6 years. Certain econometric issues, such as the treatment of outliers, are potentially more serious than those considered in the analysis of conventional insurance, where extensive time series and cross-sectional data is available. These limitations need to be addressed when considering the policy-making implications, for supervisory authorities, researchers, Takaful rating agencies, investors, financial analysts, and other stakeholders. Despite these limitations, the research presented in this study may contribute further to our understanding of the Takaful market and to the achievement of its full potential.

1.6 Overview of the Research:

The deductive methodology discussed in Section 1.4 is implemented within the following structure of the thesis. The thesis is divided into six chapters.

Chapter 1 concerns Step 1 of the deductive methodology, the presentation and motivation of the research questions/problems, as presented in Sections 1.2, 1.3, and 1.5 above.

Chapters 2 and 3 concern Step 2 of the deductive methodology, summarising relevant knowledge about what is already known about the questions/problems under investigation. Chapter 2 reviews the principles of Islamic finance, Takaful, and the range of Takaful business models currently employed. Chapter 2 contributes to the hypothesis development by highlighting the importance of the participants' fund in the Takaful business models. Chapter 3 provides relevant background information on the development of Takaful in the GCC and Malaysia and contributes to the hypothesis development by highlighting the currently under-developed state of the legal and regulatory framework in the GCC countries.

Chapter 4 is concerned with the solvency determinants of Takaful firms in the GCC and Malaysia. Previous empirical studies are reviewed and the breakdown of the inflows/outflows of the participants' fund is presented. The data set constructed by the author is presented. These are combined with the material from Chapters 2 and 3 to

derive the testable hypotheses on the determinants of solvency, which are then critically, tested using the robust regression model presented.

Chapter 5 is concerned with profitability determinants of Takaful firms in the GCC and Malaysia. Previous empirical studies are reviewed; testable hypotheses on the determinants of profitability are developed, and critically tested using the robust regression model. For the Malaysian market, most of the solvency and profitability factors hypothesised are significant, and in particular, the Wakalah fees and management expenses factors introduced into this study for the first time. The results for the GCC are similar, but less conclusive. Less conclusive results for the GCC were expected, in view of the discussion in Chapter 3 on the weak regulatory environment in which GCC Takaful firms operate. Chapter 6 discusses the main implications of the research for academics, managers, regulators, government, and other relevant stakeholders.

CHAPTER 2: An Introduction to Takaful: Principles, Instruments and Models

2.0 Introduction:

Chapter 2 concerns Step 2.2 (a) of the deductive methodology presented in Chapter 1.4, namely, to present relevant background knowledge of the principles of Islamic finance, Takaful, and the range of business models used in Takaful.

Section 2.1 sets the context by briefly summarising the key sources and principles of Islamic finance and Takaful. Section 2.2 discusses the main differences between Takaful and conventional insurance. Section 2.3 presents the business models used in Takaful. The material presented in Section 2.3 is important for the hypothesis development, Step 3, of the deductive method, presented in Chapter 4. Firstly, as can be seen from Section 2.3, the inflows and outflows of funds to and from the participants' fund are significant in determining the financial viability of the Takaful firm. The main inflows/outflows lead to the proposal of certain explanatory variables to be used in the regressions. Secondly, the Takaful models used in the GCC differ from those used in Malaysia. This too informs the choice of the explanatory variables. Section 2.4 discusses the risk of deficit in the participants' fund in further depth. Section 2.5 presents the other main risk management issues facing Takaful firms. The data currently available makes it infeasible to apply this material directly in developing further testable hypotheses in the research presented in this thesis. However, as the data resources available for Takaful research continue to expand, incorporating further solvency and profitability factors based on the additional risk factors discussed in Section 2.5 will become possible. Questions for further research are discussed in the concluding Chapter 6.

2.1 What is Takaful?

The primary sources of the Sharia are the Quran, which Muslims believe to be the revealed Word of God, and the Sunnah, the record of the sayings, words, and actions of the Prophet Muhammad (PBUH). The secondary sources of the Sharia are Ijima (the consensus of Muslim jurists), Qiyas (argument by analogy), and Ijtihad (interpretation). Conclusions from the secondary sources are disputable. Muslims differ too on the degree

of authority of the Sunnah, since it can be disputed to what extent the Sunnah provides a true record of historical events. The Quran, on the other hand, is regarded by almost all Muslims as the true Word of God. In this chapter the sources of the Sharia, as it applies to Takaful, are taken from the relevant verses of the Holy Quran.

One of the core justifications for Takaful is a negative one. Most Muslim jurists believe that conventional insurance is forbidden because it is in direct conflict with the Islamic prohibitions against Riba (usury), Gharar (uncertainty), and Maysir (speculation). The prohibition against Riba is explicit in the following verse:

“Allah has permitted trade and prohibited usury.” (Qur’an (2:275))

A minority of modern scholars believe the prohibition against Riba to forbid the charging and paying only of excessive interest. However, the strong consensus among Muslim jurists today is that the paying or receiving of interest is forbidden altogether. Conventional insurers do not comply with the Sharia, as they are major investors in interest-bearing financial assets. Even if the financial assets of conventional insurers were restricted to Sharia-compliant investments, according to Htay and Salman (2013), Riba remains a fundamental part of conventional insurance because the insurance policy in its nature is a fixed interest commitment, whereby the insured pays a certain premium to the insurer but with uncertainty about the business outcome.

The prohibition of Gharar can be deduced from the following verse:

“O ye who believe! Eat not up your property among yourselves in vanities, but let there be amongst you traffic and trade by mutual good-will, nor kill (or destroy) yourselves, for verily Allah hath been to you Most Merciful.” (An-Nisaa: 29).

Since risk and uncertainty is an inseparable feature of any business activity, Gharar is taken to refer to uncertainty arising from deception, ignorance, lack of transparency, and fraud. ‘Gharar’ is an Arabic word meaning ambiguity, uncertainty or hazard. Gharar can arise from the object of the contract itself, or from ambiguity or uncertainty arising from the terms of the contract. Elfakhani and Sidani (2015) and Al-Dareer (1997) define Gharar in jurisprudential terms under three headings. The first is where there is uncertainty in the sense of not knowing whether an event will take place or not. Secondly, Gharar may arise when the occurrence of an event, such as a sale, is known, but where

there is a lack of transparency, for example, where the purchaser does not know what he has bought or where the seller does not know what he has sold. Thirdly, Gharar may occur as a combination of the two categories above.

The Ethical Institute of Islamic Finance explains Gharar in the following way:

“Gharar refers to uncertainty or ambiguity that may lead to dispute between contracting parties. For instance, executing a contract before the price, subject matter, or transacting parties are definitively known”. Htay and Salman (2013) and Alhabshi (2017) argue that Gharar is present in conventional insurance operations, in that the consequences of the insurance contract are hidden or unknown. They argue that this is forbidden in Islam, failing to be in compliance with the requirement that a contract between the parties must be clear, and with full knowledge and transparency.

‘Maysir’ refers to speculation or gambling. Considered in respect of forbidding the creation of unnecessary, avoidable, or harmful risks, the prohibition against Gharar resembles to some extent the prohibition against Maysir. However, the prohibition against Maysir can also be considered as a prohibition against the desire of the gambler to obtain something for nothing. The gambler or speculator seeks to gain without giving something of value in return, and without making the efforts or sacrifices required in order to earn a just reward. Bhatti and Nisar (2016) argue that Maysir is present in the conventional insurance system as the policyholder pays the premium but will be compensated only in case of the occurrence of a contingent event, making it similar to gambling.

As well as the negative case for Takaful, the avoidance of Riba, Gharar, and Maysir, the Quran is the source of the positive justification for Takaful as well. To be in accordance with Islam, the Takaful firm needs to go far beyond merely avoiding actions that are directly forbidden in the Quranic verses. According to Habib and Shaukat (2016), Takaful is an Arabic word, derived from another Arabic word, ‘Khafala’. ‘Khafala’ means responsibility or guarantee. Thus, Takaful implies a sharing of responsibilities and risks. Takaful is deeply rooted in the revealed Word of Almighty God (Qur’an, 4:2):

“Help ye one another in righteousness, and piety, but help ye not one another in sin and rancour”.

Thus, the fundamental idea of Takaful insurance is based on the basic principle of cooperation, or mutual self-help, between groups of individuals who are in risk of

common danger. According to Kettell (2011): “Since conventional insurance is about uncertainty and chance occurrences in the eyes of Muslims, insurance looked like a catalogue of prohibited practices: Inequality between premiums paid and benefits collected (or not collected), premiums placed in interest bearing instruments, and late payments of premiums resulting in interest and late fees”. In contrast, in Takaful, donations or contributions from individuals or groups to one fund are made in order to share the risk between all contributors. The Government of Malaysia (1984) expresses this in the following definition of Takaful:

“A scheme based on brotherhood, solidarity and mutual assistance which provides for mutual financial aid and assistance to the participants in case of need whereby the participants mutually agree to contribute for the purpose”.

Takaful requires each participant to contribute into a fund that is used to support one another with each participant contributing sufficient amounts to cover expected claims, and to share in any surpluses arising from the Takaful operations, such as returns on invested surpluses (Cheikh, 2013). Takaful thus combines the lawful elements of a profit sharing mechanism, donations, and an agency contract. Riba, Gharar, and Maysir in Takaful are therefore avoided. Takaful aims to operate in compliance with the Islamic Sharia rules and to achieve the pleasure of Allah, by following the principles of cooperation, joint guarantee and mutual help. At the same time, Takaful provides the material security for the subscribers against any unexpected losses.

2.2 The Differences between Takaful and Conventional Insurance:

According to Matsawali et al. (2012), both the conventional insurance system and Takaful system have many similarities. All of the underwriting and actuarial techniques are the same in the Takaful and conventional systems (Fupuy et al., 2012; Yakob and Isa, 2016; Yakob et al., 2014; Saputra et al., 2016; Thanasegaran, 2016; Abdou et al., 2014 and Akhtar, 2018). Assessing the aims of the conventional insurance and Takaful systems, it can be seen that the main purpose of both systems is to pay claims to policyholders should they suffer loss or damage, with the idea of effectively restoring the insured to the position that they were in before the loss. However, in the case of conventional insurance, the insurance contract is risk transfer mechanism based on a legal agreement between the two parties. Takaful, on the other hand, is risk-sharing mechanism, based on the idea of cooperating to create a joint guarantee scheme under the Islamic Sharia rules.

Despite these important similarities between conventional insurance and Takaful, there are many substantial differences as well. The majority of jurists argue for the prohibition of conventional insurance, on the basis that the differences between Takaful and conventional insurance cannot be reconciled with the prohibitions of the Sharia (Baltiji, 1987). Despite this, there is a minority of scholars who maintain that it is permissible to adopt the approach of conventional insurance (Hassan, 1979). In this thesis the opinion of the majority of scholars is accepted.

Takaful is about risk sharing among the insured, and not about risk transfer between the insured and the insurer as in conventional insurance. In Takaful, the premiums coming from the participants are donations based on the contract of donation. The process is supplemented by operational models, such as Mudarabah and Wakalah, while no such models exist in conventional insurance (Htey and Salman, 2013). Additionally, Takaful companies have an explicit responsibility to comply with the relevant and applicable Sharia rules, in addition to the laws, regulations and principles applicable to all insurance companies.

In respect of the investment policy, contributions from the Takaful funds must be invested only in assets that comply with the principles of Sharia. The surplus on one Takaful pool must not be used to cover the deficits in other pools within the company. Participants share in the surpluses, and in some cases may be requested to make further contributions in case there is a deficit in the pool (Nahar, 2015). In other cases, the Takaful fund maybe be asked to provide an interest-free loan to cover the deficit. Future surpluses will be used to repay the loan (Tolefat and Asutay, 2013; Hassan and Rohayem, 2009). These aspects of Takaful investment policies differ considerably from the practices of conventional insurance firms.

The stakeholders in Islamic insurance companies include participants, operators, shareholders, Sharia supervisors and regulators. Because Takaful operators have numerous stakeholders, Takaful firms are subject to obligations on financial reporting that are not required for conventional insurers. According to Abdullah Chua (2000), the shareholders' (operators') fund and the participants' (the insured) fund must be kept segregated. Segregation of funds is imperative in Islamic insurance. The Takaful

operators are responsible for the management of the Takaful fund, and they are remunerated for their efforts. In Wakalah contracts, it can be agreed that the Takaful operator acting as an agent can be entitled to a sum of the surplus as a performance incentive. Islamic finance reporting is more specific to participants' balances and transactions (segregation of funds). In contrast, financial reporting in conventional insurance focuses more on the shareholders and markets, including customers and creditors (Cheikh, 2013).

The following table summarizes the key differences between the conventional insurance and Takaful.

TABLE 1-SUMMARY OF THE MAIN DIFFERENCES BETWEEN THE TAKAFUL AND THE CONVENTIONAL INSURANCE

Conventional Insurance System	Takaful System
Risk transfer mechanism based on legal agreement from the policyholder to the insurer.	Risk sharing mechanism based on cooperation, donation and shared responsibility.
No restriction on investment	Investment should be according to the Islamic Sharia law.
The premiums are owned by the insurer	The contributions (premium) are owned by the participants (policyholders)
Subject to the governing laws	Subject to the governing laws and the Islamic Sharia law
Surplus and profit paid to the shareholders only	Surplus paid to the participants
In case of any deficit the company covers the deficit.	In case of the deficits the Takaful operator provides an interest free loan (Qard Hasan)
No restrictions on reinsurance operation	Reinsurance operations should be with Sharia compliant reinsurers (re-Takaful firms)
Relationship between policyholders and company is on a one-to-one basis	The shareholders act as agents on behalf of the participants
For accounting purposes, one balance sheet and income statement	One balance sheet and two income statements, one for the shareholders and one for the participants.

2.3 Takaful Models:

The Takaful system is a cooperative system rather than a profit motivated system. The system operates upon the mutual guarantee between the participants. It is essential that the Takaful system be compliant with the Islamic Sharia rules, and in the Takaful system a number of Sharia compliant models have been adopted. Each such model includes various sets of rights and obligations between the participants and the fund operators. According to Htay and Salman (2013), Takaful operators are given the flexibility to manage the operating fund under different business models, depending on many factors, such as the differences between the various schools of Islamic jurisprudence and differing socioeconomic environments. Nevertheless, all of these models must be in line with the Sharia.

From Akhter (2010); Bakar (2009); Kwon (2007); Aris et al. (2012); Abouzaid (2007); Tolefat and Asutay (2013); Frenz and Soualhi (2010) and Htay and Salman (2013) the following classification of the main Takaful models is derived:

- 1- Pure Cooperative Model
- 2- Pure Wakalah Model
- 3- Pure Mudarabah Model
- 4- Wakalah with incentive compensation.
- 5- Modified Mudarabah Model
- 6- Hybrid Wakalah Mudarabah Model
- 7- Waqf Model

2.3.1 Pure Cooperative Model:

This model is found in Saudi Arabia and Sudan. Under this concept, the participants own the fund and any profit achieved is distributed between the participants or retained in the fund. Moreover, the participants and the fund operator share the investment income according to the pure Mudarabah model. Life and family Takaful apply this model as the fund is completely distributed to the participants.

While it can be argued that the pure cooperative model is the one that holds most closely to the spirit of Islamic teaching, a number of difficulties arise in its practical implementation. These pertain to the lack of incentives for investors and managers when compared to other models. In particular, the lack of sufficient incentives to investors

makes raising capital difficult and provides fewer incentives for entrepreneurship to the managers than competing models (Htay et al., 2012).

The following figure clarifies how the cooperative model operates, adopted from Htay et al., (2012)

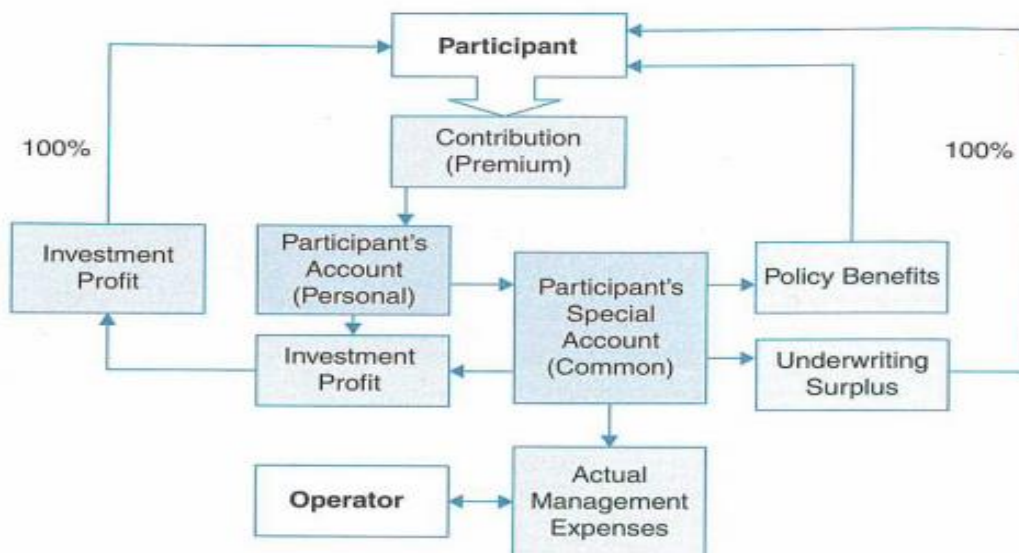


FIGURE 4- COOPERATIVE MODEL: ADOPTED FROM HTAY ET AL., (2012)

2.3.2 WAKALAH MODEL:

The hybrid Wakalah Mudarabah model and the Wakalah model are largely used in the GCC (Mankabady et al., 2015). The Wakalah model is essentially based on the contract of agency. The participants appoint the operator as an agent (Al Wakil) to manage the underwriting operation and to manage the investments on their behalf. In return the operator receives pre-agreed fees (Wakalah fees), in respect of both the underwriting operation and the investment administration.

One criticism of this model is that it provides insufficient incentives for the operator, as the pre-agreed fees of the operator do not allow the operator to share or participate in any underwriting or investment results. Thus, as with the pure cooperative model, there are concerns that the Wakalah model fails to deal adequately with issues of investor and management incentives. A further criticism is that the contractual relationship requiring payment of Wakalah fees does not reflect the cooperative spirit underlying Takaful. Other

issues are related to the Qard Al Hasan. The Qard Al Hasan is an obligation of the shareholders to cover any deficit on the Takaful fund, and the Qard must be repaid by participants from future surpluses. However, scholars have criticised the current practice whereby the future repayments are made by participants different from those participants current at the point when the deficit occurred (Archer et al., 2011 and Wahab, 2006).

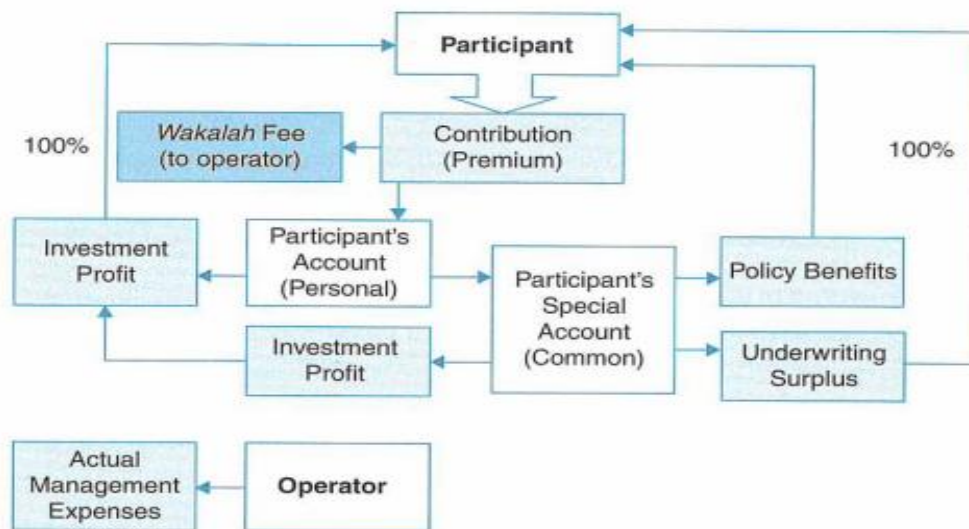


FIGURE 5- PURE WAKALAH MODEL: ADOPTED FROM HTAY ET AL., (2012)

2.3.3 Wakalah with Incentive Compensation:

This model arose from the criticisms of the pure cooperative and pure Wakalah models discussed in the previous sub-sections. In the Wakalah with incentive compensation model, the concept of the Wakalah model is modified to provide both Wakalah fees and a proportional share from the underwriting surplus to the fund operator (Al Wakil). The method of calculation of the remuneration of the operator should be transparent and agreed in advance. One criticism of the Wakalah with incentive compensation model concerns the percentage share from the underwriting surplus paid to the Takaful fund operator as a performance incentive for their work. Some Sharia scholars maintain that sharing the underwriting surplus with the operators is not in compliance with the Islamic Sharia law (Wahab, 2006). In summary, while the pure cooperative and pure Wakalah models are most clearly in compliance with the principles of the Sharia, they can be criticised from the practical perspective of not providing capital providers and managers with sufficient incentives to enable them to compete effectively with conventional

insurers. On the other hand, while the Wakalah with incentive compensation model, and some of the other models discussed below, address the incentive issues there are concerns of some scholars on the extent to which they comply with the Sharia law.

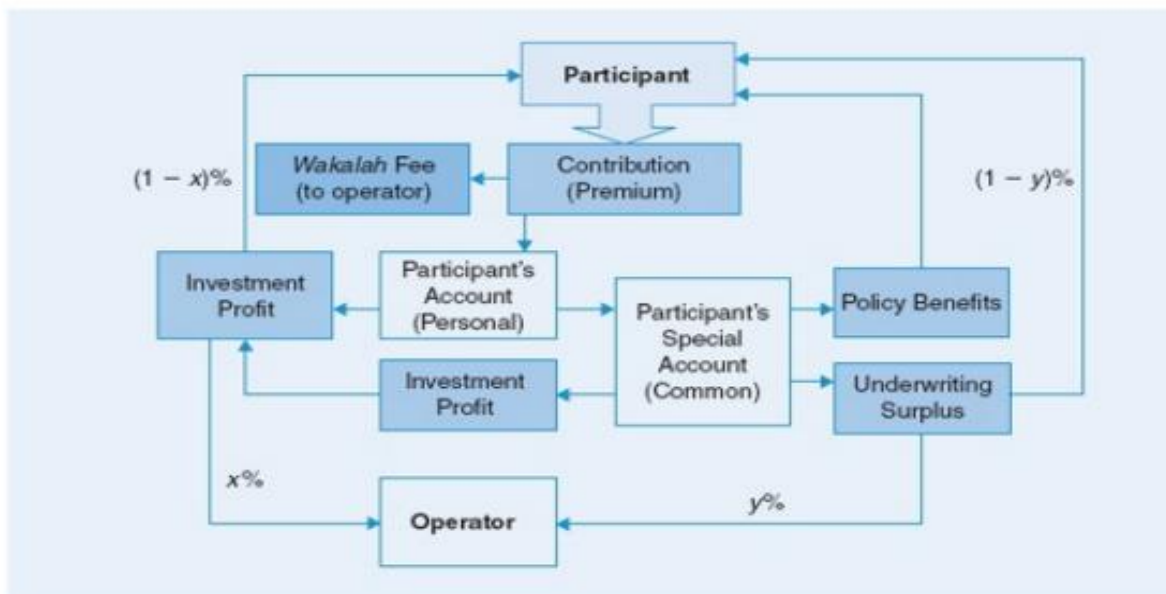


FIGURE 6- WAKALAH WITH INCENTIVE COMPENSATION: ADOPTED FROM HTAY ET AL., (2012)

2.3.4 Pure Mudarabah Model (Only Investment Profit Sharing):

The pure Mudarabah concept is based on traditional profit-sharing principles. In the pure Mudarabah model, the Takaful operator (Al Mudarib) provides knowledge and expertise as an investment manager to manage the investments of the Takaful fund, while the participants (Rab Al Mal) provide the contributions or donations as capital. Under this model both the Takaful operator and the participants share in the returns generated by the investment activities, but the Takaful operator does not share in the underwriting surplus. A criticism of the pure Mudarabah model, similar to the criticism of the pure Wakalah model, is that the inability to share in the underwriting surplus means that this model provides insufficient incentives to the Takaful operator.

Debate has arisen between different Sharia scholars criticizing the Mudarabah model. It has been pointed out that the model is attractive in that it encourages the Takaful

companies to concentrate on the investment side in order to generate profit for the shareholders. However, concerns arise that this may be in conflict with the Islamic Sharia law (Annuar, 2004 and Archer et al., 2009). Moreover, in situations where the fund's management expenses exceed the profit, the expenses will be paid from the Mudarabah capital. Therefore, this raises the fiqh issue of whether this aspect invalidates the contract on the basis of Gharar. This is in contrast to the Wakalah model where the expenses are agreed and paid in advance (Htay and Zahrain, 2012). These controversial fiqh issues lead many Takaful companies to avoid this model, particularly those in the GCC.

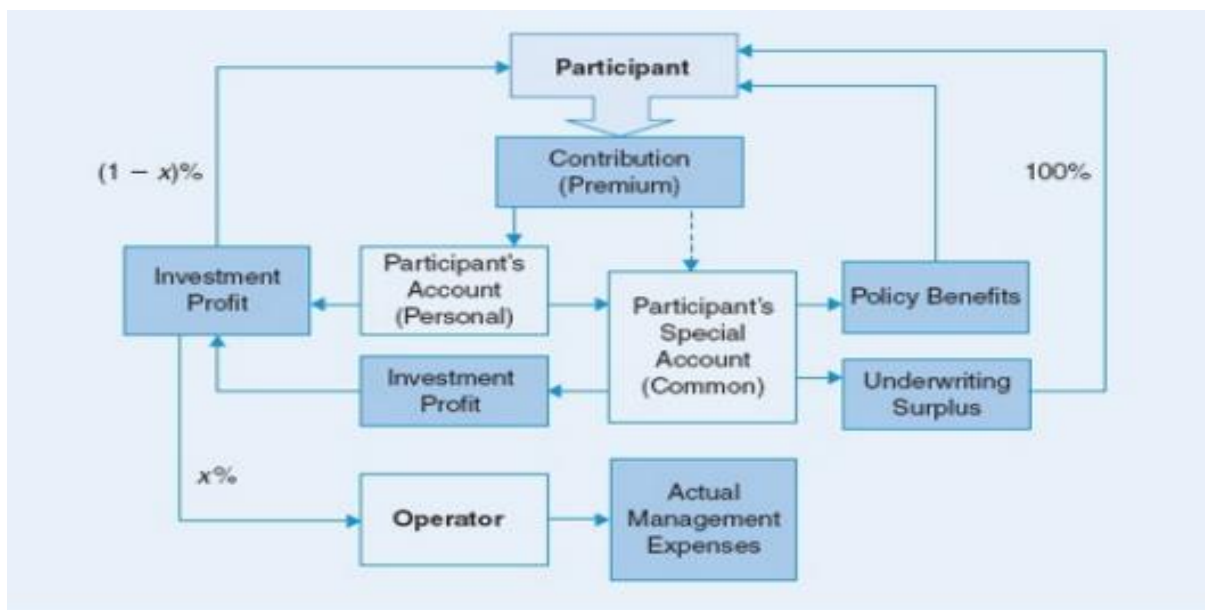


FIGURE 7- PURE MUDARABAH MODEL: ADOPTED FROM HTAY ET AL., (2012)

2.3.5 MODIFIED MUDARABAH MODEL:

The modified Mudarabah model aims to overcome the shortcomings in the pure Mudarabah model discussed in the previous sub-section, namely, that the pure Mudarabah model fails to provide sufficient incentives to the Takaful operator by not allowing the operator to share in the underwriting surplus. Some Takaful products have few saving elements, such as general Takaful and group Takaful. Such products limit the opportunities for making investment returns, reducing Takaful operator incentives and making it difficult the Takaful operator to control the solvency and liquidity. As Mudarabah profit is defined as a 'surplus over and above the original capital after deduction of costs and expenses. A criticism of this model is concerned with the choice of

methods applied in calculating the profit, in particular, whether it is appropriate to treat the 'net underwriting surplus' as 'Mudarabah profit' or not.

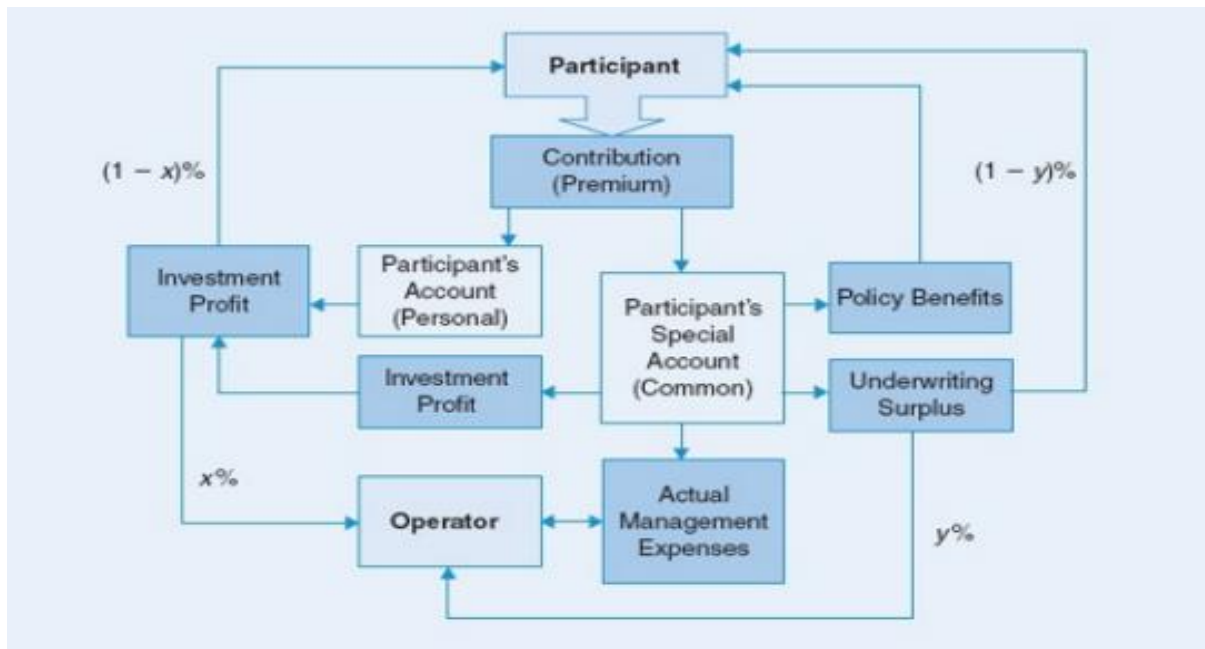


FIGURE 8- MODIFIED MUDARABAH MODEL: ADOPTED FROM HTAY ET AL., (2012)

2.3.6 HYBRID WAKALAH MUDARABAH MODEL:

Some Takaful companies use a combination of both Wakalah and Mudarabah models, called hybrid Wakalah and Mudarabah models. There are two models applied in the hybrid model. The first one is where the Wakalah model is used for the underwriting activities. Here the Takaful operators (Al Wakil) act as an agent appointed by the participants to manage the Takaful underwriting operations, including managing the contributions, underwriting, risk assessment, and claims management. The Takaful operator charges agreed and specified fees in respect of these agency activities. The second model applied in the hybrid model is Mudarabah model, whereby the participants appoint the Takaful operator as Mudarib to manage the investment activities. Any profit generated from the investments is shared based on a pre-agreed ratio. In this model, the investment income is a source of income, which may however be variable, while the underwriting fees are considered as a predictable and stable upfront income, which can be used to fund the initial acquisition.

A concern of the hybrid model in practice concerns the high level of fees which tend to be paid to the operator (comprising both the upfront agreed Wakalah fees as well as the Mudarabah fees from the investment activities. Excessive fees can negatively affect the

Takaful fund itself and also the participants rewards (Bakar, 2009). In defence of the hybrid model it can be argued that these are not criticisms of the model itself, but rather of the regulatory and competitive environment in which these firms currently operate.

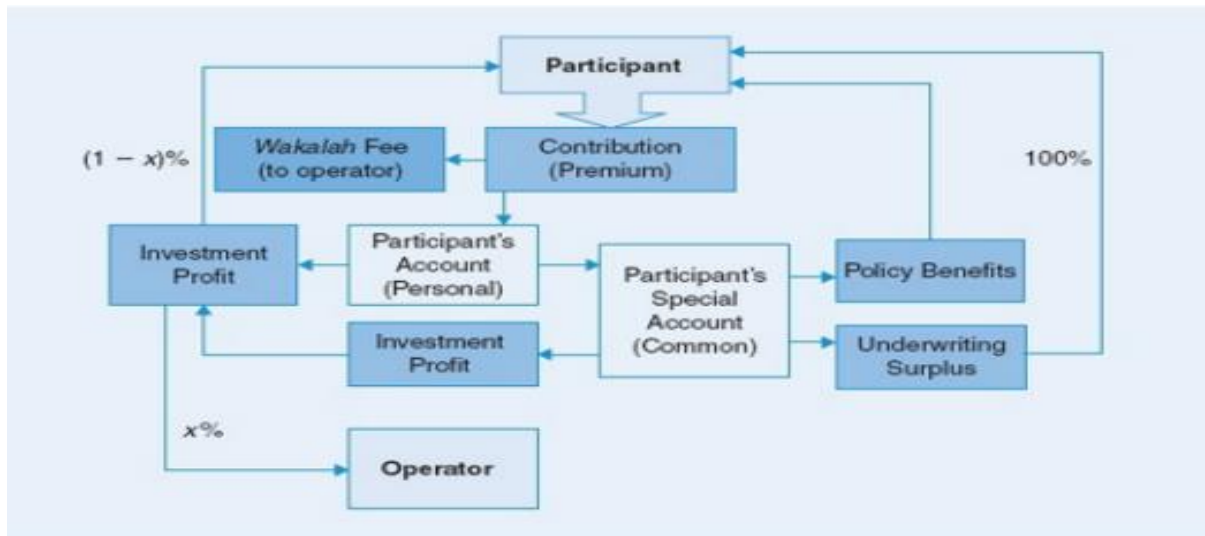


FIGURE 9- HYBRID WAKALAH AND MUDARABAH MODEL: ADOPTED FROM HTAY ET AL., (2012)

2.3.7 WAQF MODEL:

In all previous models, the participants own the Takaful fund. However, the Takaful fund does not exist as separate legal entity. The Waqf model aims to clarify the concept of ownership of the Takaful fund by explicitly presenting the contributions as donations (tabarru). A Waqf in the traditional sense is ‘a legal and religious institution wherein a person dedicates some of their properties for a religious or charitable purpose’ (Abdullah, 2018). The possessions, after being stated as a Waqf, are no longer in the ownership of the donor. The Al Waqf model is a non-profit model, in contrast with the previous profit business models. Being a non-profit model, no returns are offered to the certificate holders or promoters, making this uncompetitive in the global market, while being, however, appropriate for government and social business programs. Practically, the operation of the Waqf model resembles the hybrid Wakalah and Mudarabah model. To generate the Waqf fund, the Takaful fund shareholders inject the initial capital. As mentioned earlier, the Waqf model operates on the same concept of the hybrid model, but distinguished by “additional injection of the seed capital” toward the Tabarru fund. The Waqf deed sets the procedures and rules for allocations to the beneficiaries from the

fund, and determines how much compensation will be paid to the participants in the event of a claim. As this model has been built on the principle of giving to the less fortunate willingly, the concept remains valid to the spirit of the Islamic principles of cooperation, unity brotherhood, and solidarity. In contrast to the other Takaful models, the Waqf model has fewer issues concerning Sharia compliance. However, there are issues arising from the lack of incentives to managers. As a practical matter there is the concern that many Waqf managers lack the required financial qualifications and professional experience to successfully manage the Takaful operations. In some cases as well, these managers are non-Muslims who are not able to fulfil their responsibilities under the Islamic Sharia law (Karim, 2010). There are examples of Waqf assets left idle due to procrastination in the management process, and failure of managers to comply with the payment of taxes and other expenses related to the Waqf assets (Yaacob et al., 2012, Mahat et al., 2015).

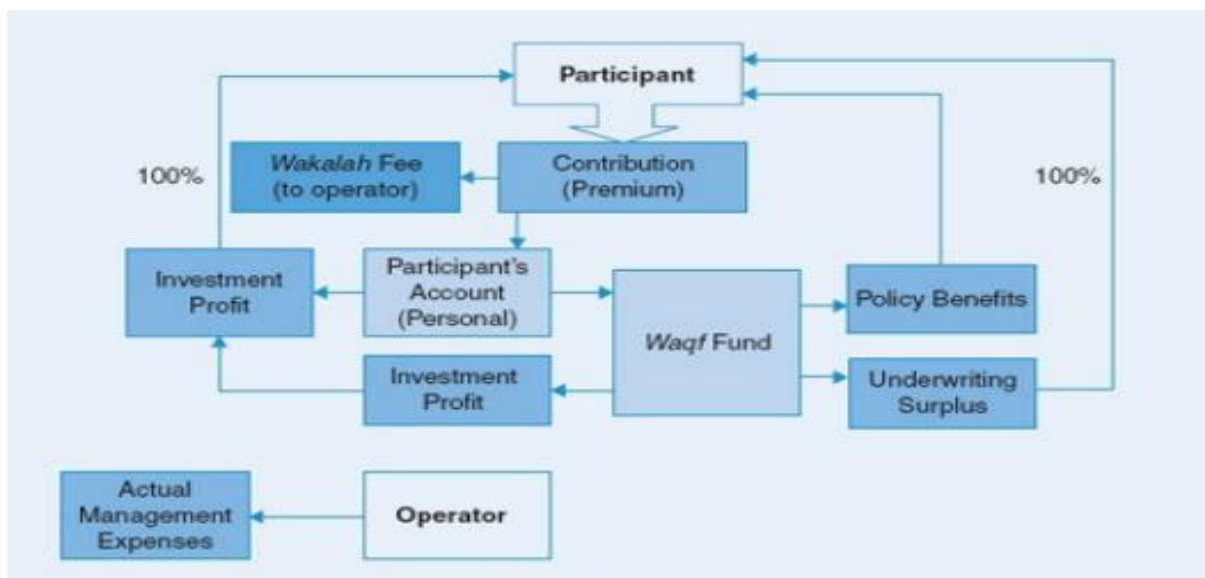


FIGURE 10- WAQF MODEL: ADOPTED FROM HTAY ET AL., (2012).

Summary of the challenges faced by Takaful model:

Several Takaful models are currently being practised by Takaful operators in different markets around the world. Some Takaful companies use the pure, or homogeneous models, such as Wakalah or Mudarabah, while others use hybrid models, such as the use of the Wakalah model for underwriting and the Mudarabah model for investment (AlNemer, 2013).

Models have been developed and refined in response to criticisms and issues arising from previous practices. As noted in the previous subsections, a key concern is that of the Islamicity of the various models, i.e. the extent to which Takaful firms are Sharia-compliant, and the extent to which their operations are in truly in accordance with the spirit as well as the word of Islam. Sharia scholars from the different schools of Islamic jurisprudence have expressed specific concerns relating to corporate governance, the role of the Sharia Supervisory board (SSB), its functions, dependence, and disclosure, the fairness of the underwriting surplus sharing mechanism, and, more generally, concerns about the extent to which some models may focus on the rights of the shareholders at the expense of those of the participants. Counterbalancing these concerns about the Islamicity of the various models in practice are concerns about the extent to which Takaful firms are able to compete effectively with conventional insurers. Here it is claimed that the models which are most compatible with Islamic principles, such as the Waqf model, fail to provide adequate incentives to managers in order to compete effectively in the market. To some extent, the various models applied in practice represent a compromise between addressing these two key concerns. For example, while the Waqf model is perhaps the most refined in terms of its clear structure and low degree of uncertainty, many operators in the GCC and Malaysia have moved towards the flexible and commercially successful and competitive hybrid models (Tolefat and Asutay, 2013).

Given the progress made in the development of the Takaful industry to date, the debate between the Sharia scholars about the best or most correct Takaful model is somewhat in decline. In terms of the future development of the Takaful industry it is perhaps more fruitful to focus on addressing the main challenges faced by Takaful firms, namely, the risk of deficit in the participants' fund (Section 2.4), and the other main risks facing Takaful firms discussed in detail in Section 2.5, rather than focusing the debate on the legality of the various models used in practice.

2.4 The Risk of Deficit in the Participants' Fund:

The Takaful participants' fund is the core element of the Takaful operation, and it follows that it will experience various types of risk exposures (Ayub, 2003). It is imperative that the risks are managed appropriately to ensure the participants and the funds are protected.

The primary objective of the participants' fund is to provide protection for the participants (Swartz and Coetzer, 2010 and Ahmad et al., 2010). The interests of the participants come before all other interests and should be reflected in the practices of the Takaful operator. Moreover, another function for the fund is the equitable distribution of the financial losses of the few among the many participants. In family Takaful, a further objective of the fund is to provide income for the participants.

The Organisation of Islamic Cooperation (OIC) suggests that the Takaful fund must be independent of the participants. Other Sharia scholars have argued that the Takaful fund should be independent from both the participants and the operators who manage the fund that the Takaful fund should be attributable to the participants, and that the participants' liability must be limited to outstanding claims and deficits in the fund (Htay and Salman, 2013).

Well-managed Takaful firms should ensure that their income equals or exceeds their expenditure, with cash obviously needing to flow in before it has to flow out (Hassan and Mollah, 2018). Takaful firms that do not have sufficient cash to meet the necessary outward flows are technically insolvent and may have to declare bankruptcy, unless they can delay the payment of any required expenditure such as claims until further cash flows in.

Where a risk event results in monetary losses that cannot be transferred to another party, these losses are in most cases accounted for as an expenditure that will need to be financed via current cash flows or via an interest free loan (Fauzi et al., 2016). Where funding is available, for example capital, this can be used to supplement these cash flows. However, where funding has not been arranged or cannot be arranged post-loss, then the normal day-to-day cash flows of the Takaful firm will probably be the only mechanism available to finance the loss (unless there are unallocated reserves).

This is why cash flow is the default option when it comes to risk financing. Where funding is unavailable and where risks have not been transferred, then the last resort is the organization's cash flow. The Takaful firm can then only hope that it has a sufficient level of income flowing in to cover both planned expenditure and any additional unplanned expenditure it may incur as a result of unexpected, catastrophic or uncertain losses (Olorogun, 2018). The cost of a problem does not stop when a deficit has been remedied. For example, damage to the reputation of the Takaful Company will have occurred.

According to Htay et al. (2013), in Takaful operations, cash is generated from a range of areas such as:

- Written contributions (policyholders paying premiums)
- Re-Takaful share of claims paid (reinsurance claims)
- Claims recoveries
- Sale of assets
- Investment income
- Raising capital (e.g. the issue of new shares, corporate debt, etc.)

On the other hand, it is also consumed in numerous ways:

- Settlement of claims and payments to claims services providers
- Commission
- Re-Takaful ceded
- Wakalah fees (staff salaries)
- Excess of loss
- Movement in outstanding claims
- Mathematical reserves
- Allowance for doubtful debts
- Other expenses
- Dividends to participations
- Repayment of Qard Al Hasan

Most of the risks to which the participants' fund is exposed are the same as those of a conventional insurer (Fauzi et al., 2016). However, certain risks are specific to the Takaful operator, and in particular, the risk of deficit in the participants' fund and Sharia non-compliance risk. As a result, the Takaful Company as a whole will have more risks to manage and mitigate than conventional insurers.

Due to its nature, the participants' fund faces several main risks. These risks threaten the stability of the fund and put the participants' interest at risk. The major risks arising in the participants fund are the risk of incorrect attribution of transactions to a fund, the risk of requiring financial support from the shareholders' fund due to inability to meet its solvency or liquidity needs, and, in particular, the risk of the shareholders' fund having to provide an interest-free loan to the participants' fund (Qard Hasan), the risk of the Qard Hasan loan not being repaid, resulting in the loss of capital for the shareholders' fund, and

the risk that fees and investment profits transferred from the shareholders' fund are inadequate to meet the expenses of the Takaful operator in carrying out its obligations and commitments stipulated in the contract (Billah, 2006; Qureshi, 2011; Dikko, 2014; Bhatti, 2010; Aris, et al., 2012 and Onagun, 2011).

The Takaful fund may also fall into deficit due to a catastrophic disaster or through a series of losses higher than anticipated, placing the Takaful fund in a compromised position where it is unable to meet its financial obligations. Siddiqi and Mistry (2016) state that most of the Takaful companies are running ever increasing deficits in the participants' fund, caused by a combination of high Wakalah fees and poor underwriting management. On the other hand, there are few companies making a surplus from their underwriting operations.

Sharia-compliant Takaful standards and procedures have been adopted to manage such risks. The International Islamic Fiqh Academy IIFA deals with the deficit in the Takaful funds as follows:

"In the event that the cooperative insurance fund is unable to pay its accrued liabilities, it is permissible for the operator without any restriction to resort to arranging one or more of the following:

A- Borrow money from a third party.

B- The operator provides an interest free loan to the fund.

C- Raise further contributions, with the approval of the participants.

D- Get an agreement from the claimants to reduce the amount of compensation or reduce the instalment.

You may consider other options as appropriate with the approval of the Shariah supervisory board".

The following figure shows the participants' fund and its operations.

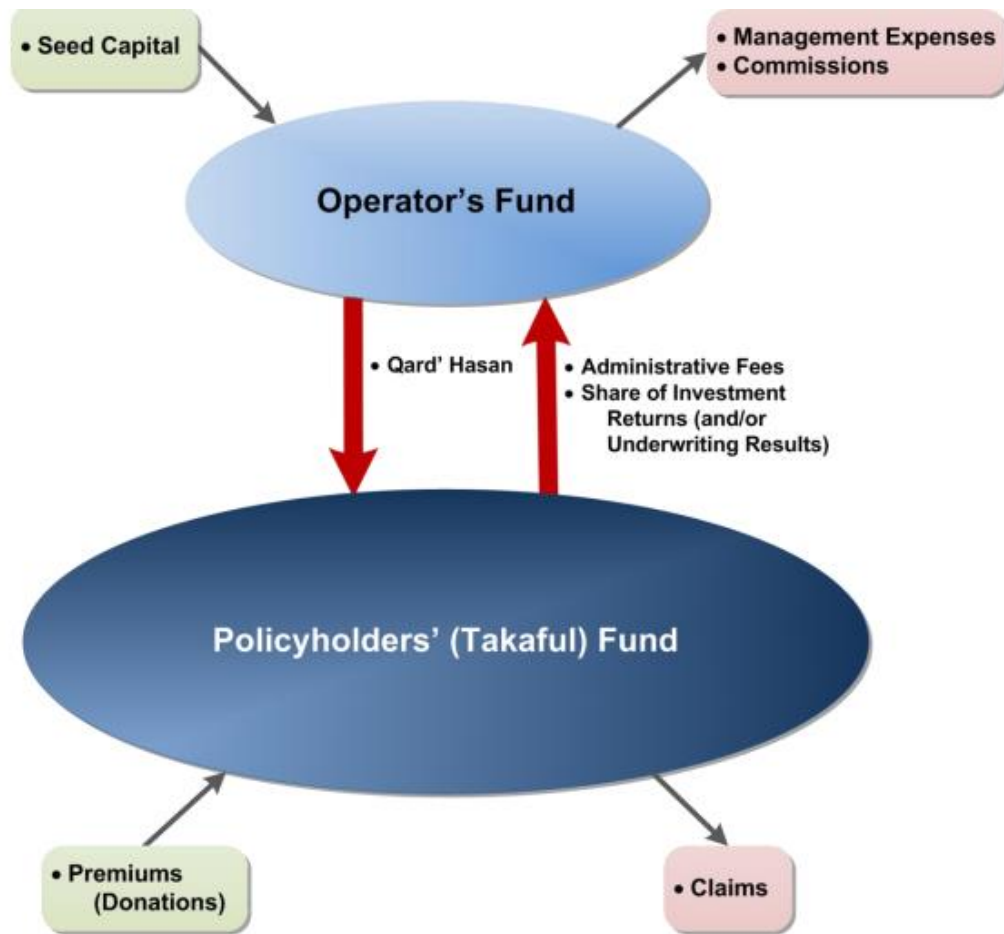


FIGURE 11- THE PARTICIPANT'S FUND AND QARD' HASAN.

A key area of concern is when the participants' fund becomes insolvent. A deficit is the situation where the participants' fund falls short of meeting its liabilities, in technical terms when the loss ratio is more than 100%. The principle of cooperation is based on the liability of policyholders for any deficit, regardless of who received and who did not claim any payments during the financial year in question (Lewis, 2005). There are two different methods to mitigate this risk in practice, a call either for money from the participants or for the shareholders to provide an interest-free loan to the company as Qard Hassan.

Qard Hassan refers to an interest-free loan (Atia, 2011 and Iqbal and Shafiq, 2015). The borrower is only required to repay the principal amount borrowed without stipulation of any extra payment in cash or in kind. The borrower is highly encouraged under Sharia principles to show appreciation by rewarding the lender who willingly lends out the money for no extra repayment.

Aziah Abu Kasim (2012) stated that the Takaful Act 1984 has imposed the obligation to maintain a solvency margin at all times on licensed Takaful companies. This indicates the financial strength of the Takaful Company, to pay claims in cases where the Takaful fund is in deficit. This requirement is perhaps not especially principled, as the Takaful Company is not the insurer. The obligation to pay the claims is sought from the Takaful fund, as the concept of protection is mutual among the participants. Having said this, the law has imposed this solvency margin to ensure the financial stability of the Takaful operator in certain jurisdictions, such as in Bahrain and Malaysia, where the law also requires the Takaful companies, through certain guidelines, to advance a soft loan or interest-free loan should the Takaful fund be in deficit. The availability of sufficient funds to pay all claims is critical, not only for the benefit of the participants collectively but also to the Takaful industry as a whole. The Takaful firm can, of course, claim reimbursement of the interest-free loan from the Takaful fund in subsequent years, when the opportunity arises.

Nevertheless, this solution can be regarded as a short-term solution, as “it brings to the fore the uncertainty surrounding the priority markets” (Essen, 2011). Liquidity risk and solvency risk arise in the event of the firm’s inability to pay the required compensation to cover losses, aggravating the risk of future deficits, and potentially leading to new risks, such as reputational risk, and the risk presented by competitors. These risks are increased by the fact that these companies operate in a legal environment where the regulatory framework governing Takaful is weak or unclear, and where legal obligations in a situation of insolvency or bankruptcy give rise to further uncertainty. In addition, with the exception of some Islamic states where Islamic rules are applied in all organs of the monetary system, the extent of government support for distressed financial institutions and their customers is in doubt (Wahab et al., 2007).

2.5 Other Dimensions of Risk in Takaful:

Risk management in Takaful companies has many objectives. The major objectives are, firstly to assure that the Takaful fund is able to pay the claims and other obligations, to attain good investment returns, to have the ability to resist counteractive circumstances and conditions, and to secure stability as a going concern (Abdullah, 2012 and Aris et al., 2012). Risk management in Takaful is not only about managing the risk effectively and mitigating its negative impact, but is also about ensuring that the management of risk is implemented according to the Islamic Sharia law. Regardless of the business model

adopted and used by the Takaful Company, Mudarabah, Wakalah or hybrid, the risk management will be similar since the main basis is the Sharia law. Haider and Azhar (2011) state that the risk management in any Islamic financial institution must conform to the principles of Islamic Sharia rules.

Similarly to any other new industry, Takaful needs to win the peoples' trust. However, Takaful companies are still facing several challenges that prevent them from doing so. Some of these challenges arises from the Takaful business model with the separation of the participants' fund from the interests of shareholders fund. Others stem from requirements of investment and liabilities management within the parameters of the Sharia. Yet others are a function of the contemporary Takaful industry being in an early stage of development compared to the conventional insurance industry, and thus subject to limitations facing an industry, which is still to achieve critical mass and scale in many countries.

Two types of risks, underwriting and operational risks, are directly related to the operations of the Takaful company, while the remaining three, credit, liquidity and market risks, are associated with the investment activities of the company.

"Internal processes failure occurs as a result of inaccurate processing of transactions, inefficient record keeping, violating operational control limits, non-compliance of regulations etc. and management of this risk is more complex as it arises from failure of internal processes, people, information system breakdown and non-compliance with regulatory standards" (Ahmed et al., 2010).

As the Takaful industry is still in its early stages compared to its conventional peers, there are several key challenges facing this industry in addressing the competitive challenge posed by conventional insurers. Tolefat and Asutay (2013); Jaffer et al. (2010); Patel (2017); Alhabshi (2017); Rejda (2011); Rizvi and Saba (2017); Othman (2017); Ali and Nisar (2016); Noordin and Fares (2016); Abu-Hussin et al. (2014); Shenoy et al. (2014), Trokic (2017); Alam et al. (2017); Salman (2014); Ardo and Saiti (2017); Alali and Foote (2012) and Alokla and Daynes (2017) have addressed the following challenges and limitations for this developing industry, which can be only mitigated as it matures and attains critical size.

2.5.1 Sharia Compliance Risk:

A vital part of Islamic finance activities, including Takaful, is the requirement to achieve Sharia compliant status to ensure that the financial activities of the institution meet the

requirements of the Sharia principles and rules prescribed in Quran and the tradition of the Prophet Muhammad.

The Sharia compliance risk is a common risk in all Islamic financial institutions (Ginena, 2014 and Azmat et al., 2014). The adherence to the Sharia is a continuous procedure and the Takaful operator must ensure its compliance at all times. Adherence to the Sharia law is the main factor distinguishing the Takaful system from the conventional insurance system, and most participants make the choice to deal with Takaful firms based on this factor (Miskam and Nasrul, 2013). The Takaful firm needs to keep the confidence of its stakeholders by maintaining a transparent environment. If the Takaful operator does not manage the business in compliance with the Sharia law, serious losses will result that will affect not only the company itself, but negative consequences will also affect the participants, shareholders and the Takaful industry as a whole. According to Billah (2001), Takaful operators have a huge challenge in getting the underwriting processes acceptable and Sharia compliant, as well as the management of the fund's investments.

The Sharia board committee in the Takaful operators must ensure that all the operations, including underwriting, product design, the distributions policy, the investments and the reinsurance operations are compliant with the Islamic Sharia law (Azhar Rosly, 2010 and Macfarlane, 2006). For a Takaful fund, this operational risk includes risk of loss resulting from Sharia non-compliance and failure of the Takaful operator.

Takaful firms depend, to a great extent, on their reputation. Reputation and confidence are especially important where potential customers need to be assured of the stability of a Takaful operator. Many Takaful firms have lost the trust of the marketplace and have suffered major losses, while some have never returned to the market in the same strength or have closed down together (Shaladdin et al., 2018; Hassan et al., 2018; and Ahmad et al., 2016).

2.5.2 - Trust and Awareness Challenges:

Business ethics is about a set of rules, which are based on written and unwritten principles and values held in society. It is a set of moral principles and values. The field of ethics in Takaful is generally perceived as a study of situations and decisions that addresses the moral issues of right and wrong (Daud et al., 2018). These might include matters such as truth, honesty, fairness, respect, dignity and transparency. Organisations, including Takaful firms depend, to a greater or lesser extent, on their reputation.

Reputation and confidence are especially important where potential customers need to be assured of the accuracy and transparency of a Takaful operator. Many Takaful firms have lost the trust of their marketplace because they failed to distinguish themselves from their conventional peers, and were unsuccessful in developing a unique identity. Most of the Takaful companies give priority to their shareholders instead of putting their participants first, and have thus failed to create solid relationship with them. Moreover, there is still an ongoing dispute between many Muslim scholars to find a suitable insurance system that fully meets the Islamic Sharia principles.

In spite of its existence of more than 30 years, the conventional insurance system is still viewed by many as the only option to cover people's insurance needs. Many people are unaware of Takaful's existence, particularly in Muslim countries (Salleh, 2016). Even for those who are aware about the Takaful system as a Sharia compliant alternative to the conventional insurance system, they are still unaware about how its managerial structure, business models, and operations are conducted.

Still debate is on in some of the Muslim countries and societies as to whether the generation of Takaful business in the line of Islamic Sharia is possible or not. Since Takaful is new system of insurance based on Islamic Sharia quite unknown to many even to Muslim societies. People are unaware and in many respects confused particularly regarding its compatibility to Islamic Sharia and modus operandi of the new system (Jaffer et al., 2010).

There are many key factors affecting the awareness of Takaful in Muslim countries, such as the lack of government support and the weak regulatory framework. In many countries, attention from the government is focussed on the conventional insurance system while individual investors support the Takaful system. The exception Malaysia, where the Takaful system enjoys understanding, dedication and strong government support, and which moreover operates in an independent legislative framework. (Mohamed, 2017; Hussain et al., 2016; Ab Ghani et al., 2018; and Shamsuddin et al., 2016). Research and innovation are fundamental elements in developing any industry. For Takaful, another key issue, which undermines the progress of Takaful, is the relative lack of academic research, and the relative paucity of the Takaful subject in the curriculums of higher educational programmes. Moreover, much of the work of Islamic finance experts

been focussed on the Islamic banking sector while the Takaful industry suffers a severe problem of being under-researched.

2.5.3 Reinsurance and Re-Takaful Availability:

The lack of re-Takaful providers is another fundamental issue constraining the development of the Takaful industry. The objective of reinsurance/re-Takaful is to reduce the Takaful's exposure to loss by sharing the risk of loss with the reinsurer/re-Takaful. Re-Takaful is the Sharia-compliant Islamic alternative to conventional reinsurance. It covers all the Takaful's business and is the backbone of the Takaful's operations (Akoob, 2009 and Ahmad et al., 2016). It is conceptually similar to Takaful, the key differentiating element between re-Takaful and Takaful being the nature of the participants. The main challenge in respect of reinsurance for Takaful firms is the severe shortage of re-Takaful suppliers. Despite the fact that several new re-Takaful companies have been launched in recent years in the Middle East and South East Asia, they are necessarily very young and many of them deal with a limited class of business. Some of large re-Takaful windows are owned by global reinsurance companies and can serve a larger class of business. However, the scale and sophistication of re-Takaful companies is still lagging behind the growth of the Takaful industry. It is not the availability of re-Takaful capacity as such that matters, but rather the availability of a sufficiently diversified capacity of high quality. In response, some scholars have allowed Takaful companies to cede their business to conventional reinsurance companies when appropriate re-Takaful is not available. This approval however is not an ideal solution. In the longer term, the Takaful industry needs to be supported by re-Takaful suppliers in order to enhance the Takaful companies' financial capacity. It is very big challenge for the Takaful companies to underwrite big risks without having capable re-Takaful suppliers (Alhabshi, 2017). Moreover, the use of conventional reinsurance is an area of concern for many Sharia scholars and has an impact on the credibility of Takaful in its target markets. Cheikh (2013) also clarifies other issues that could influence the financial performance of the Takaful industry. The concern here is the narrow and limited market for Takaful reinsurance, particularly with respect to the evaluation and assessment of contamination risks.

2.5.4 Availability of Appropriate Investment Sources:

In contrast to the conventional insurance system, there are limited investment options for Takaful companies. The growth of the Takaful industry depends largely on achieving sufficient investment returns either to attract the investors or to enhance the financial

strength for the company. Takaful companies need to invest their funds with a view to achieving similar objectives to those of conventional insurance companies and with a view of securing liquidity needs, enabling efficient asset liability matching, and maximising investment returns. Investing in Sharia compliant investments may offer risk-expected return profiles that are less attractive than those available to conventional insurers (Archer et al., 2017). However, investments must be Sharia compliant and this may pose challenges for the investment managers of Takaful companies. In order for funds to be invested in a Sharia-compliant manner, the Islamic investment manager must carefully scrutinize its company actual and proposed investment portfolio so that it does not invest in Haram (prohibited) activities or financial instruments. Investments must not be made in interest-bearing bonds, some shares, and certain asset classes. Takaful companies find it difficult to source such securities, as they tend to be interest bearing in nature. As the Islamic Sharia law restricts the Takaful companies, they have reduced opportunities to diversify their investment portfolios (Archer et al., 2017). Bonds and debt securities are a key asset investment class for conventional insurers, and finding a Sharia compliant alternative presents a major challenge to Islamic investment managers. Their interest bearing nature renders them ineligible for Sharia-compliant funds. However, in the last decades Islamic financial institutions and several governments in Muslim and non-Muslim countries have begun issuing Sukuk. Sukuk are Islamic trust certificates, namely, investment certificates that represent the Sukuk holder's ownership of a proportion of an underlying asset. The risk return profile of Sukuk is comparable to that of conventional bond securities. Presently, the number of high quality Sukuk issued in most jurisdictions is very limited. This prevents Islamic investment management from meeting their asset liability matching requirements for the asset class. As a result, they must seek other ways of achieving an appropriate balance of assets if they are to have similar investment performances to their conventional peers.

Investment in other major asset classes other than bonds is relatively easily achieved in a Sharia-compliant way. For example, Sharia compliant diversified equity portfolios and real estate portfolios can be achieved without great difficulty. Kamso (2013) pointed out that the returns generated by Sharia-screened investment portfolios are not compromised when compared to those generated by conventional investment portfolios. This indicates that Takaful companies adherence to Sharia-screened portfolios does not

generally cause them to suffer any penalties on their returns. However, Sharia compliance does require Takaful companies to be invested in more volatile, less liquid and more risky investment options, such as equities and real estate, largely than conventional insurers (Yakob et al., 2015). The key challenge for Takaful firms is to have sufficient access to Islamic debt securities, which is required in order to achieve a more balanced matching of assets and liabilities.

2.5.5 Shortage of Skilled and Motivated Manpower:

It is notable that for many Takaful companies, staff on all levels and in all departments are trained and skilled following the conventional insurance system. Many of them have little awareness and even basic knowledge of the Islamic Sharia principles. Surveys reported in Finance Forward World Takaful Outlook Report, Global advisors (2016) assessed the industry's perception of the kind of skills and knowledge needed for the industry. The results showed that whilst technical skills tend to be more readily available, key managerial skills are harder to come by. Product development and marketing skills are also in short supply. This is critical in a competitive industry where Takaful is competing with conventional insurance provision. If Takaful is to capture a large share of the projected growth in insurance requirements, these shortages will become more critical. In the Islamic finance industry, Sharia scholars who are familiar with insurance operations are also in short supply. The skill shortage impedes the development of perspectives and products, which comply with the Sharia requirement but at the same time reflect insurance industry norms. As human capital is a fundamental dimension required for the growth and development of the Takaful industry, people working within the Takaful sector need to develop a motivated, innovative and adaptive workforce to create additional value to this new-born sector (Sulaiman, 1999).

2.5.6 Uniform international standards:

The absence of uniform international standards for Takaful is considered one of the fundamental challenges facing the development of the Takaful industry because most Takaful operators rely heavily on the opinions of the Sharia board, subject to the local regulatory restrictions (Salleh et al., 2014; Mazahir et al., 2018; Saleh, 2016 and Mukhlisin, 2017). International cooperation among professional bodies and regulators has led to the development of global standards setting minimum requirements for many businesses. In the insurance industry, the standards of the International Association of Insurance Supervisors (IAIS) are relevant, and International Financial Reporting

Standards (IFRS) have sought to develop guidance for supervisors on how to reflect the characteristics of Takaful in relation to these standards. The Accounting and Auditing Organization for Islamic Financial institutions (AAOIFI) has developed Sharia Standards, though different understandings and practices of Sharia in member countries have impeded global standardisation. In many countries in which Takaful companies operate the use of International Financial Reporting Standards (IFRS) is mandatory. The relevant standard for insurance is IFRS 4 on insurance contracts. IFRS 4 requires insurance operations, including Takaful, to be treated as one reporting entity. Thus, the AAOIFI requirement for separate reporting of the interests of the participants' pool from those of the Takaful operator can be challenging to implement.

In practice, a Takaful operation generally takes the form of a single legal entity, internationally divided into segments that are attributable to the participants' interest. Segments reporting within a single legal entity provides a potential resolution to the Sharia requirement for separation of participants and shareholders' interest in the Takaful operation. This may also provide a way to implement IFRS 4 for Takaful accounting, which is in keeping with Sharia requirements.

Improving only the local standards for Takaful in specific countries is not sufficient to develop the industry worldwide. What is required is the development of a uniform global regulatory and supervisory approach for the Takaful industry as a whole (Ahmad, 2005). There are several practical issues surrounding the Takaful industry including risk management standards, capital adequacy, transparency, accountability, disclosure, participant's protection, market discipline, accounting and auditing and insolvency. Therefore, the existence of uniform international standards for the Takaful industry could perform many benefits in developing this new industry, including, improving transparency and encouraging good practice, addressing potential issues and preparing suitable solutions, such as contingency plans in case of bankruptcy or financial stress, and improving the domestic and global Takaful supervision in order to maintain stable growth, and contributing to global financial stability.

2.5.7 Credit Rating Agency Issues:

Determining the exact status between the participants' fund and the shareholders' fund is a key issue for Takaful firms. The rights and obligations of each party are sometimes ambiguous, and lack of clarity in the legal relationship can create confusion in determining the strength of the Takaful operator. Two key considerations are whether

Qard-Al-Hasan is mandatory and whether it is subordinated. If either is not the case, and surplus has not been accumulated in the fund, and then financial strength ratings will suffer.

Many credit rating agencies have addressed some issues facing them when analysing the financial strength and credit quality of Takaful operators, and have identified issues relating to the lack of a clear regulatory framework for many jurisdictions. Consequently, it is a difficult task to provide the best rating assessment due to differing regulatory frameworks from one jurisdiction to another (Wan et al., 2010).

As mentioned earlier, greater attention has been paid in developing other sectors of the Islamic finance industry, particularly the Islamic banking sector. In Takaful, however, less progress has been made. Another international credit rating agency A. M. Best has addressed some limitations on their assessor's criteria including the capitalization, key strategic and financial Takaful structure and regulation, and on the degree of Sharia compliance. In spite of some recent improvements and clarifications regarding some regulatory issues, the Takaful regulation overall is still deemed to be vague (Mistry et al., 2017).

As Takaful companies mature and further precedents are established for the treatment of the different categories of assets, rating agencies have been able to establish more robust criteria for evaluations of these companies. Therefore, if Takaful companies build more robust reserves beyond those required by capital adequacy or prudential concerns, the participants' pools they will achieve their own standalone capital adequacy. Such a scenario will attract much better ratings from the agencies. This will, in turn, attract a larger client base to use Takaful.

2.5.8 Sharia Requirement Interpretations:

The Sharia board in Islamic financial institutions plays a significant role in the governance of these institutions. All Islamic financial institutions' products must be in line with Sharia principles. This duty is given to the Sharia board in these institutions. A variation has existed between many scholars on the correct interpretation of some Islamic knowledge that has resulted in different opinions towards such products. Different interpretations of relevant Sharia requirements have emerged as the Islamic finance industry has developed. Some of these variations have resulted from the presence of different jurisprudential schools of thought amongst Muslims. Others have been a result of the

positions of leading jurists. For example, in the Takaful industry there have been different positions on the allocation of any part of the surplus of the Takaful operator. There have also been variations on the centrality, or otherwise, of surplus distribution itself. Moreover, the development of the key short-term Islamic debt market is also subject to Sharia interpretations. Thus the adoption of this market has been possible in Malaysia but not in the GCC countries.

This conflict in the views and opinions results sometimes from different cultural backgrounds. Some schools, for example, allow more liberal rulings on forbidden products and financial transactions. Due to the varying Sharia interpretations, standardised regulations and cross-border alliances have also become more challenging. The diversity of different Sharia opinions puts customers in a confusing position. The IASB has issued a number of standards and guidance notes for the Takaful industry. There exists the potential to provide a building block for some key standardisation of the treatment of Takaful operations on a global scale. Any such development will greatly aid the further development of the industry.

For the development of the Takaful industry there is a need for an internationally acceptable accord for interpreting the Sharia rules. Such an internationally accepted Sharia code of conduct would make the regulatory issues more manageable. At present different Sharia opinions on these products impedes the growth of the Takaful industry competing in a highly competitive market.

2.5.9 Distribution and Variation of the Takaful's Products:

The competition between the Takaful and the conventional systems is an essential issue in developing the Takaful industry. Takaful faces a shortage of product development and marketing. Ford and Gioia (2000) point out that some of the challenges encountered while implementing a new business model are due to failure to understand the customers, inadequate or incorrect marketing research and inability to predict environmental reactions.

Efficient and cost-effective distribution is increasingly becoming a key requirement of good profitability in the insurance industry. In many countries in which Takaful is provided, the primary distribution channel is the historical agency-based model. This is costly and needs to be adapted.

Newer channels like bancaTakaful and online distribution using social media can be more cost effective. BancaTakaful is the Islamic equivalent to the conventional bancassurance,

an arrangement in which insurers sell their products through an established banking network. Malaysia has adopted bancaTakaful for its family Takaful and has seen good growth. However, the GCC lags behind newer distribution innovations. This is influencing the profitability of the industry in relation to its conventional counterpart.

As both industries are offering very similar products, the Takaful industry faces natural competition from its conventional peers. Many factors give the conventional system the advantage, including its deep roots in the market. With regard to product variation, Takaful providers still focus on general lines of business. This is a more volatile class of business and needs to be balanced by greater provisions of family Takaful, which is slower to build but grows steadily over the long term. Again, Malaysia has made more strides in the provision of family Takaful than operators in the GCC countries. This presents a challenge and an opportunity for the Takaful industry. Making the Takaful products available cross border would play an important role in mitigating many of these difficulties.

To advance rapidly and gain acceptance among clients in emerging markets owning property and assets, Takaful operators will need to focus more resources on developing a message attuned to their potential customers in their respective local market (Hassan et al., 2014). Takaful is a new business concept that needs to be executed with utmost speed and accuracy to enjoy the perceived benefits.

Given the level of ignorance that currently prevails (even amongst Muslims) about the principles of Islamic finance, banking and insurance practices, one can safely state that a number one challenge is to achieve rapid progress is education of the end-user (the insured).

2.6 Review of Takaful Research Studies:

Despite the importance of the Takaful industry in the development of the Islamic financial sector, there are few empirical studies on Takaful, and, in particular, little quantitative research covering the GCC and Malaysian Takaful markets. However, a significant general literature has been developed over the past two decades, which has provided important information on the religious, ethical, social, and philosophical aspects of Takaful, the historical development of Takaful, the structure of Takaful insurance models, and how the Takaful system operates (Maysami and Kwon 1999; Basov and Bhatti, 2016; Patrick, 2014, and Aziz, 2017). This section reviews this more general, background literature.

Maysami and Kwon (1999), Basov and Bhatti (2016), and Patrick (2014) analysed Takaful operations as a cooperative insurance mechanism, considering the strategies, organizational structure, incentives, and performance of Malaysian Takaful companies. Aziz (2017) discusses how the ethical and religious aspects in Malaysia can influence the development and marketing of Takaful products.

So far there have been few attempts to examine the deficit risk, solvency and profitability of Takaful firms by academic researchers. Most of the work has been carried out on the relationship between the business model and the Takaful fund performance. Much of the previous research has focused on the different Takaful models and structure (Pasha and Hussain, 2013; Habib and Shaukat, 2016; Puspitasari et al., 2016; Isa et al., 2017; El Hachloufi and El Msiyah, 2017; Billah and Basodan, 2017; and Mohamad et al., 2018).

Pasha and Hussain (2013) reviews and explains the different models of Takaful. They focus and compare the four most widely used models, the Wakalah, Mudarabha, Tawan, and Waqf models. Billah and Basodan (2017) theoretically obtained the Takaful models and their accounting methods. A critical examination been applied on the Tabaroa model, conducted by Habib and Shaukat (2016). They conclude that the Tabaro model, at least as currently practiced, is, in certain respects not Shariah compliant and in violation of Sharia ordainments. El Hachloufi and El Msiyah (2017) and Isa et al. (2017) examine the Wakalah model and its treatment of surpluses. They argue that an advantage of the Wakalah model is that it provides an effective framework for applying advanced techniques in Takaful management. A study on family Takaful products using system dynamic analysis by Mohamad et al. (2018) analysed the influence of applying different models. Puspitasari et al. (2016) proposed the Zakah fund distribution model by Takaful firms for the welfare of the poor farmers.

Similarly, to any other industry, the Takaful sector has many fundamental issues and challenges. Future growth may be restrained by different factors. Salman (2014), Sarwar (2016), Trokic (2017), Khan et al. (2018), and Othman (2017) address a number of contemporary issues and challenges in the Takaful industry, including the current weak regulatory framework, the lack of qualified staff and experienced Shariah board members, the lack of consumer awareness, issues with variations in the understanding of religion, issues concerning business models and structure, and the competitive pressures from both Takaful and conventional insurance competitors.

In the modern era of Islamic finance, Takaful has been introduced during the last three decades. In spite of this, consumers, and Muslim consumers in particular, are still unaware of Takaful as an alternative insurance provide. Salleh (2016) conducted a study on the Malaysian Takaful market to introduce new concept of Islamic relationship marketing (IRM) and investigate its significance toward customers' trust, commitment and awareness. And he found four variables were confirmed to measure the IRM which are financial bonds, structure, social and ethical behaviour. Studies by Mohamed (2017) in Kenya and by Husine et al. (2016) and Ab Ghani (2018) in Malaysia reveal that customer choice is affected by customer awareness and knowledge of Islamic financial services, pricing, exposure and religion. Shamsuddin (2016) found that participants prefer to have a motor Takaful certificate instead of having a conventional motor insurance policy.

Several studies been conducted to compare the conventional and Takaful systems using the linear proگرامing methodology Development Envelopment Analysis (DEA), including Yakob and Isa (2016) and Yakob et al. (2014). Yakob and Isa (2016) implemented several studies on the stability and relative efficiency of Takaful and conventional life insurers. They conclude that a stable efficient frontier, and the efficiency score are reliable in discriminating between efficient and inefficient decision making units. Yakob et al. (2014) conclude that both conventional and Takaful operators have to improve efficiency by about 20% in order to have the best financial management practice. Saputra et al. (2016) conducts a study on the approaches used in both conventional and Takaful operators on how they assess the risks faced and calculate the premium/contribution. This study concludes that both the Takaful and conventional insurance systems utilize similar approaches. Thanasegaran (2016) conducts a comparable theoretical study analysing the non-marine conventional and Takaful contracts in Malaysia, the United Kingdom and Australia, and he found that there is still remain some shortcomings in the existing legal framework regulation framework regulation utmost good faith in insurance and Takaful contract.

Studies been conducted to compare the financial performance of Takaful and conventional operators by Abdou et al. (2014) in Malaysia, and Akhtar (2018) in Saudi Arabia. They conclude that the financial performance and risk management of conventional insurance firms in these markets system is superior to that of the Takaful operators.

Despite the existence of some empirical studies on Takaful, a systematic understanding of the quantitative aspects of Takaful is still lacking. In particular, to date, no fully comprehensive studies have been performed to investigate the insolvency, solvency or profitability of Takaful firms. Nevertheless, several empirical studies have been conducted in different markets to examine the efficiency, demand, profitability, solvency, macroeconomic factors, social factors, and the context and value of Takaful. In a study of 17 countries using panel data from 2004-2007, Keder et al. (2014) conclude that board size has a significant influence on board composition. Sherif and Hussnain (2017) and Shahid (2018) conducted studies for the Middle East and African countries. Sherif and Hussnain (2017) found that there is significant positive relationship between the education, Muslim population, dependency rate, and female life expectancy and the demand for Takaful, while male life expectancy, financial development, and inflation are negatively related to Takaful demand. Shahid (2018) theoretically attempted to motivate the governments and policymakers to study the influence of Takaful on Gross Domestic product (GDP). Karbhari et al. (2018) suggest that the audit committee, non-executive directors, and product diversification does not improve financial performance, while firm size, board size, regulation and age would be positively related to financial performance in the Middle East and North African countries. In the Malaysian Takaful market, several studies have been conducted to determine the determinants of profitability, solvency, and financial performance (Hodori and Masih, 2017; Ismail, 2013; Djafri et al., 2018; Abduh and Isma, 2016 and Yazid et al., 2017).

Hodori and Masih (2017), and Ismail (2013) examine which factors explain the profitability of Takaful firms. Hodori and Masih (2017) show that company age and company size are significantly related to profitability, while Ismail (2013) found profitability is significantly influenced by risk retention, solvency margin, and company size. Djafri et al. (2018) investigated the social context and value of Takaful firms and found that the organization's commitment, comprising alignment with organizational values, sense of community, and meaningful work, are determinants of the spirituality at the workplace. Belief, forgiveness, and remembrance of Allah explain the Islamic spirituality and civic virtue, conscientiousness, and altruism explain the organization's citizenship behaviour. Abduh and Isma (2016) show that the Takaful firm's solvency is significantly positively affected by contribution growth and Takaful leverage, while company size and expenses have a significant negative influence on the solvency. Yazid et al. (2017) found

that awareness, consumer knowledge, quality of services, and religious perception are significantly related to the Takaful demand. Darus et al. (2016) explored Corporate Social Responsibility (CSR) for Malaysian Takaful firms, under the Islamic (CSR) framework, and the findings illustrated that there is increment in the level of (CSR) disclosure.

In Pakistan, Kaunain and Akhtar (2016), and Shah et al. (2018) examine which factors explain the demand for Takaful. Kaunain and Akhtar (2016) found the Takaful demand is positively related to the interest rate and annual turnover, and negatively related to the inflation and savings rate. Shah et al. (2018) found that per capita income, and the return on the KSE composite index have a significant positive relationship to the demand for Takaful. Sheikh and Khursheed (2016) shows that the financial performance of Pakistani Takaful firms is significantly affected by the compensation offered to the executives and to the CEO. Imran and Khawja (2017) point out the social and developmental importance of Takaful services, as a saving vehicle to provide the children in Pakistan with a better and more secure educational future.

In the absence of an internationally accepted regulatory Takaful regime, most Takaful operators rely heavily on the opinions of the Shariah board, subject to the local regulatory restrictions. Tolefat and Asutay (2013) conducted an empirical study to explore the investment portfolio compositions of Takaful operating companies in both the GCC and Malaysia. They found a divergence in actual investments portfolios, moreover, unlike companies in the GCC, Malaysian Takaful companies invested substantially in Sukuk, particularly for the general and family Takaful fund. For the shareholders' fund, Malaysian Takaful invested mainly in investment account.

There is a relatively small body of the literature concerned with the regulation of Takaful. Salleh et al. (2014) conducted a study to assess the Malaysian Takaful market under the Islamic Financial Services Act (IFSA) 2013. The results indicate that several changes should be applied to the Takaful firms in order to conform to the requirements of new Act. Mazahir et al. (2018) conducted similar study in Sri Lanka, to assess such core issues as underwriting, investment, funds management, and reporting in the Sri Lankan Takaful market under the conventional regulator. The findings illustrated the importance of having competent Muslim scholars in these firms. Saleh (2016) points out the importance of improving the current regulations in Nigeria, and reviews some important insights from the Malaysian Takaful regulators on the appropriate business model and insurance practices. Mukhlisin (2017) discuss the complexity of Takaful management as an influence

on the position of the Takaful industry in Indonesia under IASB standards. Daud et al. (2018) highlight that the technical efficiency, performance, and reputation the Takaful industry can be improved by the leadership of qualified Islamic managements.

The academic literature on Takaful risks has revealed the existence of certain risks that have hitherto not been much discussed in the academic literature. In a survey of Takaful managers, Alokla and Daynes (2017) report that the risk of deficit in the participants' fund is one of the major risks identified by Takaful managers. Certain other risks are specific to the weaknesses of particular regulatory regimes, for example, the currently weak regulatory framework in Kuwait (Alokla, et al, 2017). Abdullah (2012), Fisol (2018), Samsuri and Jamal (2018) highlight the importance of protecting individuals without discrimination and ensuring that Takaful product developments conform with the fundamental aims and principles of Takaful. The importance of all stakeholders, including agents, understanding the values of Takaful is (Maqased Al Sharia).

2.7 Conclusion:

Takaful contracts address risk exposure by risk distribution and are significantly different from risk transfer of conventional insurance. Risk mitigation through mutual assistance is the essential purpose and approach of Takaful. The chapter identifies the meaning of Takaful and distinct features of Takaful are also highlighted. Muslim jurists believe that the Islamic Sharia law forbids conventional insurance because it contains elements of Riba, Gharar, and Maysir. On the other hand, the Sharia law accepts the concept of Takaful and encourages the idea of cooperation and solidarity. This chapter outlines the different types of models adopted by Takaful firms. Different models are used in the GCC and Malaysia, affecting the differing risk profiles of Takaful firms in these markets. The participant's fund and its potential risks are an essential feature of all Takaful models, and the risk of deficit in the participants' fund is an important factor in understanding the risks faced by Takaful firms.

Similarly, to any other industry, the Takaful sector has many fundamental issues and challenges. Future growth may be restrained by different factors. Salman (2014), Sarwar (2016), Trokic (2017), Khan et al. (2018) and Othman (2017) address a number of contemporary issues and challenges in the Takaful industry, including the current weak regulatory framework, the lack of qualified staff and experienced Sharia board members, the lack of consumer awareness, issues with variations in the understanding of religion,

issues concerning business models and structure, and the competitive pressures from both Takaful and conventional insurance competitors. The chapter also reviews the other main risks and challenges facing the Takaful industry. While adequate data is not yet available to incorporate these further risk factors into the study presented here, such developments promise to be of considerable interest for further research into Takaful. The chapter also reviews the general literature on Takaful, dealing with religious, philosophical, cultural, social, and historical aspects of Takaful. Not all of these issues are of direct relevance to the main concerns of this thesis but inform the background within which this study is conducted.

Of the range of risks currently facing the Takaful industry, the risk most relevant to the research of this thesis is the risk of deficit in the participants' fund. Consideration of the central importance of the participants' fund in the Takaful business models presented in Section 2, and the impact on the solvency and profitability of the Takaful firm arising from the risk of deficit in the participants' fund, play a significant role in the hypothesis development of this thesis presented in Chapters 4 and 5.

CHAPTER 3 Takaful Trends and Developments in the GCC and Malaysia:

3.0 Introduction:

Chapter 3 develops Step 2.2. (b) of the deductive method presented in Chapter 1.4, presenting relevant background on the GCC and Malaysian Takaful markets. Section 3.1 provides an overview, Section 3.2 discusses the GCC markets, Section 3.3 the Malaysian markets, and Section 3.4 discusses the main differences between these markets.

The achievements of the Takaful industry in the GCC and Malaysian markets are remarkable. The material presented here thus provides further support for the arguments of Chapter 1 motivating research into the Takaful industry.

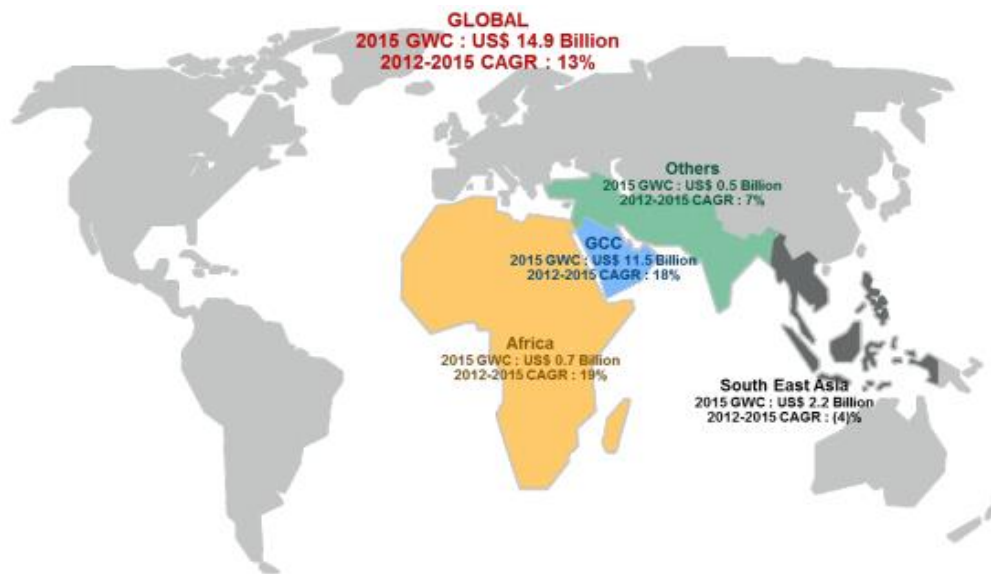
In terms of the hypothesis development, Chapter 3 also informs the choice of the explanatory factors used in the regression models presented in Chapters 4 and 5. In particular, Sections 3.2, 3.3 and 3.4 provide further insight and explanation on the differences in Takaful business models applied in the GCC and Malaysia, as discussed in Chapter 2.

Perhaps the most striking difference between the GCC and Malaysian markets is that Malaysia has been a world leader in the development of the regulatory framework for the Takaful industry for many years, and for Islamic financial services generally. In contrast, while the regulatory development differs across the GCC countries, the progress of regulation in the GCC in general lags far behind that of Malaysia. This makes it less likely that the explanatory factors used in this study will be sufficient to explain the variability in solvency and profitability in the GCC markets. Further country/regulatory specific factors may also be required for the GCC. Because of this, mixed results from the regressions, rather than conclusive results, are more likely for the GCC than for Malaysia.

3.1 State of the Global Takaful Industry:

The idea of Takaful began in the beginning of the second century of the Islamic era, when Muslim Arab traders agreed to mutually contribute to a fund to protect each other against any unexpected risk, and to compensate any members who suffered losses through any incident such as thefts or privateering during various sea voyages (Htay et al., 2012). According to Tolefat and Asutay (2013) and Jaffer et al. (2010), the first Takaful operators in the modern era of Islamic finance were in Sudan in 1979, with the Faisal Islamic Bank

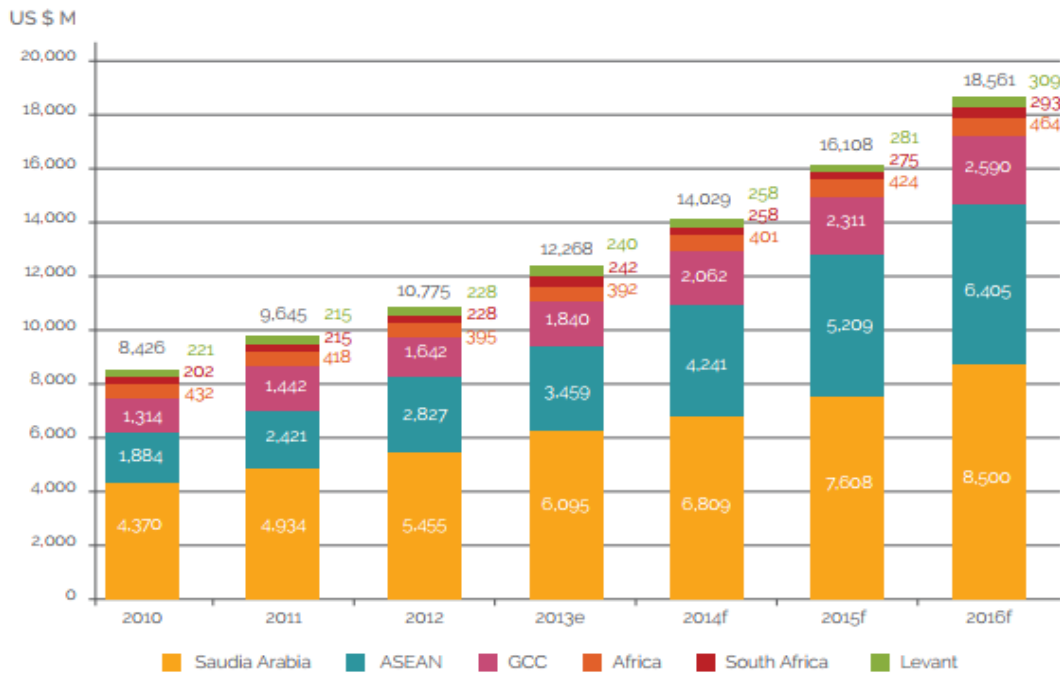
of Sudan established as the world's first Takaful firm. This was followed by the establishment of many Takaful operators in Malaysia, the GCC and other countries. However, in spite of its relatively recent creation, and the fact that the Takaful system has still a long way to go to achieve the same level of success of the conventional system, it is undeniable that Takaful has gained significant momentum, particularly in countries with high Muslim populations.



Source: Milliman analysis of industry data

FIGURE 12- SUMMARISES THE CONSOLIDATED GROSS WRITTEN CONTRIBUTIONS FROM 2012-2015 BOTH GLOBALLY AND REGIONAL LEVEL.

Takaful has seen rapid growth, both in terms of contributions and new companies. Abdul Rahman (2009) observes that Takaful has grown at a rapid rate, and that the market has expanded in Western Asia, South Asia, Southeast Asia and Africa, which are predominantly Muslim populated countries, and more recently has made its appearance in parts of Europe and North America. Ernst and Young (2014) forecast that the Takaful market is expected to reach US\$25.5 billion in contributions by 2020. The market has grown in the past 10 years to comprise roughly 305 Takaful providers globally. Of these 305, 107 provide general Takaful, 57 provide family Takaful, and 116 provide both life and general Takaful, while 25 provide re-Takaful services (Islamic Finance Services Board, 2018). Considering the practical and competitive challenges faced by Takaful, this substantial growth reflects the popularity of the system around the globe, and the increasing importance of Islamic finance.



Source: EY - Global Takaful Insights 2014
 11 - World Excluding Iran
 12 - GCC Excluding Saudi Arabia

FIGURE 13- GLOBAL GROSS TAKAFUL CONTRIBUTIONS BY REGION, 2009-2014.

According to the Islamic Finance Services Board (2018), the total global premium from insurance including Takaful was estimated at US\$4.7 trillion by the end of 2014. Approximately US\$73 billion came from countries in which Takaful operates, with the Takaful contributions estimated at US\$14 billion. The global Takaful market reached US\$ 19 Billion in 2017. The market is further projected to exceed US\$ 40 Billion by 2023, at a CAGR of 13% during 2017-2023 (Itd, R., 2018). This indicates that the market share of Takaful in countries in which Takaful firms exist is approximately 20%. This has been achieved in a time of around only 38 years, as compared to the conventional insurance system that started over 380 years ago. A 20% market share is impressive considering the relatively recent origins of the modern era in Islamic finance.

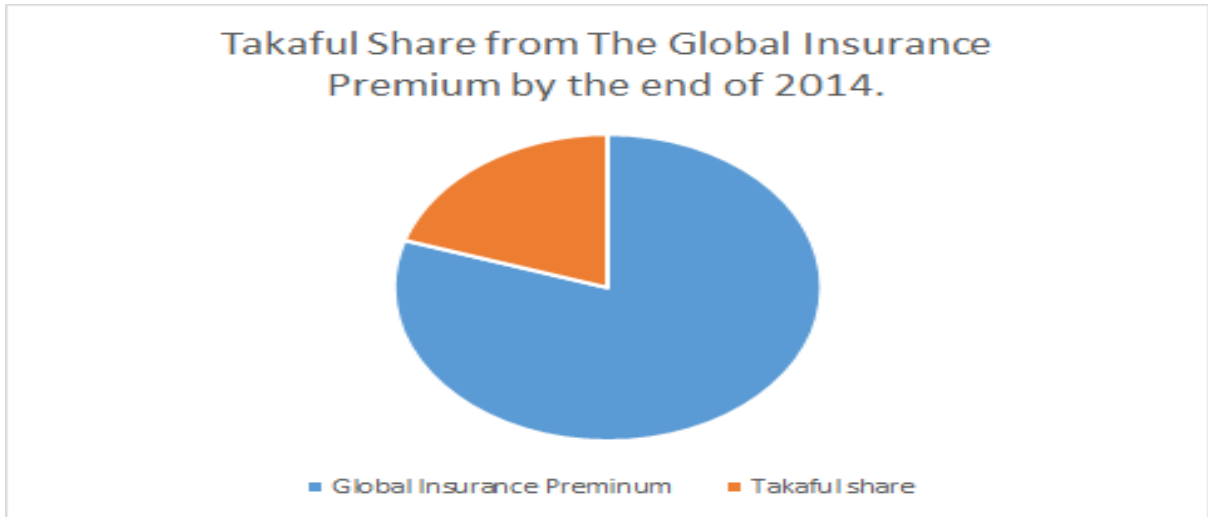
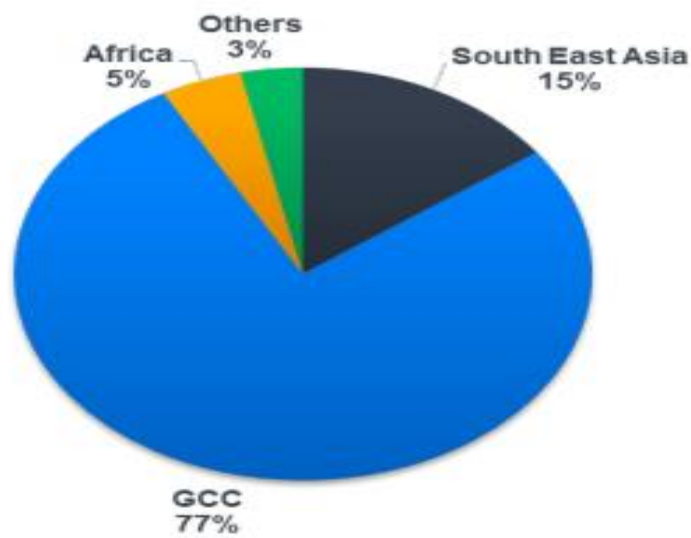


FIGURE 14- TAKAFUL SHARE FROM THE GLOBAL INSURANCE PREMIUM BY THE END OF 2014 (SOURCE: ISMAIL ET AL., 2017).

It is noted from the figure below that the GCC currently dominates the Takaful market, with a 77% share of the market, followed by South East Asia at 15 %, Africa at 5%, and others at 3% respectively.



Source: Milliman analysis of industry data. Figures may not be additive due to rounding.

FIGURE 15- PERCENTAGE OF TAKAFUL GROSS WRITTEN PREMIUM BY KEY REGION IN 2015

3.2 THE GCC TAKAFUL MARKET:

The Gulf Cooperation Council (GCC) countries comprise six Arabic countries, namely, the State of Kuwait, the Kingdom of Saudi Arabia, the Kingdom of Bahrain, the United Arab of

Emirates (UAE), the State of Qatar, and the Sultanate of Oman. The GCC countries are distinguished by one religion and one language, a common culture, and similar political and economic structures (Al-Amri, 2015).

Since its origins in 1975, the GCC market has played an important role in the development of the Islamic finance industry, and it is still the main financier of Islamic finance worldwide, driven by Takaful, Islamic banking, and other Islamic financial services. According to Grassa and Gazdar (2014), the Islamic finance industry has been developed in the GCC since 1973. Important developments include the founding of the Kuwait Finance House in 1977 and the Dubai Islamic Bank in 1975.

By 2015, there were a large number of insurance companies in the GCC, totalling 241 companies, and including 74 Takaful operators. This translates to an average Takaful market share of approximately 30%. The Takaful market of Saudi Arabia is dominant, with a 46.5% share in the region, followed by Kuwait at 18%, the UAE at 16.5%, Qatar and Bahrain each with 8%, and Oman with 3% (Ismail et al., 2017).

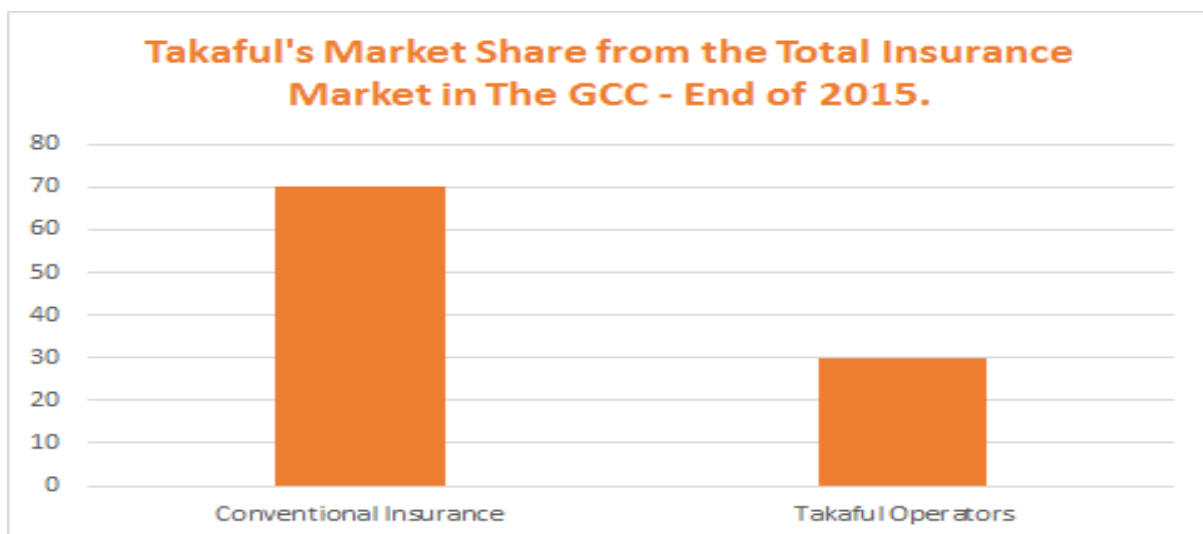


FIGURE 16- TAKAFUL'S MARKET SHARE FROM THE TOTAL INSURANCE MARKET IN THE GCC- END OF 2015 (SOURCE: ISMAIL ET AL., 2017).

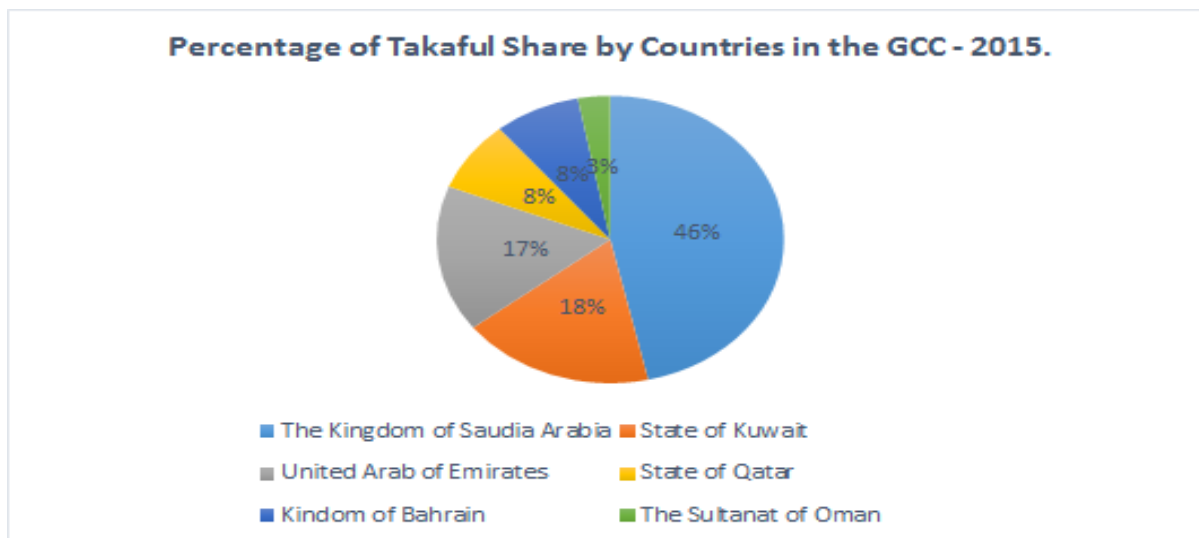


FIGURE 17- TAKAFUL’S SHARE BY COUNTRY IN THE GCC (SOURCE: ISMAIL ET AL., 2017).

The GCC economies depend significantly on the oil price. However, despite the volatility of the oil price, and in particular in spite of the sharp fall in the oil price from the middle of 2014 to early 2016, the GCC market continues to be the main driver of global Takaful contributions. According to Ismail et al. (2017), the GCC Takaful market represents 77% of total contributions compared with 62% by the end of 2012, a significant increase of 15% globally. One of the reasons behind the large number of Takaful companies in the GCC is the vast potential offered by the presence of large Muslim populations, both citizens and expatriates, in the region.

In spite of the constant annual growth in the underwritten contributions which is about 20%, the Takaful industry in the GCC still struggling to impose itself as an alternative provider for the insurance services. This is because the profits are still unevenly distributed across the sector, and the historic rapid growth, combined with accumulated net losses, continues to erode the capital strength and damage the credit profiles of a number of companies in the sector (Damak, 2018).

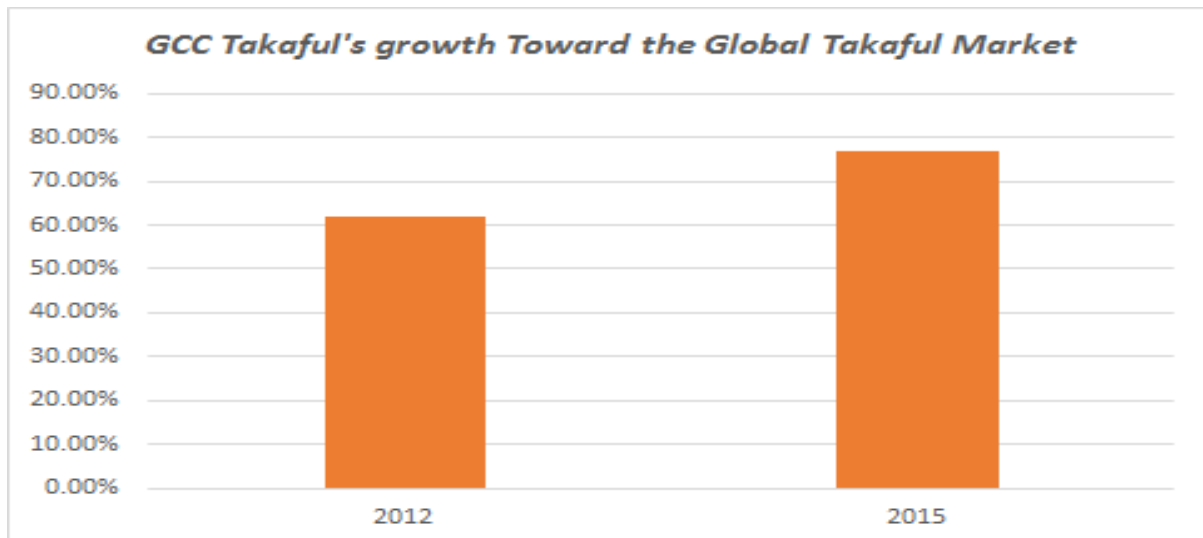


FIGURE 18- GCC TAKAFUL'S GROWTH TOWARDS THE GLOBAL TAKAFUL MARKET (SOURCE: ISMAIL ET AL., 2017).

According to Hodings (2015) there is no specific regulation, which can distinguish the Takaful sector from the conventional sector in the GCC. Overall, the regulatory framework remains fragmented, weak, and unclear. Regulations are extremely important in developing the general financial sector, particularly in the insurance sector. Implementation of public disclosure requirements leads to increased market discipline (Van Rossum, 2005). A robust regulatory regime would help all the stakeholders to better understand the financial position of the entity and its risks (Cummins et al., 2001 and Grace and Phillips, 2008).

In spite of the importance and the huge growth of the GCC Takaful market, the market still lags behind its conventional industry peer, measured by the ratio of Takaful contributions to total insurance premiums. Due to the lack of a specific legal framework, a robust corporate governance culture and risk management frameworks, the GCC Takaful market so far has not achieved its full potential. Regulation is considered an essential factor in the growth of any industry, as it provides a level of security and confidence for both shareholders and clients to actively participate in its development. The lack of appropriate Takaful regulation in the Middle East has hindered its growth and presence in the region (Saiddiqui and Duncley, 2015; Islamic Bankers Association, 2016; Abdullah, 2012; Fisol, 2017; and Samsuri and Jamal, 2018).

While there are various levels of regulatory requirement in the Takaful sector, there is currently an absence of specific standards for the Takaful industry in particular. This is the case even for Saudi Arabia, the country with the largest Takaful market share in the GCC, the home of roughly 35 Takaful providers. The Saudi Arabian Monetary Agency

(SAMA) is the regulator for the financial industry in the Kingdom of Saudi Arabia. However, there is no specific Takaful regulatory framework in the Saudi Arabian market, and the conventional insurance regulations apply to the Takaful sector. A sophisticated regulatory framework for the Takaful sector is required. In particular, clarification is required on issues such as, the commitments to the shareholders' fund from Takaful fund, the protection of the participants from future deficits in respect of the provision of Qard Hasan loans from the shareholders, the rules governing the appointment of members to the Sharia board, and issues concerning monitoring compliance to the Islamic Sharia rules.

For the UAE market, the nine Takaful companies are still competing with diversified and larger conventional peers in an overcrowded market (Damak, 2018). Hammad and Greenberg (2015) state that in order to improve the overall capital conditions for the Takaful sector in the UAE, it is required for the UAE insurance authority to legalize and enforce new prudential Takaful regulations.

Soualhi and Al Shammari (2015) observe that, according to the Kuwaiti Ministry of Commerce statistics in 2015, there are 14 Takaful and 21 conventional insurance operators in the country. Despite the fact that the Kuwaiti market comprises 18% of the GCC Takaful market, the second largest in the GCC, this, apparently promising statistic is due in part to the fact that Kuwait currently has the weakest regulatory framework in the GCC. Weak regulation in Kuwait allows new companies to enter the overcrowded market without appropriate oversight (Alokla and Daynes, 2017).

In Oman, the Takaful system was founded in 2013 by Al Madina Takaful Company, as the first Takaful operator in the sultanate, followed by Takaful Oman Company. However, since that time the Takaful system still awaiting appropriate Takaful specific regulation to be issued, although draft regulations are being developed covering a number of specific technical issues (Islamic Bankers Association, 2016). The Takaful market share in Oman is approximately 6.5%, and there is a great opportunity to increase this ratio as the regulatory framework is further developed.

For the Kingdom of Bahrain, there are seven Takaful and two Re-Takaful companies operating in the country under the supervision of the Central Bank of Bahrain (CBB), the CBB being the regulator for the financial sector in Bahrain. Hidayat and Abdulla (2015) and Wilson (2009) argue that Takaful regulations in Bahrain are the best in the GCC Takaful market, particularly in light of the new regulatory framework, which was

launched in 2015. The regulatory system in Bahrain imposes rigorous requirements on Takaful and re-Takaful companies, including considerable emphasis on consumer protection, disclosure and accounting practices, and corporate governance. Moreover, the regulations in Bahrain require the Takaful firms to disclose the level of Wakalah fees and to repay the Qard Al Hasan within a maximum period of 5 years (Ismail et al., 2017). This is expected to lead to fostering competition in the current market and creating opportunities to attract new Takaful firms into the market.

In Qatar, the Central Bank of Qatar is the regulator for the insurance sector including the five Takaful companies. There is no specific regulation related to the Takaful sector, although regulations for the conventional insurance system must be adopted. These take into account wide range of regulatory and prudential requirements, including accounting standardization, pricing, corporate governance, risk management, as well as a range of technical issues.

In conclusion, despite the considerable growth achieved by the Takaful sector in the GCC, the Takaful industry in the GCC continue to face headwinds. The impressive growth rates are, in part, because these firms are still growing from a relatively small base, and there are still few fast-growing Takaful firms recording a stable increase in the underwritten contribution. Developing appropriate regulation is a vital element to success any industry. For Takaful, one of the core aims of regulation is to protect the interest of the participants. Currently, however, the regulatory framework for the Takaful sector in the GCC suffers from an inherent lack of transparency in many jurisdictions. Serious reforms are required, including the development of an appropriate risk management framework and more robust cooperative governance.

In summary, the key impediment to the stability and growth of the Takaful industry in the GCC lies in the lack of an adequate legal and regulatory framework governing Takaful operations in these countries.

3.3 Takaful in Malaysia:

Malaysia is located in the southeast of Asia with a population of approximately 31 million people. It is a multiracial country with large Muslim community comprising nearly 62% of the total population. The other main religions followed are Buddhism at 17%, Christianity at 10% and Hinduism at 7%. According to the World Bank (2016), the

economy in Malaysia is a developing economy and it has good position globally as the 35th largest economy with Gross Domestic Product of 296.4 billion US\$.

Islamic finance in Malaysia began in 1983 with the establishment of Bank Islam Malaysia Berhad (BIMB). This was followed by the establishment of many Islamic financial institutions. By the end of 2013, these included 16 fully-fledged Islamic banks, 17 Takaful firms (including both general and family Takaful and Re-Takaful), 5 international Islamic Banks and 6 development financial institutions. Moreover, Malaysia became the home of various global organizations for Islamic finance, such as the International Islamic Liquidity Management Corporation (IILM) and the Islamic Finance Services Board (IFSB). According to Kettel (2013), Malaysia is considered one of the core and largest hubs of Islamic finance in the world. Undeniably, the Islamic finance industry in Malaysia has grown rapidly in the last three decades, due to the consistent and strong support provided by the Malaysian government.

“The ecosystem provides a conducive and vibrant environment that is characterised by active Islamic financial markets and well-established financial infrastructure, underpinned by a sound regulatory, supervisory, legal and Shari'ah framework, and reinforced by a skilled talent pool with global capabilities” (Bank Negara, 2011).

There are 17 Takaful providers in Malaysia, of which 14 are Takaful firms, including two Takaful windows. The other three are re-Takaful suppliers including two re-Takaful windows belonging to Swiss Re and Munich Re. The Takaful industry in Malaysia has proved to be popular, and not only among the Muslim population. By offering competitive prices and demonstrating the ability to provide regular surplus distributions, the Takaful firms in Malaysia have attracted many non-Muslims customers as well (Hassan et al., 2018 and Fauzi et al., 2016).

In the Malaysian Takaful sector Syarikat Takaful Malaysia Berhad was the first Malaysian Takaful operator, established in 1984, followed by 11 Takaful more firms by the end of 2017. Since then, the Takaful industry in Malaysia has positioned itself for greater development and has been increasingly recognised as a significant contributor to the country's overall Islamic finance system (Islamic Bankers Association, 2017). Bank Negara Malaysia, the Central Bank of Malaysia is the regulator for the finance sector including Takaful. The local Takaful market share is 12% of the total Malaysian insurance and 62% in the South East Asia Takaful market, which remains as the largest market share by the end of 2015. The Malaysian Takaful share represents approximately at 9%

of global Takaful contributions (Ismail et al., 2017). Abduh and Isma (2016) note that in terms of contribution income, the Takaful sector has recorded noticeable growth compared with the conventional system for the period 2008 to 2012.

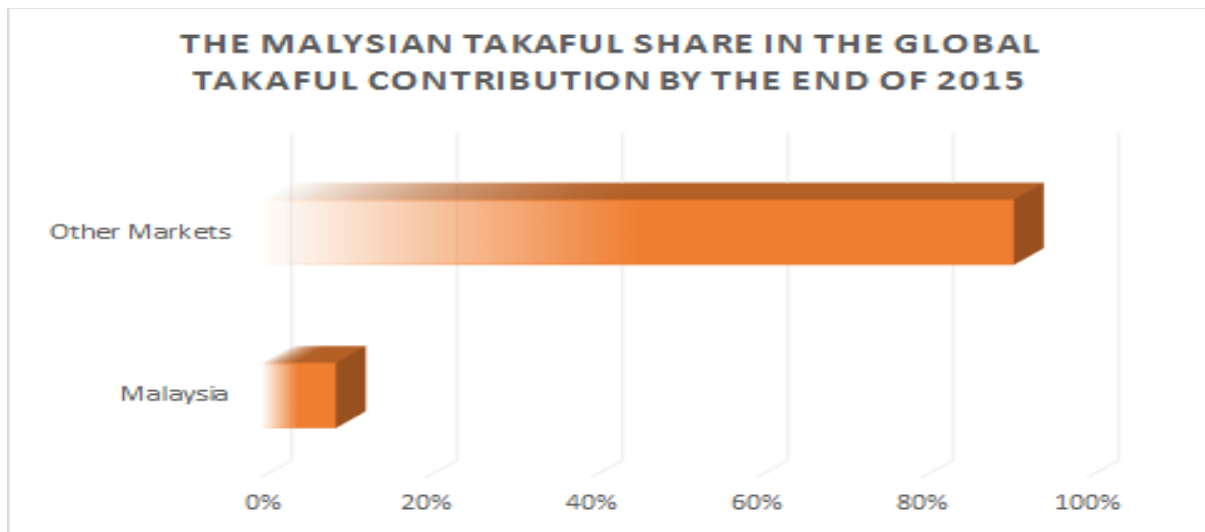


FIGURE 19- MALAYSIAN TAKAFUL SHARE IN THE GLOBAL TAKAFUL CONTRIBUTION (SOURCE: ISMAIL ET AL.,2017).

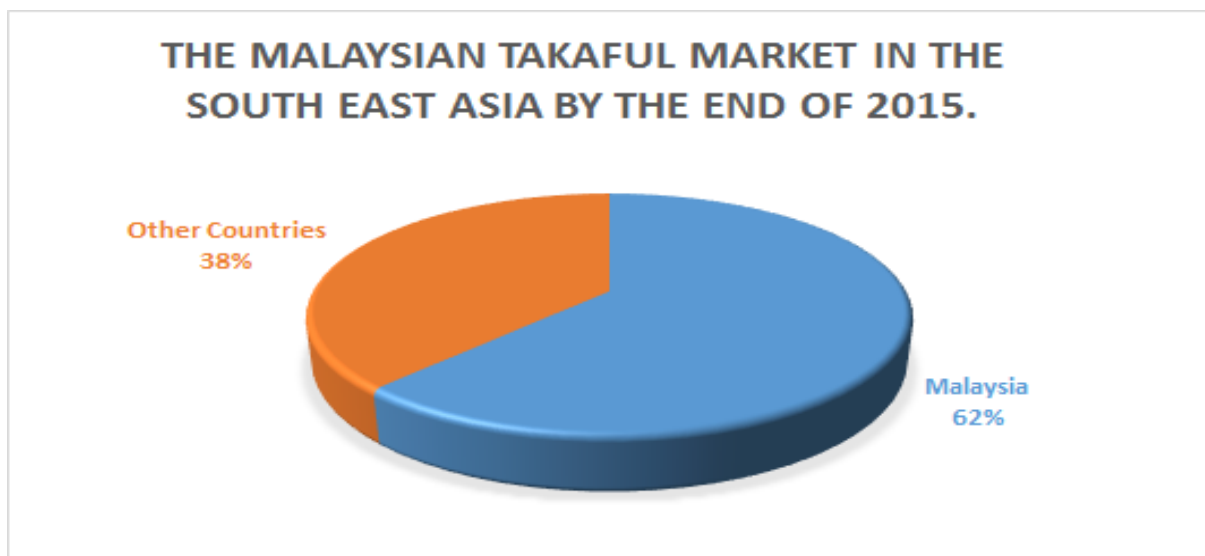


FIGURE 20- MALAYSIAN TAKAFUL SHARE IN THE SOUTH EAST ASIA REGION (SOURCE: ISMAIL ET AL., 2017).

The rapid growth in the Malaysian Takaful market is attributable to many factors, of which two of the main ones are the high local Muslim population and the existence of a highly developed and regulatory framework specific to the Takaful sector. According to Ernst and Young (2014), the enhancement of the regulations has opened new opportunities in a rapid growth market in developing countries such as Malaysia and

Indonesia. By equipping the Takaful industry with the necessary regulatory and infrastructure, Malaysia currently has the strongest Takaful regulation system in the world. These include the protection of the participants under the Malaysian Deposit Insurance Corporation (MDIC), the rights legislation and implementation of Risk Based Capital for Takaful (RBCT), the implementation of the Takaful Operational Framework (TOF) and the Islamic Financial Services Act (IFSA). One of the key reasons for Malaysia's stronger penetration ratio is its earlier development of Takaful specific regulation. Bank of Niagara, the regulator of the insurance sector in Malaysia including Takaful, is responsible for setting minimum capital requirements, participants' rights, foreign ownership restrictions and solvency regulation (Daod et al., 2019). A comprehensive and transparent regulatory framework results in a stronger and sharper business focus, particularly for a new industry. Moreover, the current Takaful Malaysian regulation is in line with global insurance laws, positioning the Malaysian Takaful industry to exploit future growth in the global markets (Remli and Rosman, 2018).

3.4 Main Differences between the GCC and the Malaysian Markets:

The feature of the Takaful sector in the GCC differs, in some ways substantially, from other areas of South Asia and North Africa, and in particular, from the Takaful industry in Malaysia. These differences are due to a number of factors.

There are different interpretations from Sharia scholars on the acceptability of different Takaful models. Some models are accepted in one jurisdiction while not being permissible in others (Tolefat and Asutay, 2013). According to Safian (2017), depending on the interpretations of the local Fiqh School, different countries have different regulations pertaining to the appointment of the Sharia board in Islamic financial institutions. Thus, differing opinions among scholars have contributed to differences in the operations between Takaful companies (Dar, 2013; Miskam and Nasrul, 2013; Al-Salem, 2009; Grais and Pellegrini, 2006 and Hawas, 1997). The GCC Takaful market mainly uses the hybrid Wakalah and Mudarabah model, influenced by their local Sharia scholars who follow the Hanbali Fiqh school, while the uniqueness of the Malaysian Takaful market lies in the freedom for each company to adopt whichever operational model is appropriate for them, provided that this model is approved by Negara Bank and complies with the Shafi Fiqh school (Safian, 2017 and Sham et al., 2012). However, the

majority of the Malaysian Takaful companies adopt the Mudarabah model as an operational model.

Several issues are highlighted regarding the Mudarabah model from the scholars in the Middle East (Tolefat and Asutay, 2013). The key issue in the Mudarabah model concerns the question of how the participants' contribution should be regarded, as a donation, or as capital for the Mudarabah contract (Annuar and Bakar, 2010; Abdi, 2007 and Farooq et al., 2010). The Mudarabah model is not much favoured in the GCC Takaful market due to its profit sharing nature (Archer et al., 2011; Maysami and Kwon, 1999 and Soualhi, 2008).

A number of Fiqh concerns in Malaysia have been raised by Muslim scholars regarding the Mudarabah and Wakalah models. A main issue for the Wakalah model concerns the hybrid Wakalah and Mudarabah model, since, in addition to receiving the Wakalah fees and the Mudarabah share, the fund's operators are also entitled to a share of the surplus under the term "Performance Incentive Fees" (Wahab et al., 2007 and Arifin et al., 2013). A key element distinguishing the Malaysian Takaful market is that Malaysia has firmly established itself as a hub for Islamic finance, making strides in thought, leadership, product development, and institutional establishment. The Takaful market in Malaysia has been regulated since 1984 (Thanasegaran, 2008). In fact, until recently, Malaysia was the only country that had Takaful specific legislation (the Takaful Act 1984) to licence and supervise Takaful operations, and was one of the first to adopt a Takaful system parallel to its conventional counterpart. Government support for creating an efficient, progressive, and comprehensive Islamic financial system has contributed significantly to the effectiveness and efficiency of the Malaysian Islamic financial sector (Hardie and Rethel, 2019). The Malaysian market enjoys strong support from industry players and government institutions and increasing awareness among customers. For example, the Bank Negara Malaysia issued in 2014 the Risk-Based Capital Takaful (RBCT) framework aimed at creating a strong risk management framework relating to the size and degree of the undertaken risk (Dahlan and Palil, 2018). This framework aims at promoting innovation, increasing competitiveness in the market, and enhancing professionalism and transparency in providing insurance and Takaful products and services to the consumers (Islamic Bankers Association, 2017). The global leadership of Malaysia in Takaful regulation is in stark contrast to the weak and fragmented regulatory framework prevailing in the GCC.

Takaful companies in Malaysia are also leading the global Takaful sector by leveraging their relationship with the Islamic banks in providing a new distribution channels known as bancaTakaful. This is contrast to the GCC where Takaful companies and the agency distribution are the main distribution channels for Takaful products. According to the Islamic Bankers Association (2017), about 85% of Takaful products are sold through brokers and agency distribution in the United Arab Emirates.

Both the GCC and Malaysian markets offer a relatively similar, and extensive range of Takaful services. These include protection plans for medical and life Takaful, as well as motor, fire, property, engineering, worker and employee, marine, miscellaneous and personal accident cover. However, in contrast to the GCC Takaful markets, Takaful operators in Malaysia have more opportunities for business expansion by providing new products related to the government's commitments to reduce carbon emissions (Muhamat et al., 2017). Moreover, due to the different climate environment in these regions, the Malaysian Takaful operators also offer Takaful services relating to insuring agricultural contractors and farmers against crop failures (Alam et al., 2017). Further differences may exist in the relative importance of life and health insurance. For example, the demand for life and health insurance in Malaysia is very high, and revenue from this business line is a vital source of income for the Malaysian Takaful firms. Family Takaful has emerged as the dominant business line in Malaysia. Industry growth is underpinned by the family Takaful business, which accounts for 76% of total net contribution income for the Malaysian Takaful industry (Islamic Bankers Association, 2017). This is not the case for the GCC market as citizens of the GCC enjoy the security of significant levels of resource wealth.

The consideration of some of the substantive differences between Malaysia and the GCC, pertaining to the leadership role of government, regulation, the Takaful models applied, Fiqh schools, consumer awareness, the demand for insurance products, and further specific features for each market highlighted above, explains the successful development of the Takaful sector in Malaysia, and the challenges and opportunities facing the Takaful industry in the GCC countries.

3.5 Conclusion:

This chapter demonstrated the growth of Takaful in general, with specific reference to the GCC and Malaysian markets. Substantive differences between the GCC and Malaysian markets have been discussed. The differences most relevant for the research into the determinants of solvency and profitability of Takaful firm of this thesis are the regulatory differences and the differences in the Takaful models applied.

While Malaysia is the global leader in Takaful regulation, with some exceptions, such as Bahrain, the regulation of Takaful in the GCC is weak and fragmented. Again, with the recent exception of Bahrain, the Takaful industry in the GCC is regulated under regulations pertaining to the conventional insurance sector. In terms of the research reported in this thesis, the expectation therefore is that mixed and inconclusive regression results are more likely to be obtained for the GCC than for Malaysia. This is discussed in more depth in the hypothesis development sections of Chapters 4 and 5.

The difference between the Takaful models applied in the GCC and Malaysia also impact directly on the hypothesis development. As discussed in Chapters 4 and 5, these differences lead to the introduction of 2 new explanatory variables, commission paid and management expenses, which are expected to be significant in explaining solvency and profitability in the Malaysian market.

Other issues discussed in this chapter, while of less direct relevance to the main aims of this research, will be assumed as background, and are used in placing the analysis of the empirical results into the appropriate context.

CHAPTER 4 The Factors Determining Solvency in Takaful Firms in the GCC and Malaysia:

4.1 Introduction:

The aim of this chapter is to identify the main inflows and outflows for the participant's fund and to determine the determinants of solvency for Takaful firms in both the GCC and Malaysian markets. Chapter 4 concerns Steps 2,3,4,5, and 6 of the deductive methodology discussed in Chapter 1.4.

Step 2: Step 2 of the deductive methodology is to summarise what is known already about the solutions/answers to the problems/questions raised in Step 1. Step 2 motivates the hypothesis development, and the building of the regression models used to test the hypotheses.

Step 2 has been partially covered already in Chapters 2 and 3. Chapter 2 reviews the main Takaful business models and observes that the deficit on the participants' fund is a key driver of insolvency risk. Chapter 3 reviews the business models that are applied in the GCC and Malaysia. Sections 2, 3 and 4 of the present chapter extend Step 2 in two ways.

- 1) Section 2 extends Step 2 by reviewing the empirical literature on the determinants of solvency in Takaful firms.
- 2) Section 3 discusses the empirical data used in this study. As noted previously, the lack of empirical data is one of the main problems facing researchers in Takaful, and in Islamic finance generally. The author expended a substantial amount of time and effort in order to obtain empirical data adequate to carry out the research. In Section 4, the data challenges, and how they were addressed, is presented, and the strengths and imitations of the data set obtained are discussed.
- 3) Section 4 presents a breakdown of the main inflows and outflows into the participants' fund, in each of the GCC and Malaysian markets separately. The main outflows that contribute to the deficit in the participants' fund are identified. For example, in the Takaful models applied in Malaysia (Chapters 2 and 3), the breakdown of the inflows/outflows on the participants' fund shows that Wakalah fees are a significant factor for Malaysian Takaful firms. Thus, the aim of studying the breakdown of the inflows/outflows of the participants' fund is to identify

further significant insolvency factors from which testable hypotheses may be obtained.

Step 3: Hypothesis development. Section 5 presents the definitions of the dependent and independent variables used in this study, together with the hypotheses to be tested in the regression models. The explanatory variables are defined, and the justifications for using these variables are presented.

Step 4: Section 6 presents the regression models applied. The strengths and limitations of the models are discussed.

Step 5: Step 5 concerns the rejection or provisional acceptance of the hypotheses based on results of the critical tests of the hypotheses carried out in Step 4. The results of the regression tests are presented in Section 7, and the results are discussed with reference to the expectations and the hypotheses developed previously. Section 8 summarises the main conclusions of the regression results.

Thus, from Step 2, as covered in Chapters 2 and 3, and in Sections 3, 4 and 5 of the present chapter, certain expectations are obtained. These expectations are used to derive a number of testable hypotheses, which are then critically tested in the regression analysis of Section 6.

Step 6: Step 6 concerns the implications of the results of Step 5 for revising expectations/hypotheses, questions for future research, and applications of the results by various stakeholders. Some relevant issues are discussed in concluding the present chapter and are discussed more fully in the concluding Chapter 7.

4.2 Review of the Solvency Literature:

There are few empirical studies on solvency in the area of Takaful. Most of the literature on solvency risk is concerned only with the conventional insurance system. However, much of the literature on conventional insurance is of limited value for Takaful studies for a number of reasons.

4.2.1 General Issues with the Conventional Literature:

Because of the fundamental differences between the conventional and Islamic insurance models, discussed in Chapter 2.2, results from the conventional literature cannot in general be carried over to research in Takaful. Key issues for Takaful, such as Sharia compliance risk and the risk of deficit in the participants' fund, do not occur in the

conventional literature at all. Other differences arise because of the current undeveloped state of the Takaful market. Many of the other dimensions of Takaful risk, discussed in detail in Chapter 2.5, are not specifically Islamic. However, they are significant risks for Takaful, but not for conventional insurance, because Takaful and Islamic finance in general, are very young industries. Thus, such major concerns for Takaful, such as the lack of adequately trained personal, the lack of Sharia compliant investment opportunities, the inability of the re-Takaful industry to meet demand from Takaful insurers, inadequate accounting and actuarial practices, the volatility arising from poor risk management and governance, and poor underwriting discipline, together with the resulting struggle to achieve growth and profitability, do not arise in the case of conventional insurance. Thus, many concerns that are paramount in the case of Takaful are far from being at the forefront of issues that are being discussed in the conventional literature.

Research in developed conventional insurance markets is concerned with issues that are relevant to those markets, and which often have little relevance for the key research questions in Takaful. This is particularly the case for the US market, the largest and the most researched insurance market in the world. The roots of the US insurance industry go back to 1735, the US market has been regulated since 1851, with insurance firms numbering 5,977 by the end of 2016, and, with a large proportion of insurance firms' enjoying strong balance sheets and operating performance, with financial reserves built up over many decades (Federal Insurance Office, 2016 and Shaw and Eckenrode, 2018). US firms enjoy immense resources of human capital and technological infrastructure, operate within a highly developed and sophisticated regulatory framework, and within a highly developed environment of competitive financial institutions, and deep, liquid, and well-regulated money and capital markets. Researchers and practitioners are produced by outstanding educational institutions and are supported by extensive sources of funding and data resources. Financial economists and insurance experts have studied the US insurance market over many decades and have developed a great range of advanced theories and techniques relevant to the study of conventional insurance in the context of the US and other advanced economies (Campion and Schuermann, 2017; Kobayashi, 2017; Kousky and Michel-Kerjan, 2017 and Biener et al., 2016). Advanced statistical models appropriate to the extensive cross-sectional and time-series data available researchers in advanced economies are typically applied (Ryzhkov and Filatov, 2017 and

Copeland & Cabanda, 2018). This is in sharp contrast to the conditions currently prevailing in the Takaful industry.

In addition, in recent years there has been a considerable focus in US research on the risks of natural disasters and climate change (Mumo, 2017 and Quaye et al., 2017), and especially since the atrocity of 9/11, on the risk of terrorist attacks (Shah et al., 2018 and Foley-Fisher et al., 2018). While these are concerns worldwide, US research in these areas is concerned with identifying, measuring, and managing these risks from the perspective of the US, which differs greatly from that of the countries in which the Takaful industry is concentrated. As a relatively new-born sector, climate change and terrorism risks are not major concerns of the Takaful industry and so far have not been the focus of researchers in Takaful. The challenges the Takaful sector faces, even to survive against the competitive pressures from the developed conventional insurance sector, differ greatly from the concerns of researchers in the developed economies.

4.2.2 The Empirical Literature on Takaful and Conventional Insurance in Emerging Markets:

While a considerable amount of literature has been published investigating the determinants of solvency for conventional insurance firms, only a limited number of studies have investigated the insolvency for Takaful firms. Further, the empirical literature on conventional insurance is heavily concentrated on the insurance markets of the advanced developed economies, and in particular on the US and the UK. The literature specific to Takaful is too sparse to provide strong motivation for the choice of the dependent variable and independent variables to be used in this study. Therefore, relevant literature on the determinants of solvency for conventional insurers in emerging markets is also reviewed. Some specific studies on conventional insurers in developed markets are also considered.

The current state of the empirical research literature on Takaful and conventional insurers in emerging markets presents certain problems to the researcher. In most cases, the results of individual research studies are not directly comparable. A main reason for this is that different researchers make use of different definitions of the accounting factors used as the dependent and independent variables. For example, there is no single definition of the dependent variable, solvency that has been used uniformly throughout the literature. Different definitions, or proxies, for solvency have been used in different studies, including the equity to asset ratio, the technical reserves ratio, net assets to net

premium, the valuation ratio, net premium to shareholder funds, net investment income to net premium earned, capital to total assets, capital to technical reserves, the free asset ratio and net assets to net premiums written, and firm size including premium, assets, capital and surplus (Abduh and Isma, 2016; Chakraborty, 2017; Yakob et al., 2012; Joo, 2013; Adam and Buckle, 2003; Das et al., 2003; Shiu, 2004; Shui, 2005 and Chen and Wong, 2004).

A further lack of comparability arises from the fact that most of the research in insurance in emerging markets concerns studies of conventional insurers. Also, most of these emerging markets studies have been conducted, not in the GCC and Malaysia, but in other emerging markets, such as India (Chakraborty, 2017 and Joo, 2013). In addition, the studies which do cover Takaful also cover conventional insurance firms, and firms with Takaful windows.

The different time periods covered by different studies also exacerbates the issue of comparability. Given the rapid development of the Takaful industry, the implications of some of the earlier studies for the current situation in the Takaful industry are disputable. Finally, the results of existing empirical research can be said to be mixed. While the significance of some well-motivated explanatory factors has been supported by some of the empirical studies, others have been rejected. In some cases, the signs of the reported betas of the explanatory variables have been counter-intuitive.

Thus, the difficulties of directly comparing the results from different research papers mean that the hypotheses motivated by the previous empirical research can be proposed with less confidence than is usually the case in conventional finance research, where it is often the case that hypotheses are strongly motivated by the previous empirical literature. For example, in the conventional literature on market efficiency, the hypotheses are so well established in the literature that they scarcely need restating.

4.2.3 The Empirical Solvency Literature on Takaful:

Currently there have been two empirical studies directly relevant to this research on the determinants of solvency on Takaful firms, namely, (Yakob et al., 2012 and Abduh and Isma, 2016).

Yakob, et al. (2012) conducts a random effects regression on a sample of 14 conventional and 5 Takaful firms in Malaysia, covering the time period from 2003 to 2007. In this study, the ratio Participants' Fund/Valuation Liability is taken as a proxy for Solvency. They conclude that Investment Income has a statistically significant positive relationship to

Solvency, while Total Benefit Paid/Capital and Surplus, Financial Leverage, and Liquidity are statistically significantly negatively related. These results, apart from the negative sign for Liquidity, are in line with theoretical expectations, since a positive relationship would be expected for Investment Income, while increases to Total Benefit Paid/Capital and Surplus and Financial Leverage would be expected to decrease the financial viability of the firm. Other explanatory variables found not to be statistically significant include both firm specific and macroeconomic factors, including gross written premiums, claims, management expenses, reinsurance, total debt, company size, interest rates, and gross domestic product.

Abduh and Isma (2016) use Equity/Assets as well as the Equity/Technical Reserves as the independent variable standing as a proxy for Solvency. The samples comprised 11 conventional life insurance and 6 family Takaful firms in Malaysia for the time period from 2008 to 2012. Abduh and Isma (2016) conclude that for conventional life insurance firms, Expenses and Investment Income are statistically significantly positively related to Solvency, while Company Size and Liquidity are statistically significantly negatively related. For family Takaful, Leverage and Contribution Growth are significantly positive, while Expenses and Company Size are significantly negatively related.

These two studies illustrate some of the problems referred to in Section 4.3.2. The results of these two studies are not directly comparable because they use different, albeit related, proxies for solvency.

Secondly, although both studies cover the Malaysian market, they cover different time periods, the first, from 2003 to 2007, a period of relative stability in the global capital markets, the second, from 2008 to 2012, including the 2008 financial crisis and the subsequent tentative recovery.

Thirdly, while the results of Yakob et al. (2012) are essentially in line with theory, some of the results of Abduh and Isma (2016) are difficult to reconcile with theoretical expectations. For example, against theoretical expectations, Expenses is positively related to Solvency for conventional life insurance firms, and Leverage is positively related to Solvency for Takaful firms. Further, the results exhibit some apparent internal inconsistency, as Leverage is negatively related to Solvency for Takaful firms, in apparent contradiction to the result that Leverage is positively related to Solvency for conventional life insurance firms. Thus, the results from these studies are mixed, and it is difficult to draw clear conclusions that are consistent with prior theoretical expectations.

Finally, both studies use small samples and cover short time periods. The addition of further explanatory variables decreases the degrees of freedom of the regression, and results in wider confidence intervals. This significantly reduces the power of the test in small samples. Theory suggests that the factors included in the regressions should be statistically significant, although, for example, management expenses, total debt, company size, interest rates and GDP were not found to be so in the Yakob et al. (2012) study. This may be due to the limitations of the data available to the researchers. Small samples lead to wider confidence intervals, and variables, which do in fact explain the variation in the dependent variable, may have non-significant coefficients in the regression. Thus, Type 2 errors, the probability of not rejecting a false null hypothesis of no relationship between the variables, are more likely to occur. This may help to explain the large number of non-significant results reported in the literature.

Some further motivation for the hypothesis development can be obtained by considering similar studies in emerging economies, as well as in developed economies. Emerging markets are in some respects similar to the Malaysian and GCC markets, while the results for advanced economies may indicate the results that can be obtained in the absence of small sample problems and in the absence of noise introduced by the other dimensions of Takaful risk, such as the lack of adequate regulation, as discussed in Chapter 2.5.

Chakraborty (2017) conducts a multiple regression analysis of the four public sector general insurers in India, for the period 2008 to 2014. The proxy for Solvency is Available Solvency Margin/Required Solvency Margin. The particular choice of variables in this study is motivated by the requirements of the regulators in the Indian market. Solvency was found to be positively related to Return on Equity, Market Share, and Liquidity, and negatively related to Operating Expenses and Loss ratios, in accordance with theoretical expectations.

Joo (2013) conducts a multiple regression analysis of 12 public and private sector insurers in India. Solvency is defined as Net Premiums/Shareholders funds. Of the explanatory factors, Firm Size, Investment Performance, Liquidity Ratio, Operating Margin, Combined Ratio, Claims Ratio and Underwriting Profitability, Firm Size was found to have the expected positive relationship, while the Claims Ratio was found to have the expected negative relationship. Mixed and/or statistically insignificant results were obtained for the remaining explanatory variables.

Chen and Wong (2004) conduct a study of 218 general conventional insurers and 123 life conventional insurers in Asia. The independent variables include size, investment performance, operating margin, competition, interest rates, and inflation. Size, investment performance, liquidity, surplus growth, combined ratio and operating margin were found to be significant.

Shui (2005) conducts an analysis of 311 conventional insurers in the UK market. A number of explanatory variables are considered, including Inflation, interest rates, market equity return, market competition, bonds to total assets, equity to total assets, assets held to cover linked liability to total assets, life and general annuity reserves to total reserves, pension reserves, other reserves, life and general annuity premium, pension premium, other premium, company size, leverage, business level, expense ratio, type, non-linked termination ratio, linked termination ratio, mismatch of durations, and organizational form. Independent variables that were found to be positively statistically significantly related to solvency are bonds to total assets, equity to total assets, and business level. Statistically significant negative factors are inflation, market competition, assets to cover liabilities, life annuities, pension reserves, other reserves, firm size, and leverage. The sample size, as well as the quantity and quality of the data available in studies of developed markets allows for a more in-depth analysis than those conducted in the Takaful market and in emerging markets. Such a detailed breakdown of the financial statement items is usually not available for Takaful researchers, and hence the implications of some of these results for the solvency of Takaful firms is unclear. However, it is noted that, while most of the results are consistent with economic theory, the signs of some factors, such as the negative sign for firm size, is unexpected. Shiu (2004) concludes that equity to total assets, bonds to total assets, and new business level are positively related to the solvency margin, while market competition, unexpected inflation, assets held to meet liabilities, pension reserves, leverage and firm size are negatively related to solvency.

Adam and Buckle (2003) in a study of the advanced offshore the Bermuda insurance market, conclude that liquidity and underwriting risk have a negative impact on solvency while leverage has a positive impact on the solvency.

4.3 Hypothesis Development:

4.3.1 Introduction:

Several important issues need to be dealt with in specifying an empirical model. These include the choice of suitable dependent and explanatory variables, measurement of these variables, and model specifications. For the explanatory variables which are related to the firm specific factors, all variables are chosen based on the outcomes of analysing the participants' fund, the prior empirical literature on the determinants of solvency for Takaful firms, and on their theoretical relationships with the dependent variable, the Takaful firm's solvency.

The values of the dependent variables and explanatory variables used in this study are extracted and calculated from the financial statements of 41 GCC and 11 Malaysian Takaful companies for the period of 2011 to 2016, as discussed in Section 4.2. Macroeconomic quantitative data were obtained from DataStream, the World Bank, and the International Monetary Fund, namely, the market equity return, interest rates, gross domestic product, and inflation rates. These variables have been identified as relevant factors in previous empirical studies and the research literature in conventional insurance.

The choice of dependent and independent variables was obtained from four main considerations:

- 1) The limitations imposed by the data set used in this study constructed by the author: the company specific variables are calculated from the annual financial statements published by the 41 GCC Takaful firms and the 11 Malaysian Takaful firms.
- 2) The relationships hypothesised are suggested by economic considerations. For example, it is clear from the breakdown of the participants' fund in Section 4.3 that Wakalah fees are a significant outflow of the participants' fund, particularly in the Malaysian market. From the review of Takaful business models in Chapter 2, and the discussion of the participants' fund in Chapter 2.4 in particular, it is evident that the risk of deficit in the participants' fund poses an existential threat to firm as a whole. Thus, it is reasonable to hypothesise that the level of Wakalah fees will be a significant negative factor of the dependent solvency variable in Malaysia.

3) The empirical research on the determinants of solvency in the Takaful market: The independent variables chosen for this study are, in terms of the motivating economic considerations, similar to those used in previous studies. Differences arise because of the data limitations faced by all researchers in Takaful. Different researchers, using different data resources, will attempt to capture the motivating considerations in terms of the data that is available to them. The empirical research on the determinants of solvency in the conventional insurance market: Because of the fundamental differences in the business models of Takaful and conventional insurers, discussed in Chapter 2.2, the implications of research on conventional insurers for Takaful researchers must be viewed with caution. Nevertheless, there is some overlap in the explanatory factors used in Takaful and conventional research, which informs the choices made in the study presented here. Certain macro-economic factors have been included as explanatory variables in the regressions, namely, the market equity return and interest rates. The choice of macro-economic variables is motivated by the macro-economic factors employed in the previous empirical research discussed in Section 2 on which the present study builds. This allows a more direct comparison of the results of this study with results of previous research. In small sample studies there is a costly trade-off between adding further explanatory variables and sacrificing degrees of freedom and hence weakening the power of the tests. The author's judgement is that the addition of further macro-economic variables should await the availability of more extensive empirical data than is currently available.

4) A further judgement concerns whether to combine the data for the GCC and Malaysia into a single regression. The advantage of doing so is that it increases the sample size. However, there is a danger in combining samples where the underlying populations differ too greatly. In the author's view the Malaysian and GCC samples are drawn from vastly different populations. This is evident from the discussion of the advanced regulatory and institutional framework developed in Malaysia compared to the weak and fragmentary regimes that currently exist in the GCC, as presented in Chapter 3. The decision whether or not to combine the samples must be taken before conducting the empirical tests, otherwise the research would be exposed to the criticism of model mining. In the event, the expectation that positive and significant results would be obtained from the Malaysian data and that mixed, and/or insignificant results would be obtained from the GCC was realised. This provides some justification for not combining the samples and hence avoiding potential model specification errors rising from combining data from two different populations.

4.3.2 Solvency:

Solvency is a vital measure to evaluate the financial health of a Takaful firm, as it reflects the firm's ability to pay the participants' compensation. This chapter analyses the macroeconomic and firm specific factors that have a significant impact on the solvency of Takaful companies.

As the solvency measure does not have a universally recognised definition, net assets to net contribution written has been chosen as a proxy for solvency in this chapter. This reflects the main definition used in research literature, including Chen and Wong (2004), Burca and Batrinca (2014), and Shiu (2004), and is the definition that is most closely related to research question of this chapter, the determination of those factors impacting on the solvency of Takaful firms, and which can be calculated using the data set available to the researcher.

$$\text{Solvency} = \text{Net Assets/Net Contributions}$$

The following sub-sections discuss the motivation for the explanatory variables selected for the analysis.

4.3.3 Risk Retention Ratio:

A Takaful firm may consider that if a particular risk incident occurs, 'worst case' damage would not be sufficient to divert the company from its objectives and responsibilities. Nor would this 'worst case' scenario damage stakeholders to an unacceptable level. If this is so, a decision could be made to accept the consequences if that risk incident were to occur.

Reinsurance is a way to transfer a percentage of the underwriting risk to other insurers. For a Takaful firm, similarly to the reinsurance strategies of conventional firms, a re-Takaful strategy is a central component of the strategy for managing the Takaful operator risk profile. Takaful operators use re-Takaful for various risk management purposes. Clearly, the main aim is to enable the Takaful operator to spread some of the insured limits carried on policies underwritten, and this might be on a facultative (specific) basis or across a portfolio or book of business. Re-Takaful protects the capital base of the company as it provides a financial resource in the event of extreme losses that would otherwise erode premium reserves and solvency capital, and ultimately lead to insolvency of the firm. Reinsurance protection can contribute to the financial stability of Takaful operators (Arbouna, 2000). A high retention ratio means that the Takaful operator is able to retain a high share from the underwriting operations. The downside of a high retention ratio is that the Takaful firm does not cede the underwriting risk to re-Takaful, which could adversely affect the stability, and hence the solvency of the Takaful operator. One standard interpretation of Retention Ratio is that a high Risk Retention Ratio reflects the strength of the insurance firm, by demonstrating its capacity to underwrite large business risks. However, this appears not to be the case for Takaful firms, for which poor underwriting management has been identified as one of the significant issues facing the industry (Chapter 2.5). In the case of Takaful, retaining a high percentage from the business increases the Takaful firm's risk exposure. In other words, there are concerns that Takaful firms are retaining too much risk within the firm. The expectation, therefore, is that Risk Retention Ratio should be negatively related to Solvency.

$$\text{Risk Retention Ratio} = \frac{\text{Net Written Contribution}}{\text{Total Gross Written Contribution}}$$

In the linear regression model, the estimators of the coefficients have the distributions attributed to them under the assumption of the null hypothesis, H_0 :

H_0 : The coefficient of Risk Retention Ratio in GCC and Malaysian Takaful firms is zero

For example, in the classical normal linear regression model the estimators follow the t distribution, assuming H_0 is true. This is important from the point of view of the theory of hypothesis testing. However, in most cases the researcher's expectation, or hope, is that H_0 will be rejected, and that the coefficient will be of a particular sign, and will be statistically significant. It is therefore typically the alternative hypothesis H_1 that is of interest:

H_1 : Risk Retention Ratio is negatively related to Solvency in GCC and Malaysian Takaful firms

The p value is the probability of the t statistic being as far away from zero as the t value actually observed from the regression. If the p value is "small enough", typically less than 5%, then H_0 will be rejected (with 95% confidence), and H_1 will be accepted (with 95% confidence); if H_0 is actually true, then the researcher has observed something that has only a 5% chance of occurring. Thus, it is reasonable to reject the claim that H_0 is true with a high degree of confidence.

4.3.4 Contribution Growth:

The growth of contributions in the underwriting operation is an important proxy of the level of market penetration of a Takaful operator. The standard interpretation of Contribution Growth is that it is a good thing. However, accounting ratios are often double-edged. Contribution Growth The standard interpretation is that positive Contribution Growth is a good thing in developed and well-regulated markets. For example, the Association of Insurance Commissioners in the United States holds that increases in written premiums may indicate appropriate business growth, and hence improving earnings, the building of adequate reserves, and the achievement of a stable mix product (Schneiberg and Bartley, 2001). Increments in underwriting premiums will also increase the insurer's liquidity, with liquidity being another factor in financial

stability (Browne et al., 2001). Increments in premium income cannot be said to be universally positive, even in developed economies. Increases in premiums may, for example, reduce market share, increasing current profits at the expense of long-term growth. However, in competitive, transparent, and well-regulated markets, such negative outcomes are more likely for individual firms, rather than representing a risk to the industry as a whole.

This positive interpretation for Contribution Growth may not be appropriate for Takaful firms. Chapter 2.5 discusses a range of problems and challenges for the Takaful industry, of which poor underwriting risk management and weak corporate governance are serious issues. In the case of Takaful, positive Contribution Growth may be regarded as an indication that risks are not being correctly priced, and that the Takaful firm is expanding market share at the cost excessive future losses in the participants' fund, undermining the profitability and financial stability of the firm. This interpretation is in line with some of the apparently anomalous results of the empirical research in Takaful, where the coefficients of explanatory factors have the opposite sign to theoretical expectations. While, Abduh and Isma (2016) do find a positive relationship between Contribution Growth and Solvency, as the standard interpretation predicts, Charumathi (2012) found that the growth in the written premium is negatively related to the insurer's profitability. Taking into account the results as a whole, and the issues of poor underwriting risk management, the author has a tentative expectation that the impact of Contribution Growth is more likely to be negative for Takaful firms. Thus, in the case of Contribution Growth, the author's hypothesis deviates from the standard interpretation used in the conventional literature.

$$\text{Contribution Growth} = \text{Gross Contribution Written } t - \text{Gross Contribution Written } t-1$$

H2: Contribution Growth is negatively related to Solvency in GCC and Malaysian Takaful firms

4.3.5 Investment Income Ratio:

The income from investment is a vital source of income for Takaful companies. Earnings from the investment portfolio contribute to the stability of the company. Oscar Akotey et

al. (2013) state that earnings from investment as a proportion of premium income measures the insurer's asset allocation capability in relation to its underwriting ability. High investment earnings indicate a healthy investment strategy in the Takaful firm.

Investment Income Ratio is a less double-edged ratio than Contribution Margin. Alokla and Daynes (2017) observe that Kuwaiti Takaful firms have been criticised as being essentially investment companies in disguise. Tolefat and Asutay (2013) document the risk management issues arising from the lack of Sharia compliant financial securities. Thus, while it can be argued that increases in investment income may indicate excessive risk taking, the standard interpretation that increments in investment income are generally positive for Takaful firms is adopted here. More convincing grounds would be required for deviating from the standard interpretation.

$$\text{Investment Income Ratio} = \text{Investment Income/Net Contribution}$$

H3: Investment Income Ratio is positively related to Solvency in GCC and Malaysian Takaful firms.

4.3.6 Takaful Leverage:

Leverage is an important determinant of insurers' financial performance, and Takaful firms with high levels of gearing are generally regarded as more risky than those with lower gearing ratios (Ahmed et al., 2011). That high leverage is associated with high risk is one of the truisms of modern finance.

The results from the empirical literature on Takaful are mixed. Abduh and Isma (2016) report that Leverage has a significant positive effect on family Takaful firms. On the other hand, Yakob et al (2012) reports a negative relationship for Takaful forms, and Abduh and Isma (2016) report a negative relationship for conventional insurers.

$$\text{Takaful Leverage} = \text{Gross Contribution/Surplus}$$

H4: Takaful Leverage is negatively related to Solvency in GCC and Malaysian Takaful firms

4.3.7 Wakalah Fees:

The Wakalah model is one of the main Takaful models, discussed in Chapter 2. In this model, also called the 'agency model', the Takaful operator acts as the agent who

administers the funds on behalf of the participants. In return, the Takaful operator receives a pre-agreed administration fee (Wakalah fees) to cover the operating expenses, and to earn a return for the shareholders (Shenoy et al., 2014). The shareholders appoint managers to manage the general and family Takaful operations for the participants and charge a percentage from the contributions as Wakalah fees as approved by the Sharia supervisory board.

The high proportion of outflows on the participants' fund represented by Wakalah fees discussed in Section 4.3, adding further support for the inclusion of Wakalah fees as an explanatory variable.

It is uncontentious that Wakalah fees, being a form of expenses should be regarded as negative for Solvency.

Wakalah Fees = Log of Wakalah Fees

H5: Wakalah Fees are negatively related to Solvency in GCC and Malaysian Takaful firms

4.3.8 Market Equity Return:

Successful investment is to some extent a subjective rather than an exact rational science. Markets are extremely complex entities. However, there are certain drivers of price that do appear to have stood the test of time. (1) The price of a security at any given time will reflect the movement of prices in the overall market, the industry sector prospects and the individual prospects of the issuing company. (2) Market prices depend on supply and demand. (3) Markets tend to be cyclical, often influenced by the wider economic conditions and the availability of capital.

The adverse impact of macroeconomic factors can hinder the financial health of organisations. Capital gains and the income from dividends are both sources of income for Takaful firms. Market equity return is a vital economic factor that may affect positively or negatively the solvency margin of Takaful companies. The poor performance of the equity index can result in a mismatch in the asset-liability profile. According to Brown et al. (1999), there is positive relationship between good equity returns and the insurer's investment portfolio performance. Over the long term, equities have the ability earn higher returns than fixed interest investments, and furthermore, have the benefits of providing a hedge against inflation (Drew and Stanford, 2003).

The empirical research on Takaful does not indicate any significant relationship between equity market returns and solvency, while Chakraborty (2017) reports a significant positive relationship for general insurers in the Indian market. However, for Takaful firms, both Yakob et al (2012) and Abduh and Isma (2016) report a significant positive relationship between investment income and solvency. Thus, it may be that the impact of the equity market return factor has already been partially captured in the investment income factor.

Equity Market Return is the total return index (the index price adjusted for dividends and capital changes, such as stock splits and stock consolidations). In the regression analysis, dummy variables are used to incorporate the market equity return on a country-by-country basis.

Market Equity Return = Annual percentage market equity return by country

H6: Equity Market Return is positively related to Solvency in GCC and Malaysian Takaful firms

4.3.9 Interest Rate:

Changes in interest rates have important effects on the economy and affect the relative attractiveness of different investments. Falling interest rates, other things being equal, may signal that the economy will expand in the medium term as a result of the lower costs of borrowing. Interest rates have a profound effect on the market. The bank rate directly, or indirectly set by a central bank is effectively the risk free rate of return.

Sukuk is a significant long-term source of investment income for Takaful companies. Sukuk is a major asset class in Takaful portfolios (Tolefat and Asutay, 2013 and Abdulla and Isma, 2016). Takaful firms often invest in Sukuk to earn a stable and periodic income stream, as well as preserving their capital investment. According to Ismail (2013), the return of most of the investment instruments depends on the level of the interest rate. The better investment earning is often linked with high interest rate and consequently would positively affect the investment performance for the insurance company and vice versa (D'Arcy, 1979). According to Browne and Hoyt (1995) when the interest rate is high, organisations are most likely to obtain good and stable sources of revenue. Thus, theoretical considerations suggest that the relationship between Interest Rate and Solvency should be positive.

Turning to the empirical evidence, Shiu (2004) found the level of interest rates to be positively related to UK insurers' financial performance, in line with the empirical results for conventional insurers in developed markets. However, the empirical results reported for Takaful firms indicate no significant relationship. Despite this, on strong theoretical grounds, supported by the conventional empirical literature, the expectation is for a significant positive relationship. In the regression analysis, the dummy variables are used to incorporate the interest rate on a country-by-country basis.

Interest Rate = Annual percentage central bank rate by country

H7: Interest Rate is positively related to Solvency in GCC and Malaysian Takaful firms

4.3.10 Commission Paid Ratio (Malaysia only):

As discussed in Chapter 3, there are significant differences between the GCC and Malaysian Takaful industries. In particular, commission paid plays a significant role in the Malaysian Takaful business model, and which is absent in the business models adopted in the GCC.

In the Malaysian Takaful model, agents play an important role in selling the Takaful firm's products to the Takaful certificate buyer on behalf of the Takaful firm. Some agents are paid salaries, while others rely on commissions. The Takaful Company pays the base or contingent commissions to the agents from the Takaful's contributions. The solvency of Takaful companies can be heavily influenced by the acquisition cost of new business and by the level of commission payments in particular.

The agent model has played a key role in expanding the customer base of Malaysian firms, in making the Malaysian Takaful sector the largest sector in the Southeast of Asia, with a strong regional presence, and a leading financial centre in the global industry (Berkem, 2014).

With commission being a form of expenses, there are strong theoretical grounds for expecting a significant negative relationship between Commission Paid Ratio and Solvency. The Commission Paid Ratio factor is an original contribution of this thesis, and there is therefore currently no empirical support for the expected negative relationship.

However, some partial empirical support is obtained from Abduh and Isma (2016), who report a significant negative relationship between Expenses and Solvency.

Commission Paid Ratio = Commission Paid/Gross Contributions

H8: Commission Paid Ratio is negatively related to Solvency Malaysian Takaful firms

4.3.11 Management Expense Ratio (Malaysia only):

Management Expense Ratio is taken as an explanatory factor for the Malaysian market only. This is for two reasons. Firstly, the breakdown of the participants' fund presented in Section 2.3 shows that in Malaysia management fees comprise a significant outflow of 10%. This is not the case for the GCC market. Secondly, because of this, management expenses are not reported as a separate item in the financial reports of the GCC Takaful firms. Thus, the information in the author's data set does not, in any case, allow Management Expense Ratio for GCC firms to be calculated.

The main elements in the management expenses are the Sharia committee members' remuneration, non-executive directors' remuneration, auditor's remuneration, advertising and marketing expenses, shared services charges, and electronic data processing. There are limited studies examining the impact of expenses on the insurer's performance (Mazviona et al., 2017). According to Mazviona et al. (2017), management expenses should be considered as a significant factor in improving the insurer's performance, particularly if the expenses are effectively managed.

The standard interpretation might suggest a negative relationship between solvency and management fees. However, as is the case for Contribution Growth, the hypothesis of this study differs from that of the conventional literature. In Malaysia, the incentive of management fees as a reward for excellent performance is significant. The author's judgement is that, in Malaysia, this outweighs the negative impact of the outflow of management fees from the participants' fund.

Management Expenses Ratio = Management Expenses/Gross Contribution

H9: Management Expenses Ratio is positively related to Solvency in Malaysian Takaful firms

A summary of the explanatory factors and the expected signs on the coefficient expected in the regression are summarised below.

TABLE 2- HYPOTHESES OF THE EFFECTS OF VARIOUS FACTORS ON THE SOLVENCY MARGIN OF THE GCC AND MALAYSIAN TAKAFUL FIRMS. H8 AND H9 APPLY ONLY TO THE MALAYSIAN MARKET

Summary of Variables used in the Regressions			
Hypothesis	Explanatory Factors	Abbreviation	Expected Effect
H1	Risk Retention Ratio	RISREN	-
H2	Contribution Growth	CONGRO	-
H3	Investment Income Ratio	INVINC	+
H4	Takaful Leverage	TAKLEV	-
H5	Wakalah Fees	WAKFEE	-
H6	Equity Market Return	MAR	+
H7	Interest Rate	INT	+
H8	Commission Paid Ratio	COMMIS	-
H9	Management Expenses Ratio	MANGEXP	+
Dependent Variable	Solvency	SOLV	

4.4 The Accounting Data:

The data set comprises certain macro-economic data obtained from standard data bases, such as DataStream, the World Bank, and the International Monetary, with the main data set comprising accounting data obtained from the income statements and balance sheets from the annual financial reports of Takaful firms in the GCC and Malaysia. The accounting data covers 41 GCC Takaful firms and 11 Malaysian Takaful firms, for the years 2011 to 2016.

4.4.1 The Limitations of Empirical Data in Islamic Finance Research:

A major issue in Islamic finance research is the unavailability of empirical data (Tolefat and Asutay, 2013). Islamic finance suffers both from a lack of adequate cross sectional data as well as of adequate time series data.

This arises, in part, because the Islamic finance industry is a relatively new industry. This is especially true for the Takaful industry. Due to its recent origins, there are few existing

Takaful firms. This makes cross sectional analysis problematic. In addition, since the Takaful industry is a recent development the data that is available covers only a small number of years. This limits the researcher's ability to carry out time series analysis. The situation for Takaful is more serious than for Islamic banking, since Islamic banking has a significantly longer history than Takaful. However, the availability of data for Islamic finance research in general is very limited when compared to the vast empirical databases available to researchers in conventional finance, where typically data on hundreds of companies are available with data going back many decades.

The situation is exacerbated since commercial data providers, such as Bloomberg focus their resources on recording and organising data on conventional finance, since this is where the greatest customer demand for their data services exists. Therefore, the empirical data on Islamic finance is often not available to researchers through the standard databases, even in cases where the data does actually exist. The data issue has grown in importance in the light of the increasing growth and importance of the Islamic finance industry. The lack of empirical data explains why many studies in Islamic finance deal primarily with theoretical rather than empirical research. Quantitative studies in the Takaful industry are scarce, even when compared to other research areas in Islamic finance such as Islamic banking.

4.4.2 Data Collection:

The research aims of this study are to identify and quantify the factors, which determine the solvency and profitability of Takaful firms in the GCC and Malaysia for the period 2011 to 2016. These are the markets and the time period for which data adequate to undertake the empirical research exists. The GCC countries comprise the Kingdom of Saudi Arabia, the United Arab Emirates, Bahrain, Qatar, Kuwait, and Oman. The study excludes Oman from the GCC market because the first Takaful Company in Oman was founded only in 2013. The second group is Malaysia. Several reasons lie behind the choice of the GCC and Malaysia as the regions for this study. The first one is that the majority of Takaful companies around the globe are based in these two markets. Secondly, the establishment of the Islamic finance industry including Islamic banks, Takaful, Sukuk, and Islamic investment funds have deeper roots in those markets than elsewhere, and represent the hub of these industries worldwide.

In addition to certain quantitative data obtained from Bloomberg and other standard databases, information was extracted by hand directly by the researcher from the annual reports of essentially all the Takaful companies existing in the markets under research. The extracted data was entered and organised into spreadsheets. Company reports were accessed over the internet. However, in a significant number of cases the data could only be obtained by the researcher through the personal and professional contacts developed during the researcher's professional career in the Takaful and insurance industries. The acquisition and organisation of the data was an extremely involved and time-consuming process.

4.4.3 Sample Size:

The number of Takaful firms in these two markets is relatively small compared to the large number of the conventional insurance companies. However, the study aimed to cover as much as possible for the 6-year period from 2011 until 2016. The total population of Takaful firms in the GCC is 74 companies. Of these 74, 10 are re-Takaful companies, and are therefore, excluded from the study, while 12 Takaful companies were established only after the time of conducting this research. The remaining 52 firms are the 52 Takaful firms operating in the GCC market for the time period studied. For the Malaysian market, the entire population comprises 17 Takaful firms. Of these 17, 3 are re-Takaful operators, while two Takaful windows and one Takaful firm were founded only after the time of conducting this study. The Malaysian sample therefore comprises the 11 Malaysian Takaful firms operating in the market for the time period of this study from 2011 to 2016.

The 41 Takaful companies in the GCC and the 11 Takaful companies in Malaysia cover 79% and 100% of firms in the GCC and Malaysia, respectively.

4.4.4 Other Issues Concerning the Data Collection:

The reason the research is limited to the 2011 to 2016 period is because most Takaful companies in the GCC and Malaysia were licenced by the regulators only after the global financial crisis of 2008. Previous to 2011 insufficient Takaful companies were available for a quantitative study to be conducted.

The first problem that faced the researcher concerns the difficulties of acquiring the income statements and the balance sheets for each of the Takaful companies in both the GCC and Malaysia markets for the entire period covered in the research. For example, the research required detailed data on the breakdown of the inflows and outflows on the

participants' fund, reported on a basis consistent across all the companies in the sample. The unavailability of the data from other sources required the researcher to resort to manually extracting the data from the financial statements of the companies from the company websites, requiring a heavy investment of time and effort. A significant number of Takaful companies in the GCC do not make their annual reports available in electronic form on their websites as a matter of management policy. The researcher was able to overcome this difficulty using his relationships with professional people in authority, thus obtaining the required financial statement reports, which, although officially available in the public domain, are in practice very difficult to acquire. A considerable investment of time was required in terms of making and following up these requests for information, across companies operating in different markets and across different time zones. This indicates the attention, work and effort that researchers in the field of Islamic finance need to give to this relatively unexplored field, as a deeper understanding of this field is crucial for supporting its growth and innovation (Hodori and Masih, 2017). After collecting the data, the data was transferred manually to the computer to be organised and classified into a suitable form for analysis and input into relevant statistical packages.

4.4.5 Data Analysis:

The researcher developed a pre-designed excel sheet to distribute, merge and tabulate the data. A matrix was built into the program in order to calculate all variables to be analysed. Finally, the data in the matrix with all variables were exported to STATA 2015 for the analysis purposes.

The data obtained from the financial reports was analysed by utilizing Microsoft Excel 2017 and Statistical data analysis (STATA - version 2015). All the financial reports were kept in a separate file box and saved in the computer as well. Since most Takaful firms are small and non-public there is no specific default list. Before analysing the data, the researcher observed some outliers in the calculated variables due the fact that most of the Takaful firms were founded at different points of time and are of different financial strengths. To lessen the effect of outliers the researcher capped the risk retention ratio at the 95th percentage value and removed the 5th percentage value, as Takaful firms in both markets rely on reinsurers (re-Takaful) to highly differing degrees. Detailed discussion of the econometric analysis is presented in Section 6.

In the next section, the accounting data is used to extend Step 2, and to present the breakdown of the inflows and outflows on the participants' fund.

4.5 Breakdown of the Participants' Fund:

The deficit risk is investigated by analysing the policyholders' Consolidated Statement of Operations for 41 general Takaful companies in the GCC and 11 general and life Takaful companies in Malaysia.

4.5.1 The Participants' Fund in the GCC market:

TABLE 3- THE BREAKDOWN FOR THE POLICYHOLDER'S FUND BY RATIOS IN THE GCC:

Factor Name	Ratio
Re-Takaful contribution ceded	24.35 %
Excess of Loss	1.51 %
Unearned contribution	5.51 %
Gross claims paid	33.3%
Movement of outstanding claims	4 %
Inspection and supervision fees	0.4 %
Policy acquisition cost	4.86 %
Allowance for doubtful receivable	0.30 %
Change in mathematical reserves	0.27 %
Wakalah fees	8.44 %
Musharaka share	0.02 %
Other expenses	1.74 %

The figures in the second column show the size of the factor as a percentage of the change in the policyholders' fund, averaged over the period 2011 – 2016.

As the figures in Figure 23 show, it is noted that the gross paid claims has the lion's share from the policyholder fund output, at 33.3%. This may reflect poor underwriting management in the organisation. Takaful companies in the GCC are running ever-increasing deficits in their policyholders' funds, which may be the result of a combination of poor underwriting performance and excessively high Wakalah fees. Moreover, very few Takaful operators make surplus distributions. The lack of realisation of promised benefits might cause many Takaful firms to lose their distinguishing attributes in the eyes of the customer and force them to compete on price with conventional insurers. Moreover, what can be clearly seen in this table as well is that the ceded contribution also has a high ratio in the fund's outflow of 24%. This ratio reflects the organisation's capability to retain the underwriting risk. Takaful operators reduce required capital and improve their reported solvency positions by ceding a higher proportion of business to reinsurers. However, a continuous heavy reliance on proportional re-Takaful could hinder the development of managerial and technical expertise in the Takaful sector. Wakalah fees represent smaller, though significant figure of 8.44%. The following figure shows the main outflows factors from the participants fund in the GCC.

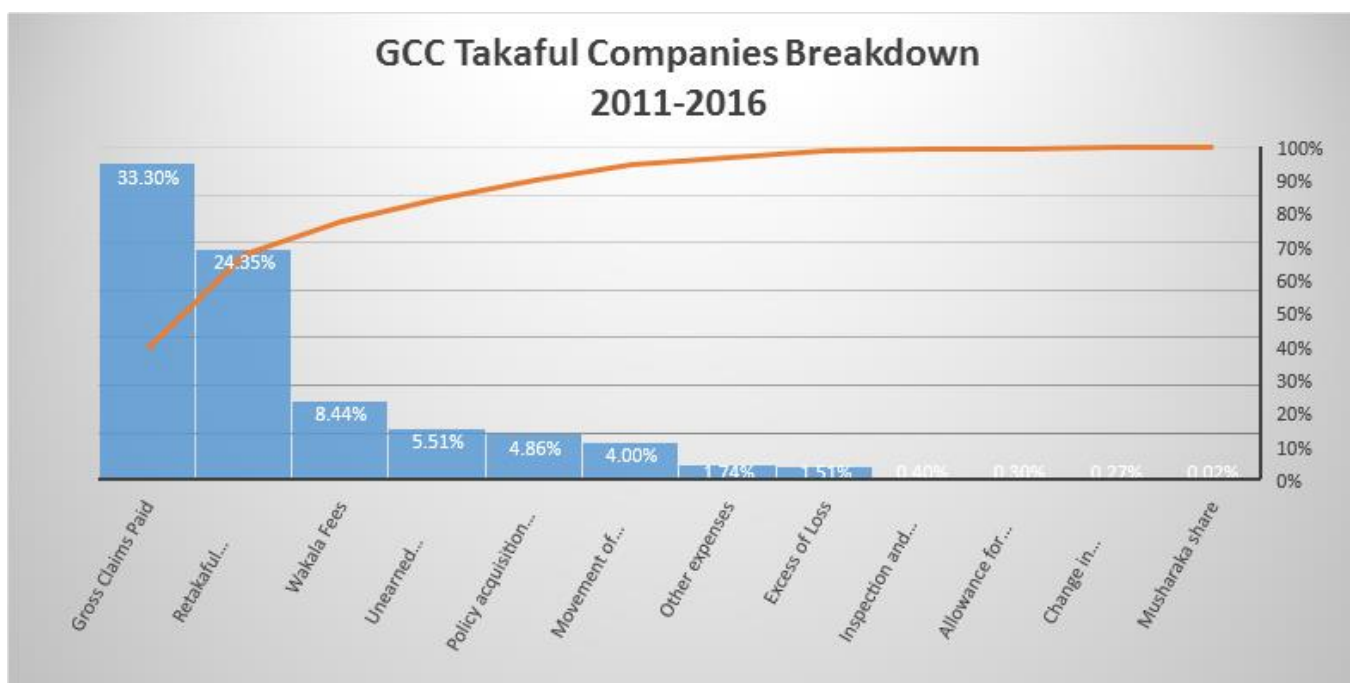


FIGURE 21- THE PARTICIPANT'S FUND BREAKDOWN

4.5.2 The Participants' Fund in the Malaysian Market:

The following table and figure show the main outflow factors for the Malaysian participant's fund.

TABLE 4- PARTICIPANTS FUND BREAKDOWN MALAYSIAN MARKET:

Factor Name	Ratio
Re-Takaful contribution ceded	12%
Excess of Loss	0 %
Unearned contribution	0.08%
Gross claims paid	38.4%
Movement of outstanding claims	8%
Inspection and supervision fees	0.04%
Management Expenses	10%
Allowance for doubtful receivable	0.01%
Change in mathematical reserves	0.08 %
Wakala fees	16 %
Commission paid	7 %
Other expenses	0.2 %

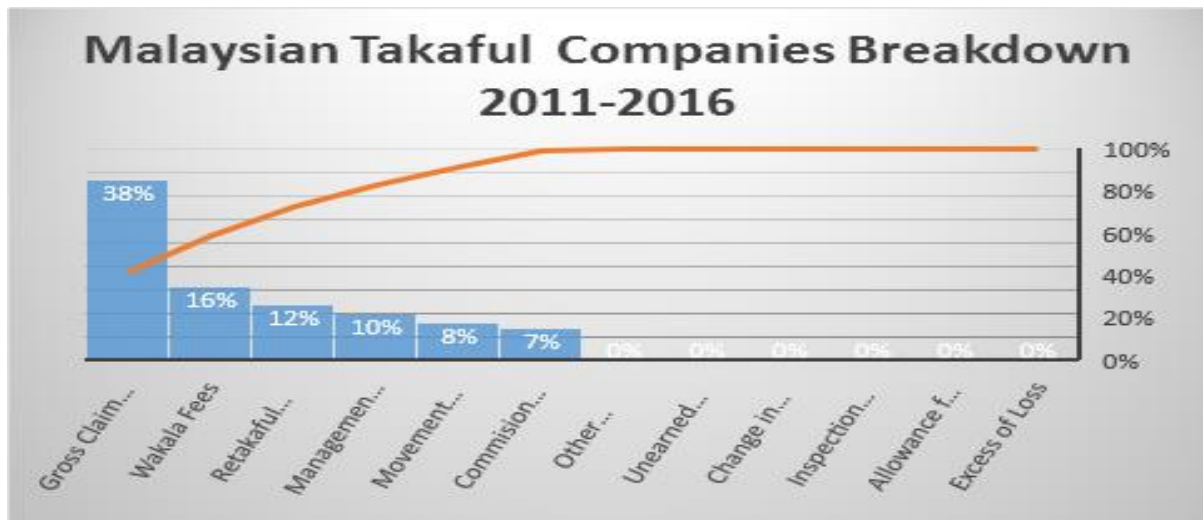


FIGURE 22- PARTICIPANTS FUND BREAKDOWN FOR THE MALAYSIAN MARKET.

The figures in the first column are the factors discussed in the previous subsections. The figures in the second column show the size of the factor as a percentage of the change in the policyholders' fund, averaged over the period 2011 - 2016. The factors are similar, but in some cases different, from those for the GCC market. This reflects the differences in the Takaful models applied in these markets.

Takaful companies in Malaysia have been enjoying a remarkable growth, and many Malaysian Takaful firms offer surplus distributions to their participants. This benefit for the customers is one of the distinguishing, and attractive features of Takaful compared to conventional insurance. It reduces the pressure on Malaysian Takaful operators to compete on price with conventional insurers. However, similarly to the GCC market, it is noted that the gross paid claims has the lion's share from the policyholder fund output, a figure of 38.3% of output. This may reflect poor risk management in underwriting new business in these Takaful firms. What can be clearly seen in this table as well is that, in contrast to the GCC Takaful market, the ceded contribution shows an acceptable retention ratio, retaining nearly 88% of their underwriting risk. This can affect positively on the solvency of these firms, since the high retention ratio creates the necessary liquidity to meet their obligations. Wakalah fees represent around 16%, which is double the ratio for the GCC market. Due to the sensitivity of the Malaysian Takaful market, Malaysia has well developed Takaful market, and most of the Takaful business comes through agencies. The acquisition fees, at 7%, are a main factor contributing to the participants' fund outflow. The primary objective of the participants' fund is to protect and provide for the participants. The interest of the participants comes before all other interests. The

primary function of the fund is the equitable distribution of the financial losses of the few among the many participants. It is beyond the remit of this study to demonstrate the deficit risk variables in detail. The aim here is to be able to identify the outflow factors that contribute toward the deficit on the policyholders' fund and to measure their ratios.

4.6 The Econometric Model:

As stated earlier in 4.4.2. The data was extracted from 41 Takaful companies in the GCC and 11 Takaful companies in Malaysia. The selection of the variables and their calculation were intensively covered in 4.4.3, 4.4.4 and 4.4.5.

4.6.1 The Regression Model:

The econometric model for the GCC is presented as follows:

$$SOLV(i_t) = B_0 + B_1 * RISREN(i_t) + B_2 * CONGRO(i_t) + B_3 * INVINC(i_t) + B_4 * TAKLEV(i_t) + B_5 * WAKFEE(i_t) + B_6 * MAR(i_t) + B_7 * INT(i_t) + E(i_t)$$

The econometric model for Malaysia is presented as follows:

$$SOLV(i_t) = B_0 + B_1 * RISREN(i_t) + B_2 * CONGRO(i_t) + B_3 * INVINC(i_t) + B_4 * TAKLEV(i_t) + B_5 * WAKFEE(i_t) + B_6 * MAR(i_t) + B_7 * INT(i_t) + B_8 * COMMIS + B_9 * MANGEXP(i_t) + E(i_t)$$

$SOLV(i_t)$ is the dependent variable and the $B_n(i_t)$, $n = 1, \dots, 9$, are the coefficients of the independent variables. The letters i and t represent the firm and the year respectively and $E(i_t)$ represents the error component.

4.6.2 Diagnostic Tests:

4.6.2.1 Multicollinearity Test (VIF):

A Multicollinearity test has been conducted using variance inflation factors to test for Multicollinearity between the variables. According to Frank (2010), the variance inflation factor, VIF, is the appropriate formal test to examine and detect collinearity between the explanatory variables. The result indicates that there was only moderate correlation of less than five between the explanatory variables, and that this is acceptable result. According to Gujarati and Porter (1999), Field (2009), and Hair et al. (2014), VIF values greater than 10 may indicate that Multicollinearity is unduly influencing the regression

result. The following tables shows the Multicollinearity test for both the GCC and Malaysian models respectively.

TABLE 5-THE VARIANCE INFLATION FACTOR FOR THE GCC SOLVENCY MODEL

Variable	VIF	1/VIF
WAKFEE	1.08	0.926642
INTRAT	1.05	0.952331
MAEQRE	1.04	0.961474
CONGRO	1.03	0.971869
TAKLEV	1.02	0.982164
INVINC	1.02	0.983352
RISKRET	1.01	0.987188
Mean VIF	1.04	

TABLE 6-THE VARIANCE INFLATION FACTORS FOR THE MALAYSIAN SOLVENCY MODEL

Variable	VIF	1/VIF
MAEQRE	3.21	0.31170 2
INTRAT	3.09	0.32314 1
MANEXP	1.76	0.56707 9
WAKFEE	1.69	0.59315 7
INVINC	1.52	0.65813 9
COMMISSIO N	1.42	0.70512 9
CONGRO	1.36	0.73703 8
TAKLEV	1.13	0.88447 7
RISRET	1.07	0.93860 5
Mean VIF	1.80	

4.6.2.2. Correlation Test:

In order to design the panel data model, it is important to verify whether there is a problem of correlation between the explanatory variables. The correlation matrix shows that no coefficient exceeds the tolerance limit of 0.07. It is evident that there is no high correlation between any two independent variables, and hence that no correlation problem is apparent. The result of the correlation test for both the CGG and Malaysia is presented in the following tables.

TABLE 7- THE CORRELATION TEST FOR THE GCC SOLVENCY MODEL

	SOLVMAR	RISKRET	CONGRO	INVINC	TAKLEV	WAKFEE	INTRAT	MAEQRE
SOLVMAR	1.0000							
RISKRET	0.0877	1.0000						
CONGRO	0.0388	0.0049	1.0000					
INVINC	0.0495	0.0252	0.0591	1.0000				
TAKLEV	-0.0139	0.0138	0.0146	-0.0072	1.0000			
WAKFEE	-0.5291	-0.0727	-0.1405	-0.1137	-0.1051	1.0000		
INTRAT	0.0361	-0.0154	-0.034	0.0096	0.0338	-0.1574	1.0000	
MAEQRE	0.0702	0.0802	0.0593	0.0318	0.0697	0.042	-0.1465	1.0000

TABLE 8-THE CORRELATION TEST FOR THE MALAYSIAN SOLVENCY MODEL

	SOLVMAR	TAKLEV	WAKFEE	RISRET	INVINC	CONGRO	COMMSION	MANEXP	MAEQRE	INTRAT
SOLVMAR	1.0000									
TAKLEV	0.0095	1.0000								
WAKFEE	0.2067	0.0858	1.0000							
RISRET	0.1280	0.0298	0.0004	1.0000						
INVINC	0.1104	0.2241	0.3492	0.0848	1.0000					
CONGRO	0.7855	0.0275	0.3555	0.1528	0.3588	1.0000				
COMMSION	0.0657	0.0374	0.0169	0.0347	0.2263	0.0151	1.0000			
MANEXP	0.1210	0.0968	0.4804	0.0395	0.0539	0.1550	0.4099	1.0000		
MAEQRE	0.1385	0.1261	0.1163	0.0456	0.1557	0.2204	0.1284	0.0862	1.0000	
INTRAT	0.0395	0.1011	0.0141	0.0549	0.1710	0.1126	0.0869	0.0536	0.8006	1.0000

4.6.3 Regression Techniques:

Regression analysis can be applied in a number of ways. In order to gain further insight into the data, four approaches to conducting the regression analysis were considered.

4.6.3.1 Pooled OLS regression analysis:

The data sample comprises both cross-sectional and time-series data. A pooled OLS regression is essentially the classical normal ordinary least squares regression model applied to the combined cross-sectional and time-series data.

The pooled OLS regression is applicable when the assumptions of the classical OLS model are true. In the presence of outliers, heteroscedasticity, non-normality, and small samples the estimators may be biased, the reported standard errors may be unreliable, and the probability of Type 1 errors and Type 2 errors may increase (Gujarati and Porter, 1999). Data sets used for Takaful research violate the OLS assumptions. This may explain some of the non-significant and/or counter-intuitive results, which were observed in many of the empirical studies in Takaful and conventional insurance in emerging markets, discussed in the review of the empirical literature in Section 4.4.

4.6.3.2 Fixed Effects and Random Effects Panel Regression Model:

Panel data regressions are applicable in many cases where the classical OLS assumptions fail to hold. Two essential approaches that use panel data are the fixed and random effects regressions. A fixed effects regression, unlike OLS, allows for heterogeneity in the cross-section but nevertheless assumes that each company's intercept is time-invariant (Lin et al., 2018; Gujarati and Porter, 1999 and Hsiao, 2007). Yacob et al. (2012) applies the random effects model, arguing that:

- 1- The data usually contains more degrees of freedom and gives greater variation
- 2- More accurate inference of model parameters
- 3- Improved efficiency of econometrics estimates
- 4- Less collinearity of exogenous variables
- 5- Provides micro foundations for aggregate data analysis
- 6- Simplifies computation and statistical inference
- 7- Controls for the impact of omitted variables

A Hausman test has been conducted in order to decide the most appropriate test to be used, the fixed effects or random effects test. If the p value is less than 5% the null hypothesis is rejected, and the random effect model is rejected. However, if the Hausman test shows the p-value to be more than 5% then the random effect model should be applied. In this case, the p-value is 46% shows the random effect model to be appropriate.

4.6.3.3 Robust Regression:

In recent years, robust regression models have been developed to extend the flexibility and power of fixed effect and random effect panel data regression models. While panel data regressions are a significant advance over OLS models, the severe limitations of empirical Takaful data discussed in Section 4.2 mean that a number of problems still exist,

including the existence of large outliers, and outliers arising from drawing observations from small populations that do not exhibit normality. Therefore, it is recommended that the most robust methods be applied.

A large literature has been developed to find robust estimators that can cope with such atypical observations, and which have high breakdown points (Verardi and Croux, 2009). In the case of Takaful data, robust regression is the method giving the best fit. Robust regressions can discriminate outliers and offer robust results when the classical assumptions of OLS regressions are severely compromised (Rousseeuw and Leroy, 1987; Ahiawodzi and Sackey, 2010 and Rousseeuw and Hubert, 2018).

Because of its greater complexity and requirements for greater computational power, robust regression methods were initially slow to be adopted (Bramati and Croux, 2007). However, robust methods have now been implemented in many software packages, such as the Stata software used in the present study, and it is now possible to apply robust regression methods routinely. This study therefore extends the random effects panel data methods adopted by Yakob et al. (2012) and Abduh and Isma (2016), and presents the robust regression results in addition to the pooled OLS results, and the fixed effects and random effects panel regressions.

4.6.4 Meta-Hypotheses:

From the discussion of the strengths and limitations of the pooled OLS, fixed effects, random effects, and robust regression models, a number of meta-hypotheses are developed.

The calculation of the standard errors of estimators in OLS regression is extremely sensitive to the presence of outliers. This is especially the case when outliers arise from drawing from a non-normal population, and is exacerbated considerably when the sample size is small. This leads to the computation of standard errors that are excessively large, and hence results in a high probability of Type 2 errors. In the context of the Takaful research of this study the expectation is that in the OLS regression false null hypotheses will not be rejected. In other words, even when an independent variable does have the power to explain the variation in returns in the dependent variable, Solvency, the results obtained will be statistically insignificant. In the literature review of Section 4.4 it was noted that many non-significant results were reported on Takaful and on conventional insurers in emerging markets. This was the case for many of the explanatory variables

included in the regressions that economic theory would suggest should be significant for explaining solvency.

MH1: More non-significant results are expected for the OLS regressions than for the panel data and robust regressions

Note that the meta-hypothesis MR1 is not a hypothesis in the sense of normal statistical hypothesis testing. There is no theoretical framework available in which HR1 can be tested quantitatively. MR1 will be discussed non-formally below in the light of the regression results obtained.

It is a much more difficult problem forming precise expectations of the performance of the relative performance of the fixed effects, random effects and robust models. The expectation here is that the results expected in the hypothesis development of Section 4.5 are more likely to be corroborated by the robust regression model. Thus, the expectation is that the statistical significance as well as the signs of the coefficients will be closest to expectations in the robust regression model.

MR2: The results of the robust regression are expected to conform to the expectations of hypotheses H1 to H9 more closely than the results of the OLS, fixed effects and random effects regressions

A third meta-hypothesis can be derived from considering the differences between the GCC and Malaysian markets discussed in Chapter 3. Firstly, the Takaful markets in the GCC are not very homogenous. There are wide variations in the political, economic, legal, regulatory, and institutional environments in which GCC Takaful firms operate. This is in sharp contrast to the uniform environment faced by Malaysian Takaful firms. Secondly, the development of Islamic finance and Takaful in Malaysia is strongly and pro-actively supported by the government, and the legal and regulatory framework is well advanced. This is in contrast to the current weak and fragmentary regulatory framework that holds in the GCC. Because of this, the regression results for the GCC are more likely to exhibit mixed or counter-intuitive results when compared to the Malaysian market.

MR3: The results of the robust regression for Malaysia are expected to conform to the expectations of hypotheses H1 to H9 more closely than the results of the robust regression for the GCC

The expectations of MR1, MR2, and MR3 will be discussed non-formally after presenting the results of the regressions.

4.7 The Regression Results:

4.7.1 The regression results tables

The results of all four regressions for the GCC are presented in Table 9, and those for Malaysia in Table 10.

TABLE 9- SUMMARIES THE REGRESSION RESULT FOR THE GCC SOLVENCY MODEL

	(OLS) Solvency	(Fixed Effects) Solvency	(Random Effects) Solvency	(Robust) Solvency
Risk Retention	0.0144 (0.76)	0.0155 (0.88)	0.0155 (0.88)	0.0148*** (73.90)
Contributions	-0.0288 (-0.79)	-0.0153 (-0.51)	-0.0153 (-0.51)	-0.00117** (-3.05)
Investment IN	-0.216 (-0.27)	0.100 (0.13)	0.100 (0.13)	-0.00968 (-1.15)
Leverage	-0.0000374 (-1.41)	-0.0000192 (-0.82)	-0.0000192 (-0.82)	0.0000561*** (45.77)
Wakalah Fees	-0.276*** (-9.79)	-0.267*** (-6.12)	-0.267*** (-6.12)	-0.00309*** (-10.37)
Interest Rate	-0.0640 (-0.63)	-0.0215 (-0.17)	-0.0215 (-0.17)	-0.00121 (-1.14)
Market Return	0.371 (1.69)	0.273 (1.53)	0.273 (1.53)	0.00381 (1.64)
_cons	2.149*** (7.43)	2.011*** (5.15)	2.011*** (5.15)	0.0169*** (5.55)
<i>N</i>	246	246	246	245

TABLE 10- SUMMARIES THE REGRESSION RESULT FOR THE MALAYSIAN SOLVENCY MODEL.

	(OLS) Solvency	(Fixed Effects) Solvency	(Random Effects) Solvency	(Robust) Solvency
Leverage	0.0750** (2.74)	0.0750** (2.74)	0.0750** (2.74)	-0.000967 (-1.09)
Wakalah Fees	2.318 (0.92)	2.318 (0.92)	2.318 (0.92)	-0.900*** (-9.05)
Risk Retention	-21.05 (-1.20)	-21.05 (-1.20)	-21.05 (-1.20)	-0.945 (-1.99)
Investment IN	0.0000288*** (7.70)	0.0000288*** (7.70)	0.0000288*** (7.70)	0.000000885 (1.47)
Contributions	0.00000634*** (14.69)	0.00000634*** (14.69)	0.00000634*** (14.69)	-0.000000191* (-2.06)
Commission	14.28 (0.54)	14.28 (0.54)	14.28 (0.54)	-1.568* (-2.16)
Management	-0.572 (-0.03)	-0.572 (-0.03)	-0.572 (-0.03)	2.147*** (3.95)
Market return	0.0190 (0.36)	0.0190 (0.36)	0.0190 (0.36)	-0.00133 (-0.99)
Interest rate	-12.86 (-0.62)	-12.86 (-0.62)	-12.86 (-0.62)	0.111 (0.21)
_cons	34.33 (0.72)	34.33 (0.72)	34.33 (0.72)	6.393*** (5.28)
<i>N</i>	65	65	65	61

The findings of this study are based primarily on the theoretically best-selected model, the robust model. The other the regression models are mainly used to evaluate the meta-hypotheses MR1, MR2, and MR3 from the point of view of obtaining recommendations on the most appropriate models to be applied in future research on Takaful.

4.7.2 Risk Retention Ratio:

The coefficient Risk Retention Ratio in the robust regression is positive for the GCC and statistically significant at the 0.1% level. However, in Section 4.5.3 it is argued that Risk Retention Ratio in the GCC and Malaysia should be regarded as an indication that the Takaful firm is retaining too much risk within the firm, and therefore that the expected sign of the coefficient should be negative. This result can be regarded either as evidence that the argument presented is incorrect, or as corroboration of the meta-hypothesis MR3, that counter-intuitive results for the GCC regressions are not unexpected.

The coefficient of Risk Retention Ratio in the robust regression for Malaysia does have the expected negative sign, but is not statistically significant at the 5% level. However, the result is significant at the 10% level. Thus, these results therefore provide some evidence for hypothesis H1, that high Risk Retention Ratio is negative for the solvency of Takaful firms in the GCC and Malaysia.

4.7.3 Contribution Growth:

In Section 4.5.4 it was noted that Contribution Growth is expected to be positive for solvency, as it is interpreted as showing the capacity of the firm to grow revenues and profits. However, for the GCC and Malaysian markets it was argued that Contribution Growth should be regarded as a sign of poor underwriting risk management, and therefore the H2 hypotheses is that the sign of the coefficient should be negative and significant. Negative coefficients are observed for both the GCC and Malaysia, and are significant at the 1% level for the GCC and at the 5% level for Malaysia. Thus, the results for both the GCC and Malaysia corroborate the hypothesised negative relationship between Contribution Growth and Solvency.

These results are contrary to the results of Abdul and Isma (2016), where a statistically significant positive relationship is reported. In Yakob et al. (2012) different proxies for contribution are used, which, however, are found to be non-significant.

4.7.4 Investment Income:

The standard interpretation of investment income being positive for solvency holds for the GCC and Malaysian markets, as argued in Section 4.5.5. The result for the GCC has a negative sign, contrary to expectations of H3, but consistent with the expectations of the

meta-hypothesis MR3, that clear results are not expected in the GCC market. The sign of the Investment Income coefficient is positive, corroborating H3, but is not statistically significant at the 5% level. It is, however, significant at the 20% level, providing some weak support for H3.

These results provide further support for the results of Yakob et al (2012) and Abdul and Isma (2016), who both find a positive and statistically significant relationship between investment returns and solvency and are consistent with the results obtained by Joo (2013) for the Indian market.

4.7.5 Takaful Leverage:

As discussed in Section 4.5.6, high leverage is associated with high risk for both Takaful and conventional insurers. Thus, the expected sign of the coefficient of the Takaful Leverage factor is expected to be negative. Again, counterintuitive results are obtained for the GCC robust regression, with a positive coefficient statistically significant at the 0.1% level. For the Malaysian market, the expected negative coefficient is observed, but the result is not statistically significant.

These results support those of Yakob et al. (2012), which report a statistically significant negative relationship, but is contrary to the statistically significant positive relationship reported for family Takaful firms in Abduh and Isma (2016).

4.7.6 Wakalah Fees:

The Wakalah Fees factor is expected to be significantly negative for Solvency, as discussed in Section 4.5.7. Negative coefficients are reported for the robust regression for both the GCC and Malaysia, in both cases at the 0.1% level of statistical significance.

These results are consistent with those of Abduh and Isma (2016), where, although Wakalah fees are not used as an explanatory variable, a statistically significant relationship between solvency and expenses is reported. Yakob et al. (2012) reports no significant relationship between solvency and expenses.

4.7.7 Market Equity Return:

Market Equity Return is expected to have a significant positive relationship to Solvency, as discussed in Section 4.5.8. While the robust regression results for the GCC corroborate the expected positive relationship, a negative coefficient is reported for the Malaysian market.

No statically significant results for market equity returns are reported by Yakob et al. (2012), Abduh and Isma (2016) or by Shiu (2005) for the UK market. While a positive

relationship is suggested by economic considerations, the empirical literature overall does not lend strong support for this hypothesis.

4.7.8 Interest Rate:

Previous studies have indicated that high interest rates usually increase the investment performance of conventional insurers (Shiu, 2004). and are therefore positive for the solvency of the firm. Analogous arguments apply to Takaful, as discussed in Section 4.5.9. The results reported in the robust regression show a negative relationship for the GCC market, though one not statistically significant at the 5% level. This result provides further support for MR3, that mixed, or counter-intuitive results are characteristic for regressions on the GCC market. A positive, though not significant result is obtained for the Malaysian market, providing some degree of corroboration of H7.

No significant results on the relationship between solvency and interest rates have been reported in the empirical Takaful literature.

4.7.9 Commission Paid (Malaysia only):

The Commission Paid factor is introduced for the first time in the present study. It is argued in Section 4.5.10 that Commission Paid should be a significant factor for the Malaysian market, and that the relationship between Commission Paid and Solvency should be negative. The robust regression results support this hypothesis, reporting a negative relationship that is statistically significant at the 5% level. This result can be interpreted as supporting the argument of Section 4.5.10 that the high amounts paid to commission agents in Malaysia reflects the highly competitive environment between Malaysian Takaful firms and their conventional peers.

Currently there are no empirical studies with which to compare the results obtained here.

4.7.10 Management Expenses (Malaysia only):

The Management Expenses factor is the second of the explanatory variables introduced for the first time in this study. According to the argument for H9, Management Expenses is expected to have a significant positive relationship with Solvency. However, the standard economic argument is that high expenses should be negative rather than positive for the firm's solvency. In Section 4.5.11 it is argued that the hypothesised positive relationship is suggested by incentive features of management remuneration specific to the Malaysian market.

The results of the robust regression support H9, with a reported positive coefficient statistically significant at the 0.1% level.

4.8 Summary:

Overall, the robust regression results for the Malaysian market support the hypotheses H1 to H9 for the Malaysian Takaful market. All coefficients have the expected sign, except for the negative coefficient for Market Equity Return, which is, however, not significant at the 5% level. The results for Wakalah Fees and Management Expenses are significant at the 0.1% level and at the 5% level for Commission Paid and Contribution Growth. Risk Retention is significant at the 10% level, while Investment Income is significant at the 20% level.

For the robust regression results for the GCC, 4 out of the 7 coefficients have the opposite sign to that hypothesised. The results overall for the GCC are therefore quite mixed, and difficult to interpret in terms of the hypothesis development of Section 4.5. One interpretation is that the arguments offered in support of the hypotheses are flawed. However, this is inconsistent with the positive results reported for the Malaysian market. The GCC and Malaysian results considered together therefore support the meta-hypothesis MR3, that in its present state of development conclusive results cannot be expected for empirical studies of the GCC market.

The results of the OLS regressions support meta-hypothesis MR1, that OLS regressions are not adequate to cope with the data difficulties confronting researchers in the Takaful market. In the OLS regressions, six out of the nine coefficients for the Malaysian market, and three out of the seven coefficients for the GCC market, have the opposite sign to that hypothesised. Meta-hypothesis MR2 is also supported. While the fixed effect and random effects regression results are more in line with the robust results than OLS, six out of the nine coefficients for the fixed and random effects models for the Malaysian market have the opposite signs to those hypothesised. Overall, MR1, MR2, and MR3 are supported by the results, and suggests that robust regression models have an important role to play in mitigating the problems associated with the lack of empirical data available for researchers in Islamic finance.

The implications of the results of Chapter 4 for research will be briefly discussed here. The discussion will be extended in the concluding Chapter 6, where the wider implications of the research of this thesis are discussed, and where the research results can be discussed within a wider context.

The mixed results for the GCC were expected in meta-hypothesis MR3. The GCC results highlight the observations made in Chapter 3 concerning the weak regulatory framework of most of the GCC countries. The concerns of weak regulation in the GCC extend far beyond the difficulties it presents for researchers. However, from the research standpoint, more conclusive results might be expected when the sample is restricted to companies within a particular GCC country, subject to the same regulatory regime. Some GCC countries, such as Saudi Arabia, have enough Takaful firms and insurers for a country specific quantitative study to be conducted. In GCC countries with few Takaful firms, such as Oman and Qatar, other research approaches, such as case study research, may be more fruitful.

The results for both the GCC and Malaysia support the expectation that robust regressions are likely to out-perform the OLS regressions, as well as the panel data models that have been used extensively in the empirical literature. Robust regression techniques are becoming standard in commercial statistical packages and promise to be of value in research areas such as Takaful where the data limitations are severe.

CHAPTER 5 The Factors Determining Profitability in Takaful Firms in the GCC and Malaysia:

5.1 Introduction:

The aim of this research is to determine the determinates of profitability in the Takaful firms in both the GCC and Malaysian markets.

Chapter 5 concerns Steps 2,3,4,5, and 6 of the deductive methodology. Some issues, such as the data set used in this study and the breakdown of the participants' fund, have already been dealt with in Chapter 4.2 and 4.3, respectively, and will not be repeated here. In certain other respects too, this chapter builds on the previous Chapter 4, allowing some issues to be discussed more concisely.

Step 2: Step 2 of the deductive methodology is extended in Section 2, where the empirical literature on the determinants of profitability in Takaful firms is discussed.

Step 3: Hypothesis development. Section 3 presents the definitions of the dependent and independent variables used in this study, together with the hypotheses to be tested in the regression models. The justifications for using these variables are presented.

Step 4: Section 4 presents the regression models applied.

Step 5: The results of the regression tests are presented in Section 5. The results are discussed with reference to the expectations and the hypotheses developed previously.

Step 6: Step 6 concerns the implications of the results of Step 5 for revising expectations/hypotheses, questions for future research, and applications of the results by various stakeholders. Some relevant issues are discussed in concluding the present chapter and are discussed more fully in the concluding Chapter 6.

The Takaful industry has remained behind its conventional peers since its beginnings four decades ago and is not yet fully mature. As an important factor in enhancing the growth of the Takaful industry, the profitability of Takaful firms plays an essential role, including such perspectives as protecting the financial integrity of the participants' fund and attracting new investors. Nevertheless, it is difficult to deny the potential growth for this industry in spite of its challenges. However, understanding the profitability determinants for the Takaful firms is a fundamental element for managers in improving

business efficiency and in developing better strategic business plans in order to enhance healthy financial performance. The profitability of Takaful firms can be analysed at the macroeconomic and micro levels, is determined both by external factors regarding the connected macroeconomic environment and internal factors represented by firm-specific characteristics of Takaful firms.

5.2 Literature Review:

There are few empirical studies on the determinants of profitability in Takaful firms. Most of the literature on profitability is concerned only with the conventional insurance system. However, as in the case of solvency, there are a number of studies of the determinants of profitability for conventional insurers in emerging markets, and which have some relevance for the development of hypotheses for the determinants of profitability for the Takaful sector in the GCC and Malaysia.

5.2.1 General Issues with the Conventional and Takaful Literature:

In Chapter 4.4.1 it was noted that the conventional insurance literature on solvency is usually not particularly illuminating for research solvency for Takaful firms. While the general issues raised in Chapter 4.4.1 remain valid, conventional studies on profitability do have more relevance for Takaful research on profitability than is the case for conventional studies on solvency for studies on the determinants of solvency in Takaful firms. As indicated in Chapter 4.4.2, there is a range of proxies used for solvency, and these are multiplied further by the more complex legal and operational structure of Takaful firms as compared to conventional insurers. Thus, proxies for solvency applicable to Takaful firms often do not have any direct relationship to those used in the conventional literature, for example, the solvency proxy Participants' Fund/Valuation Liability used in Yakob et al. (2012). In contrast, proxies used for profitability are generally more straightforward to motivate, for both conventional and Takaful operators, and similar proxies are often applicable to both conventional and Takaful insurers. For example, return on equity and return on assets are well-motivated profitability measures that can be used for both conventional and Takaful firms. There is also a greater overlap between the explanatory variables used in profitability studies than is the case for research into solvency. These similarities between conventional and Takaful research into profitability determinants should certainly not be overstated. The general points raised in Chapter 4.4.1 remain. Nevertheless, the hypothesis development of Section 5.3 is informed by the conventional literature as well as those studies specific to Takaful.

The general issues and challenges facing researchers on empirical studies of Takaful discussed in Chapter 4.4.2, in particular, the lack of comparability between different studies, and the obtaining of mixed results that can be difficult to interpret, are applicable to empirical studies on the determinants of profitability as well.

5.2.2 The Empirical Literature on the Determinants of Profitability:

At the time of writing, there are two empirical studies on the determinants of profitability in Takaful firms (Ismail, 2013 and Hodori and Masih, 2017). Ismail (2013) covers 4 Takaful and 22 conventional Malaysian insurers for the period 2004 to 2007. The firm's investment yield, defined as Net investment income/Average invested assets, is used as a proxy for profitability. Equity returns, and measures of liquidity, company size, solvency margin, re-Takaful/reinsurance dependence are used as the explanatory variables. For Takaful firms, company size and re-Takaful/reinsurance dependence were significantly positively related to profitability, while for conventional insurers all variables except for equity returns were significant. The use of small samples leads to larger estimates of the standard error and hence to fewer significant results, as illustrated by these results, where only two independent variables are significant for the sample of 4 Takaful firms, while all except one of the dependent variables are significant for the larger sample of 22 conventional insurers.

Hodori and Masih (2017) cover 10 Malaysian Takaful firms for the period 2011 to 2015. Ln (profit/loss) was taken as the dependent variable, while measures of company size, company age, leverage, and investment income were used as the explanatory variables. Company size was found to be significantly positively related to profitability, in accordance with economic expectations, while company age was statistically significantly negatively related, contrary to expectations. Theoretical considerations suggest a positive correlation between company age and company size, and hence that company age should be a positive determinant of profitability.

In spite of the substantial and growing literature on Islamic finance in general and in particular, the many Islamic banking empirical studies, there are few empirical studies on the Takaful system. The empirical research in insurance is largely confined to the conventional insurance system. A considerable amount of literature has been published investigating the determinants of profitability for conventional insurance in both developed and emerging markets. A wide range of studies using panel data has been

published, using the profitability as the dependent variable and a range of different firm-specific factors and macroeconomic factors as the independent variables.

In the conventional literature, a range of different proxies for profitability have been used. One of the most widely used measures of profitability in the finance discipline as a whole is Return on assets, (ROA), defined by $ROA = \text{Net income} / \text{Total assets}$. This is also one of the most widely the profitability measures used in empirical studies of the determinants of profitability in conventional insurance markets, and is the profitability measure used by Burca and Batrinca (2014) (Romania), Mehari and Aemiro (2013) (Ethiopia), Malik (2011) (Pakistan), Mwangi and Murigu (2015) (Kenya), Mazviona et al. (2017) (Zimbabwe), Guruswamy and Marew (2017) (Ethiopia), Almajali et al. (2012) (Jordan), Pervan and Pavic (2010) (Croatia), Suganthi and Rajaram (2016) (India), Derbalia (2004) (Tunisia), Charumathi (2012) (India), and Banerjee and Majumdar (2018) (UAE). ROA is also the definition of profitability used in the present study.

Different, though related, measures of profitability have been used in other studies, including Kaya (2015) (Turkey: Technical profitability and Sales profitability ratio), Adams and Buckle (2003) (Bermuda: Measures of operational profitability), Shiu (2004) (UK: Investment yield, Percentage change in shareholders' funds, and Return on shareholders' funds), Daare (2016) (India: Return on equity), Oscar Akotey et al. (2013) (Ghana: Profit before tax/Total assets), and Burić et al. (2017) (Western Balkan countries: Total life premium).

A range of independent variables have been used in the emerging markets literature on the determinants of profitability for conventional insurers. The most relevant studies for the present research are those that also use ROA as the dependent variable.

Burca and Batrinca (2014) investigate insurers in the Romanian insurance market during the period 2008 to 2012. Explanatory variables included company size, leverage, company age, market share, investment ratio, and GDP growth. A positive relationship between ROA and company size was reported.

Mehari and Aemino (2013) conduct a study of nine insurers in the Ethiopian market for the period 2005 to 2009. Company age, size, growth in premium written, liquidity, leverage and loss ratio were used as the independent variables. Size and leverage were significantly positively related to ROA, while loss ratio was significantly negatively related.

Malik (2011) conducted a study for 35 listed life and non-life insurance companies in Pakistan, and concludes that size and volume of capital are positively related, while loss ratio and leverage are negatively related to ROA.

In a study conducted and on all insurance companies in Kenya from the period of 2009 till 2012, Mwangi and Murigu (2015) included firm-specific factors including leverage, retention ratio, liquidity, underwriting risk, equity capital, size, management competence index, ownership and age. They report that leverage, equity capital, and management competency index are significant and positively related to profitability, while size and ownership structure are negatively related to profitability.

Mazviona et al (2017) study 20 insurance firms in Zimbabwe for the period 2010 to 2014. Leverage and liquidity were found to have a statistically significant positive relationship with ROA, while expense ratio, claims ratio, and company size were significantly negatively related to ROA.

In study of the Ethiopian market, Guruswamy and Marew (2017) examined the impact of leverage, growth opportunities, business risk, company size, tangibility of assets, liquidity, company age, efficiency, inflation and GDP, and found company age and business risk are positively related to profitability, while growth, GDP, inflation, and efficiency are negatively related.

Almajali et al. (2012) conducted a study on 25 insurance companies on the Jordanian market for the period 2002 to 2007. Leverage, liquidity, size, management competence were positively related to ROA.

Pervan and Pavic (2010) investigated the Croatian insurance market for the period 2003 to 2009, reporting that expenses, claims, company size, leverage, underwriting risk, growth of written premium, investment income, loss ratio and capitalization are negatively related to financial performance.

Suganthi and Rajaram (2016) conducted study 10 insurers on the Indian market for the period 2005 to 2014. They report that the claims ratio, growth in gross premiums, capital and tangibility are negatively related to ROA.

Charumathi (2012), in a study of all the 23 life insurance companies in India from the period of 2008 till 2011, confirmed the importance of liquidity and found that liquidity, as well as company size, are significant and positively related to profitability, while leverage, premium growth, and equity capital are negatively related to ROA.

In a study of the UAE insurance sector for the period 2009 to 2013, Banerjee and Mujamdar, (2018) report that company size, growth in gross written premium (GWP), leverage, investment ratio and market share are statistically significant in explaining ROA. Further, GDP growth has a significant positive influence on profitability.

The studies which use definitions of profitability other than ROA report similar conclusions to those presented for ROA above.

Kaya (2015), in a study of 24 insurance companies in Turkey from the period 2006 to 2013, found that the profitability of insurers, defined as technical profitability and sales profitability is statistically significantly positively related to company size, and significantly negatively related to company age, loss ratio, and current ratio.

Daare (2016), using return on equity as the measure of profitability for insurers in the Indian market, reported that revealed that profitability is negatively impacted by liquidity and inflation, while capital and GDP are positively related to profitability.

Adams and Buckle (2003), using various measures of operational profitability, in a study of 47 insurance companies in the Bermuda insurance market for the period of 1993 till 1997, examined the size, underwriting risk, leverage, liquidity, and type and scope of operation, and found that profitability is positively related to the underwriting risk while size and the scope of activities were not found to be important determinants.

Shiu (2004), using investment yield, percentage change in shareholders' funds, and return on shareholders' funds in a study of UK general insurers for the period 1986 to 1989, reported that company age, growth, profitability, liquidity, unexpected inflation, interest rate level, size, investment performance, liquidity, surplus growth, combined ratio and operating margin size, investment performance, and change in product mix are related to financial performance.

Other studies have focussed on particular explanatory factors, such as the use of reinsurance by insurance companies, and its economic impacts on performance and decision-making (Soye and Adeyemo, 2017 and Dror and Armstrong, 2006).

Reviewing the literature as a whole, the most popular definition of profitability is ROA, and most of the studies use a similar range of explanatory variables. The empirical literature consistently finds a positive relationship between profitability and company size. However, the results for other explanatory variables are mixed. While the coefficients of these other explanatory variables often have the expected sign, the results

are often not statistically significant. In many cases, the sign expected is opposite to that observed. In some cases, this is due to the fact that some explanatory variables are double-edged. For example, liquidity is usually regarded as positive for profitability. However, if the level of profitability is excessive, this can be regarded as poor asset management. Whether the expected sign of a variable should be positive or negative can depend on the specific attributes of the market under study. Despite these qualifications, the results of the empirical literature are of some value in motivating the development of appropriate hypotheses.

5.3 Hypothesis Development:

The hypothesis development of profitability determinants follows the same structure as the hypothesis development section of Chapter 4.

5.3.1 Introduction:

The choice of dependent and independent variables, and the hypotheses proposed are determined by the limitations of the data set constructed by the author, relationships between variables suggested by economic theory, the empirical research on the determinants of profitability of Takaful firms, and the empirical research on the determinants of profitability of conventional insurers.

The company specific variables are calculated from the annual financial statements published by the 41 GCC Takaful firms and the 11 Malaysian Takaful firms. The macroeconomic variables, GDP and inflation rates, are obtained from DataStream, the World Bank, and the International Monetary Fund. The choice and method of calculation of the company specific factors is restricted by the data available.

The choice of variables and the relationships hypothesised are suggested by economic considerations. For example, small firms are more likely to experience financial distress, and therefore company size is expected to bear a positive relationship to profitability.

As noted in Section 5.2, apart from Company Size, for which the empirical literature consistently finds a positive relationship with profitability, the results on the relationship between profitability and the other explanatory variables is mixed. The empirical literature is of value in identifying which explanatory variables to use, since the empirical research draws on the same range of possible explanatory variables. However, the results

of the empirical literature are of less value in terms of forming hypotheses on the signs of the coefficients or their expected statistical significance.

Certain macro-economic factors have been included as explanatory variables in the regressions, namely, GPD and inflation. The choice of macro-economic variables is motivated by the macro-economic factors employed in the previous empirical research discussed in Section 2. With studies based on small samples there is trade-off between adding new explanatory factors and reducing the power of the test by decreasing the degrees of freedom of the regression. Here the choice of macro-variables is based on the previous literature, allowing a more direct comparison of the results of this study with results of previous research. In the author's view, the addition of further macro-economic variables will become viable when more extensive empirical data becomes available.

A further judgement concerns whether to combine the data for the GCC and Malaysia into a single regression. As discussed in Chapter 4, Section 4.5.1 (6), the author's view is that the Malaysian and GCC samples are essentially drawn from two different populations. While pooling the data does result in a larger sample, it exposes the study to the criticism that model specification errors have been introduced into the tests. Thus, separate regressions are run, hence avoiding potential model specification errors.

5.3.2 Profitability:

Profitability represents a difficult concept in terms of its measurement and definition. As shown in the academic literature, professional and industrial reports, there is no single, universally recognised financial formula to measure profitability (Burca and Batrinca, 2014). Academics have used a range of different, though related, mathematical expressions to measure profitability.

For this study, the dependent variable and the independent variables are chosen and calculated using the methods most commonly used in the previous literature on the conventional insurance sector. The profitability is represented by using Return on Assets (ROA) ratio, using the formula:

$$\text{Profitability} = \text{ROA} = \text{Net income} / \text{Total assets}$$

The following selected macroeconomic and firm specific factors are hypothesised to be negatively or positively related to profitability, based on the empirical results reported in

the literature review, and based on the meaning of the factors and their expected theoretical relationships to the dependent variable. The following paragraph describes the expected outcomes (hypotheses):

5.3.3 Company Age:

A driver of the consumer's decision to buy an insurance policy or a Takaful certificate is the reputation of the company. Established companies will usually have acquired a positive reputation, mainly as a result of having built up their brand over an extended period of time, but also because a good reputation is correlated with company survival. Less reputable firms are less likely to survive in a competitive market. In addition, companies that been in the market for long time are likely to be more stable, having built up their financial strength over the years. The theoretically supported positive relationship between Profitability and Company Age is corroborated by the empirical literature, including Guruswamy and Marew (2017), Charumathi (2012), and Shiu (2004), reviewed in Section 5.2.2. Accordingly, it is expected to find a positive relationship between Company Age and Profitability.

Company Age = The number of years the company has been operating in its domestic market

As discussed in Chapter 4.5.2, where the meaning of the null and alternative hypotheses is reviewed, in the linear regression model the estimators of the coefficients have the distributions attributed to them under the assumption of the null hypothesis, H_0 , that there is no relationship between the dependent and independent variables.

H0: The coefficient of Company Age in GCC and Malaysian Takaful firms is zero

H_0 is the same for all the independent variables discussed. For this reason, only the alternative hypothesis is stated in the following.

H1: Company Age is positively related to Profitability in GCC and Malaysian Takaful firms

5.3.4 Risk Retention Ratio:

Risk Retention Ratio is one of the explanatory factors introduced for Solvency in Chapter 4.5.3. Similar considerations apply here to those discussed in there. The definition is the same as given in Chapter 4.5.3.

$$\text{Risk Retention Ratio} = \frac{\text{Net Written Contribution}}{\text{Total Gross Written Contribution}}$$

Reinsurance is an integral part of the insurance market and plays the vital role regarding the financial stability of the global insurance markets (International Association of Insurance Supervisors, 2102). However, Re-Takaful is essentially the same concept of reinsurance. Takaful companies tend to mitigate their underwriting risk by sharing an agreed proportion of that risk with either re-Takaful or conventional reinsurance firms (as the re-Takaful market is currently not able to absorb the volume of business from the Takaful industry). The existence of the reinsurance supplier allows Takaful companies to underwrite more business and hence diversify their business portfolio. Moreover, re-Takaful firms protect the Takaful firms from sudden and adverse claims, hence improving their profitability.

Risk Retention Ratio can be considered as a proxy for the strength of the insurance firm, indicating its capability capabilities to underwrite large business risks. However, this interpretation is inappropriate for the Takaful industry, where there are concerns about poor underwriting risk management. Thus, as in the case of Solvency, a high Risk Retention Ratio is considered as a negative factor for Profitability.

H2: Risk Retention Ration is negatively related to Profitability in GCC and Malaysian Takaful firms

5.3.5 Contribution Growth:

Contribution Growth is another of the explanatory factors introduced for Solvency, in Chapter 4.5.4. The implications of Contribution Growth are analogous to those discussed in the case of Solvency. The definition is the same as given in Chapter 4.5.4.

$$\text{Contribution Growth} = \text{Gross Contribution Written } t - \text{Gross Contribution Written } t-1$$

Contributions, or premiums, reflect the market penetration and growth of the Takaful company. Insurance firms with strong and sustainable business growth are more likely to be financially stable and profitable (Zhang and Nielson, 2015). Again, this standard interpretation of Contribution Growth being positive for the firm may not apply in the case of Takaful, because of the concerns over the capability of firms in the Takaful industry to effectively identify, measure and manage the risks associated with writing new business. In that case, the expectation is that Contribution Growth is in general a negative factor for Profitability.

H3: Contribution Growth is negatively related to Profitability in GCC and Malaysian Takaful firms

5.3.6 Investment Income Ratio:

As in Chapter 4.5.6 for Solvency, Investment Income Ratio is defined as:

$$\text{Investment Income Ratio} = \text{Investment Income/Net Contribution}$$

The standard interpretation of Investment Income Ratio is that the ratio is positively related to Profitability. This is particularly the case for conventional insurance firms in advanced economies. While high investment income may be due to the firm taking excessive risks, regulators place extensive restrictions on the securities and portfolio permitted to be held by insurers. Although regulation is less developed in the GCC, the literature on Takaful does not appear to indicate any widespread concerns about Takaful firms engaging in reckless speculative investment activities. Therefore, the standard interpretation that Investment Income Ratio is positive for the firm is retained.

H4: Investment Income Ratio is positively related to Profitability in GCC and Malaysian Takaful firms.

5.3.7 Company Size:

A commonly used measure for company size in the literature is adopted:

Company Size = Log of Total Company Assets

Economic theory suggests that there should be a positive relationship between Company Size and Profitability. In part, this is because Company Size is partly subsumed under Company Age, and the positive impact of Company Age has already been discussed in Section Size 5.3.2. However, there are other reasons why Company size should be positive for profitability, independently of age considerations. Small firms are less able to withstand financial stress, whether company specific, industry specific, or market wide (Sharp and Stadnik, 2007). Large firms enjoy economies of scale and economies of scope, and have greater capacity for innovation to serve increasing customer demand (Ezirim et al., 2018). Hence the following hypothesis been generated.

H5: Company Size is positively related to Profitability in GCC and Malaysian Takaful firms

5.3.8 Gross Domestic Product (GDP):

Gross Domestic product is another variable common in many studies. GDP is the main driver for the growth of any economy and becomes critical towards the confidence of every business environment including insurance. High GDP should increase the consumers demand for goods and services. During periods of low GDP growth, borrower defaults increase, and this affects insurance profitability negatively (Alhassan et al., 2015).

H6: GDP is positively related to Profitability in GCC and Malaysian Takaful firms

5.3.9. Wakalah Fees:

We expect that the Takaful operators with high Wakalah fees are more likely to register poor financial performance. To capture this dimension, we state the following hypothesis This variable has been chosen as a contribution for this model and only used for the Malaysian market.

Wakalah Fees = Ln (Wakalah fees)

H7: Wakalah Fees is negatively related to Profitability in GCC and Malaysian Takaful firms

5.3.10 Inflation:

Inflation is a major consideration for the whole economy because rising prices erode the value of products, services and savings. Change in inflation expectations can alter the course of the economy. Macroeconomic factors such as the GDP growth, population and interest rates influence the expansion and profitability of the insurance sector. These and other macroeconomic variables have been found to have a significant impact on the insurance growth of an economy (Beenstock et al., 1986; Browne and Kim, 1993; Fortune, 1973; Headen and Lee, 1974; Outreville, 1990 and Ward and Zurbruegg, 2002).

According to Zhang and Nielson (2015), actual inflation and unanticipated inflation adversely influence administrative expenses, claims amounts and the real rate of return on fixed investment income, hence increasing the insurer’s likelihood of losses.

H8: Inflation is negatively related to Profitability in GCC and Malaysian Takaful firms

The hypotheses are summarised in the following table.

TABLE 11- HYPOTHESES OF THE EFFECTS OF VARIOUS FACTORS ON THE PROFITABILITY OF BOTH THE GCC AND MALAYSIAN TAKAFUL FIRMS.

Hypothesis	Factors	Abbreviation	Expected effect
H1	Company Age	AGE	+
H2	Risk Retention Ratio	RISREN	-
H3	Contribution Growth	CONGRO	-
H4	Investment Income Ratio	INVINC	+
H5	Company Size	SIZE	+
H6	GDP	GDP	+
H7	Wakalah Fees	WAKFEE	-
H8	Inflation	INF	-
Dependent variable	Profitability	ROA	

5.4 The Econometric Model:

As stated in 5.3.1, the data was extracted from the financial statements of 41 Takaful companies in the GCC and 11 Takaful companies in Malaysia. The variables selection and calculation was intensively covered in 4.4.2, 4.4.3, 4.4.4 and 4.4.5.

5.4.1 The Regression Model:

The econometric model for the GCC is presented as follows:

$$ROA(i_t) = B_0 + B_1 * AGE(i_t) + B_2 * RISREN(i_t) + B_3 * CONGRO(i_t) + B_4 * INVINC(i_t) + B_5 * SIZE(i_t) + B_6 * GDP(i_t) + B_7 * INF(i_t) + E(i_t)$$

The econometric model for Malaysia is presented as follows:

$$ROA(i_t) = B_0 + B_1 * AGE(i_t) + B_2 * WAKFEE(i_t) + B_3 * RISREN(i_t) + B_4 * INVINC(i_t) + B_5 * SIZE(i_t) + B_6 * CONGRO(i_t) + B_7 * GPD(i_t) + B_8 * INF(i_t) + E(i_t)$$

$ROA(i_t)$ is the dependent variable and the $B_n(i_t)$, $n = 1, \dots, 8$, are the coefficients of the independent variables. The letters i and t represent the firm and the year respectively and $E(i_t)$ represents the error component.

5.4.2 Diagnostic Tests

5.4.2.1 Multicollinearity Test (VIF):

A Multicollinearity test has been conducted using variance inflation factors to test for Multicollinearity between the variables. According to Frank (2010), the variance inflation factor, VIF, is the appropriate formal test to examine and detect collinearity between the explanatory variables. The result indicates that there was only moderate correlation of less than five between the explanatory variables, and that this is acceptable result. According to Gujarati and Porter (1999), Field (2009), and Hair et al. (2014), VIF values greater than 10 may indicate that Multicollinearity is unduly influencing the regression

result. The following tables show the result of the VIF for the GCC and Malaysian profitability models respectively.

TABLE 12- THE VARIANCE INFLATION FACTOR FOR THE PROFITABILITY MODEL - THE GCC MARKET

Variable	VIF	1/VIF
INF	1.14	0.880804
GDP	1.12	0.893279
SIZ	1.11	0.902025
AGE	1.07	0.931097
INV	1.04	0.963745
GRO	1.03	0.969271
RET	1.02	0.984661
Mean VIF	1.07	

TABLE 13- THE VARIANCE INFLATION FACTOR FOR THE PROFITABILITY MODEL - THE MALAYSIAN MARKET

Variable	VIF	1/VIF
SIZ	6.83	0.146458
INV	6.26	0.159866
AGE	3.47	0.288344
WAK	2.89	0.345724
GRO	2.1	0.476797
RET	1.84	0.542836
GDP	1.41	0.707546
Inflation	1.4	0.715529
Mean VIF	3.27	

5.4.2.2. Correlation Test:

In order to design the panel data model, it is important to verify whether there is a problem of correlation between the explanatory variables. Tables 13 for the GCC and 14 for the Malaysian profitability models presents the correlation matrix. The results show that no coefficient exceeds the tolerance limit of 0.07. It is evident that there is no high correlation between any two independent variables, and hence that no correlation problem is apparent. The following tables show the correlation test for both GCC and Malaysian profitability models.

TABLE 14- THE CORRELATION TEST FOR THE PROFITABILITY MODEL - THE GCC MARKET.

	ROA	AGE	RET	GRO	INV	SIZ	GDP	INF
ROA	1							
AGE	0.0423	1						
RET	0.0025	0.0404	1					
GRO	0.0111	0.0375	0.0049	1				
INV	0.0154	0.1117	0.0252	0.0591	1			
SIZ	0.0738	0.2068	0.0723	0.1484	0.1198	1		
GDP	0.0231	0.0135	0.049	0.0432	0.0007	0.0336	1	
INF	0.0349	0.0224	0.0849	0.0584	0.0224	0.0974	0.3245	1

TABLE 15- THE CORRELATION TEST FOR THE PROFITABILITY MODEL - THE MALAYSIAN MARKET

	ROA	AGE	WAK	RET	INV	SIZ	GRO	GDP	INF
ROA	1								
AGE	0.1171	1							
WAK	0.1464	0.0189	1						
RET	0.0341	0.022	0.0004	1					
INV	0.1729	0.7339	0.3492	0.0848	1				
SIZ	0.0185	0.6795	0.1571	0.3466	0.7266	1			
GRO	0.0942	0.005	0.3555	0.1528	0.3588	0.283	1		
GDP	0.0159	0.0128	0.1061	0.1338	0.0877	0.119	0.112	1	
INF	0.06	0.0594	0.0653	0.0804	0.0512	0.077	0.13	0.482	1

5.4.3 Regression Techniques:

In this chapter on the determinants of profitability the four regression techniques of pooled OLS regressions, fixed effects and random effects panel regressions, and robust regression applied in Chapter 4 are used. The theoretical material in Chapter 4.6.3 carries over to the present chapter, and will not be repeated here.

5.4.4 Meta-Hypotheses:

The meta-hypotheses MH1, MH2, and MH3 defined and evaluated in Chapter 4 are also evaluated using the regression results of the present chapter. The definition and motivation of MH1, MH2, and MH3 are presented in Chapter 4.6.4.

5.5 The Regression Results:

5.5.1 The regression Results Tables:

The results of all four regressions for the GCC are presented in Table 16, and those for Malaysia in Table 17.

TABLE 16- THE REGRESSION FOR THE GCC PROFITABILITY MODEL.

	(OLS) ROA	(Fixed Effects) ROA	(Random Effects) ROA	(Robust) ROA
Company Age	0.000490 (0.38)	0.000490 (0.38)	0.000490 (0.38)	0.000277 (0.90)
Risk Retention	0.00112 (0.13)	0.00112 (0.13)	0.00112 (0.13)	0.00217 (1.07)
Contributions G	-0.000279 (-0.02)	-0.000279 (-0.02)	-0.000279 (-0.02)	-0.00124 (-0.32)
Investment INC	0.110 (0.31)	0.110 (0.31)	0.110 (0.31)	0.103 (1.21)
Company Size	0.0136 (1.01)	0.0136 (1.01)	0.0136 (1.01)	0.00767* (2.40)
GDP	-0.00119 (-0.20)	-0.00119 (-0.20)	-0.00119 (-0.20)	-0.00258 (-1.87)
Inflation	-0.00593 (-0.34)	-0.00593 (-0.34)	-0.00593 (-0.34)	-0.00221 (-0.53)
_cons	-0.106 (-0.96)	-0.106 (-0.96)	-0.106 (-0.96)	-0.0370 (-1.42)
<i>N</i>	246	246	246	246

TABLE 17- THE REGRESSION FOR THE MALAYSIAN PROFITABILITY MODEL.

	(OLS) ROA	(Fixed effects) ROA	(Random effects) ROA	(Robust) ROA
Company Age	0.000255 (0.12)	-0.000940 (-0.22)	-0.000940 (-0.22)	0.00115 (1.81)
Wakala Fees	0.000211 (0.01)	-0.00536 (-0.29)	-0.00536 (-0.29)	-0.00115 (-0.21)
Risk Retention	0.00363 (0.03)	-0.0991 (-0.56)	-0.0991 (-0.56)	-0.0240 (-0.64)
Investment IN	-5.85e-08 (-1.46)	-4.99e-08 (-0.66)	-4.99e-08 (-0.66)	-5.77e-08*** (-4.71)
Company Size	0.0414 (0.87)	0.0599 (1.05)	0.0599 (1.05)	0.0413** (2.83)
Contributions	-2.76e-09 (-0.98)	-1.09e-09 (-0.34)	-1.09e-09 (-0.34)	-2.49e-09** (-2.87)
GDP	0.00281 (0.11)	0.00148 (0.07)	0.00148 (0.07)	-0.00412 (-0.52)
Inflation	0.00512 (0.19)	0.00600 (0.28)	0.00600 (0.28)	-0.00227 (-0.28)
_cons	-0.226 (-1.09)	-0.196 (-0.75)	-0.196 (-0.75)	-0.175** (-2.75)
<i>N</i>	65	65	65	65

The testing of the hypotheses H1 to H8 is primarily based on the theoretically best-selected model, the robust model. The other three regression models, OLS and the fixed

and random effects regressions, are mainly used to evaluate the meta-hypotheses MR1, MR2, and MR3.

5.5.2 Company Age:

In the robust regression for Company Age, the coefficient is positive for both the GCC and Malaysia. The results are not statistically significant at the 5% level, although the result for Malaysia is significant at the 20% significance level. The results therefore provide support for the hypothesis that Company Age is positively related to ROA.

5.5.3 Risk Retention Ratio:

H2 hypothesises a negative relationship with ROA. The coefficient on the GCC robust regression has a positive sign, contrary to H2. The robust regression for Malaysia has a negative sign, but this result is not significant. The result for Malaysia provides some weak support for the hypothesis. The GCC result is consistent with meta-hypothesis MH3 that mixed results for the GCC are to be expected.

5.5.4 Contribution Growth:

H3 hypothesises a negative relationship between Contribution Growth and ROA. This is corroborated by the negative coefficients reported for both the GCC and Malaysia in the robust regression. The GCC result is not significant, while the Malaysian result is significant at the 1% level.

5.5.5 Investment Income Ratio:

H4 hypothesises a positive relationship between Investment Income Ratio and ROA. A positive, though non-significant coefficient is obtained in the robust regression for the GCC. The coefficient for Malaysia is negative and statistically significant at the 0.1% level. This is inconsistent with the expectations of hypothesis H4. It is also inconsistent with the meta-hypothesis MR3, which predicts that the Malaysian results will be more in line with the predictions of the hypotheses than the results for the GCC.

5.5.6 Company Size:

H5 hypothesises a positive relationship between Company Size and ROA. The coefficients of the robust regression are both positive and statistically significant for both the GCC and Malaysia, with the GCC result being significant at the 5% level, and the Malaysian result being significant at the 1% level.

Company size is one of the few explanatory variables where a clear expectation can be derived from the empirical literature. Both Ismail (2013) and Hodori and Masih (2017)

report a positive relationship between profitability and company size for Takaful firms. The literature on conventional insurers in emerging markets also consistently finds a positive relationship between profitability and company size. Thus, the results of the present study corroborate the results reported in the empirical literature.

5.5.7 GDP:

H6 hypothesises a positive relationship between GDP and ROA. The results of the robust regression for both the GCC and Malaysia have negative coefficients, although neither result is statistically significant at the 5% level. However, the result for the GCC is significant at the 20% level, providing some support for the meta-hypothesis that mixed results are not unexpected for the GCC market.

5.5.8 Wakalah Fees (Malaysia only):

The coefficient of Wakalah Fees is negative, as hypothesised by H7. However, the result is not statistically significant at the 5% level.

5.5.9 Inflation:

A negative relationship between Inflation and ROA is hypothesised by H8. The robust regression reports a negative coefficient for both the GCC and Malaysia, although neither result is significant at the 5% level.

5.6 Summary:

Overall, the robust regression results for the Malaysian market support the hypotheses H1 to H8 for the Malaysian Takaful market. All coefficients, except for those on Investment Income and GDP, have the expected sign. The results for Contribution and Company size are significant at the 1% level, and the result for Company Age is significant at the 20% level. The results for the other three factors that have the expected sign are not significant.

For the robust regression results for the GCC, five out of the seven coefficients have the sign hypothesised. Only Company Size is significant at the 5% level. Thus, the results for the GCC for the robust regression are similar to those for Malaysia in terms of the observed sign being the same as that predicted, but the results overall are not statistically significant. The GCC and Malaysian results considered together therefore provide some

support the meta-hypothesis MR3 that in its present state of development conclusive results cannot be expected for empirical studies of the GCC market.

None of the results for the OLS, fixed effects or random effects models is significant at the 5% level, either for the GCC or Malaysia. Therefore, the results support the meta-hypotheses MR1 and MR2 that robust methods are most appropriate for Takaful research where severe data limitations exist.

The implications of the results of Chapter 5 for research will be discussed in this section. Chapter 6 extends this discussion, and also discusses the research implications of the thesis overall within a wider context.

Overall, the results of Chapter 5 reinforce the main conclusions of Chapter 4. Most of the results for the GCC are statistically insignificant, in conformity to the meta-hypothesis that mixed/unclear results for the GCC are to be expected. The GCC results therefore support the remarks in Chapter 4.9 concerning the weak regulatory framework of most of the GCC countries.

The results for both the GCC and Malaysia support the expectation that robust regressions are likely to out-perform OLS regressions, as well as the panel data models that have been used extensively in the empirical literature. For the profitability results, none of the results for OLS or for the panel regressions are statistically significant for either Malaysia or the GCC at the 5% level. These results therefore support the case for using robust regression methods in research areas, such as Takaful, where severe data limitations exist.

CHAPTER 6: Conclusion and Discussion

This chapter summarizes the main findings of the study, and discusses the main implications, recommendations, and questions for future research.

6.1 Main Research Contributions of this Study:

The contributions of this research are discussed in part in the summary and conclusion sections of the empirical Chapters 4 and 5. Section 6.1 reviews and combines the contributions of these empirical chapters, in order to discuss the research contributions of the thesis in a wider context.

6.1.1 Overview:

The research problem addressed is finding the determinants of solvency and profitability of Takaful firms in the GCC and Malaysia. The research follows, and is structured by, the deductive methodology (Chapter 1.4).

The research problem is well-motivated by the recognised fundamental importance of solvency and profitability as measures of performance of Takaful and conventional insurers, by the past achievements and great future potential of Islamic finance, and Takaful in particular, to contribute to society, and by the current lack of empirical research studies on solvency and profitability determinants of Takaful firms (Chapter 1).

To enable the research a database of financial accounting data for 41 GCC Takaful firms and 11 Malaysian Takaful firms for the period 2011 to 2016 was constructed by the author (Chapter 4.2). This database is the source of the company specific data used in the research. Data on the macroeconomic explanatory variables was extracted from DataStream, Bloomberg, the World Bank, and the IMF. The lack of empirical data in Islamic finance explains the serious lack of empirical studies in Takaful. The author's work on building the database for this research confirms the experience of other researchers in Islamic finance and Takaful on the great cost in time and effort required in order to construct adequate databases by hand.

The hypotheses on the determinants of solvency and profitability (Chapters 4.5 and 5.3) were motivated by:

(1) The academic and professional literature on the determinants of solvency and profitability of Takaful and conventional insurers in the GCC and Malaysia, in emerging markets, and in developed markets (Chapters 4.3 and 5.2).

(2) The academic and professional literature on the major risks facing Takaful firms (Chapter 2.5).

(2) Relevant facts about the Takaful business models applied in the GCC and Malaysia (Chapter 2), and relevant background knowledge of the political, economic, regulatory, and institutional frameworks in the GCC and Malaysia up to the ending date 2016 of this research (Chapter 3).

(3) The breakdown of the outflows on the participants' fund (Chapter 4.4). The material on the major risks facing Takaful firms, together with the material on Takaful business models identifies the risk of deficit in the participants' fund as an existential threat to individual Takaful firms and to the Takaful industry as a whole.

(4) The strengths and limitations of the database constructed by the author.

(5) The direction of research is also informed by the author's professional experience in the Takaful and insurance sectors.

6.1.2 Discussion:

The existing empirical academic research on the determinants of solvency and profitability turned out to be of great value in choosing the definitions of the dependent variables, solvency and profitability, and in choosing the explanatory variables used in this study. The definitions used in this thesis, Solvency = Net Assets/Net Contributions and Profitability = ROA, and variations of these, are the most popular definitions used in the literature. The explanatory variables chosen by different authors do differ, but they tend to be chosen from a fairly standard list, and this, together with the limitations of the database, narrow the choice of explanatory variables selected for this study. A significant

role in choosing the explanatory variables was played by the results from the breakdown of outflows on the participants' fund and knowledge of the business models applied in the GCC and Malaysia. For example, the choice of the explanatory variables Commission Paid, Management Expenses, and Wakalah Fees were derived from this source.

Of less value in motivating, the hypotheses are the results of the empirical literature on the signs and significance of the coefficients of the explanatory variables. The results from the empirical literature are mixed, for a number of reasons discussed in Chapters 4.4 and 5.2. There are some exceptions. For example, Company Size has been consistently reported as a significant positive factor for Profitability, and which is confirmed by the results of the present study. However, in general the previous empirical literature does not lead to reliable predictions on the statistical significance of the results to be expected from the regressions, or even on whether the sign of the coefficients will be positive or negative. Economic arguments proved to be a more convincing way of motivating the expected signs and significance of the coefficients, as discussed in the hypothesis development sections, Chapters 4.5 and 5.3.

An important research issue is the question of what kind of regressions should be applied. It is accepted by many authors that the basic ordinary least squares regression is unlikely to lead to reliable results in the case of Takaful studies or studies on conventional insurers in emerging markets, where there are severe limitations on the data available. For this reason, random effects panel regressions, which address some of the weaknesses of OLS, are popular among researchers. A further advance can be made by applying the robust regression models used in this thesis. While the application of robust methods was initially hindered by the unfamiliarity of researchers with the new technique, and by the barriers imposed by the greater computational complexity and power involved, robust regression methods have now been incorporated into some of the standard commercial statistical software packages and promise to become a flexible and powerful tool in addressing research areas where the assumptions of the classical OLS regression are severely violated. The robust regression is the main tool applied in this thesis, and the OLS and panel data regressions are included only for comparison.

6.1.3 The Main Results:

Only the results of the robust regressions will be presented. The significance level is given in brackets, while ns stands for non-significance at the 20% level, and N/A means that the factor was not included in the regression.

TABLE 18- ROBUST REGRESSION SOLVENCY FOR THE GCC AND MALAYSIA.

Robust Regressions Solvency			
Explanatory Factors	Expected	GCC	Malaysia
Risk Retention Ratio	-	+ (0.1%)	- (10%)
Contribution Growth	-	- (1%)	- (5%)
Investment Income Ratio	+	- (ns)	+ (20%)
Takaful Leverage	-	+ (0.1%)	- (ns)
Wakalah Fees	-	- (0.1%)	- (0.1%)
Equity Market Return	+	+ (20%)	- (ns)
Interest Rate	+	- (ns)	+ (ns)
Commission Paid Ratio	-	n/a	- (5%)
Management Expenses Ratio	+	n/a	+ (0.1%)

For the Malaysian market, all of the Solvency determinants had the predicted signs except for Market Equity Return, for which the result was not significant. The Solvency results for the GCC are mixed. For the Solvency determinants only 3 out of the 7 factors have the predicted sign, Contribution, Wakalah Fees, and Equity Market Return, while Risk Retention, Investment Income, Leverage, and Interest Rate have the opposite sign to the one hypothesised.

TABLE 19- ROBUST REGRESSION PROFITABILITY FOR THE GCC AND MALAYSIA.

Robust Regressions Profitability			
Factors	Abbreviation	GCC	Malaysia
Company Age	+	- (ns)	+ (20%)
Risk Retention Ratio	-	- (ns)	- (ns)
Contribution Growth	-	- (ns)	- (1%)
Investment Income Ratio	+	+ (ns)	- (0.1%)
Company Size	+	+ (5%)	+ (1%)
GDP	+	- (20%)	- (ns)
Wakala Fees	-	n/a	- (ns)
Inflation	-	- (ns)	- (ns)

For the Malaysian market, all of the Profitability determinants, except for Investment Income and GDP, have the predicted signs. The results for Contribution and Company size are significant at the 1% level, and the result for Company Age is significant at the 20% level. The results for Wakalah Fees, Risk Retention, and GDP have the correct signs but are not statistically significant. For the robust regression results for Profitability for the GCC, five out of the 7 coefficients have the sign hypothesised. However, of these five, only Company Size is significant, at the 5%

6.1.4 Further Discussion of the Results:

While the results for the OLS and panel regression models, reported in Chapter 4 and 5, are not shown here, comparison with the robust regression results suggests that for research in Takaful, and other areas confronted by severe data limitations, results from OLS regressions are not necessarily expected to be meaningful, while robust methods outperform fixed effect and random effect regressions in terms of corroborating hypotheses derived from economic considerations and previous empirical research.

Furthermore, the comparison of the robust regression results for the GCC and Malaysia corroborate a meta-hypothesis derived from the fact that Malaysia is the global leader in Takaful regulation while Takaful regulation in the GCC is weak and fragmentary (Chapter 3). These regulatory differences suggest that the solvency and profitability of Malaysian Takaful firms are more likely to be explained by a relatively small and theoretically well-motivated set of risk factors than those in the GCC. This is corroborated by the robust regression results, where the GCC results are more mixed and hence more difficult to interpret in terms of the economic arguments from which the hypotheses are derived than the regression results for Malaysia.

6.2 Wider Implications:

6.2.1 The Sharia:

The fundamental obligation of a Takaful insurer is to conduct its business at all times in compliance with the Sharia law. Compliance with the Sharia must be embedded within the Takaful firm at all levels. This is in essence the only distinction between Takaful and conventional insurance. In the absence of compliance with the Sharia, there is no justification for the Takaful industry to exist at all (Chapter 2.5.1). The Takaful operator must have the Sharia embedded in all of its activities at all times. It should endeavour to

provide Sharia compliance training to its employees and ensure there is regular and constant contact and guidance from Sharia advisors and supervisors

6.2.2 Regulation:

With the exception of Bahrain, in the GCC the rights and obligations of the Takaful firm's participants, shareholders, managers, and other stakeholders under the Sharia law are not supported by the regulatory framework. Although recently there are initiatives in some GCC countries to issue Takaful specific regulation, there is a long way to go in terms of achieving a regulatory framework sufficient to ensure the high standards of transparency, disclosure, consumer protection, and corporate governance the Sharia demands. As discussed in Chapter 3, the Takaful industry, with the notable exception of Malaysia, still suffers from weak and fragmented regulation. This is particularly the case for the GCC, except for Bahrain. Moreover, the GCC regulation that currently exists does not deal specifically with Takaful. The development of an equitable, uniform, robust, and transparent regulatory regime will play a fundamental role in delivering the benefits of Takaful to the participants, the shareholders, and other stakeholders with legitimate interests in the Takaful industry. Developing appropriate Takaful regulation will enhance confidence in the Takaful industry and do much to enhance its future growth.

The regulators, particularly in the GCC, can do more to develop the primary and secondary markets for Sukuk. Presently, the number of high quality Sukuk issued in most jurisdictions is very limited. This prevents Islamic investment managers from meeting their asset and liability matching requirements. As result, they must seek other ways of achieving an appropriate balance of assets if they are to have similar investment performance to their conventional peers. Since bond holdings form a major proportion of insurance companies' asset holdings, the lack of availability of an adequate Islamic bond equivalent class has a major impact on Takaful investments. Therefore, Takaful firms have a challenging asset management task. The inability of Takaful investment managers to allocate funds to different asset classes in a comparable manner to conventional insurance fund managers has implications on investment returns and on the investment risk profile. To achieve comparable returns on investments as those of conventional insurers, Islamic investment managers must invest relatively more in riskier equity and alternative asset classes. This means that comparable returns for Takaful can be achieved only by accepting higher risk for the Sharia-compliant portfolio, and higher risk means a greater need for capital in order to absorb the higher level of volatility. Takaful firms will

continue to have an investment handicap until a viable, deep and liquid Islamic debt market is developed.

6.2.3 The Risk of Deficit in the Participants' Fund:

While the philosophical, religious, jurisprudential, and theoretical issues concerning the Sharia and regulation are not the subject of this research, these issues affect this research in the following ways. The risk of deficit in the participants' fund has already been identified as a potential existential threat to the Takaful sector (Chapter 2.4). In a situation where the participants' fund becomes insolvent and is unable to fulfil its obligations, questions regarding the situations under which a Qard Hasan loan should be made, its terms and conditions, and the associated rights and obligations of participants and shareholders need to be mandated by law and regulation. One of the aims of this study is to contribute to our understanding of the factors leading to deficits on the participants' fund and their impact on the solvency and profitability of the Takaful firm. From the breakdown of the participants' fund reported in Chapter 4.3, it is seen that gross claims paid, re-Takaful contribution ceded, and Wakalah fees are the main outflows of the participants' fund, accounting for 33.3%, 24.35%, and 8.44% of outflows, respectively, in the GCC, while gross claims paid, Wakalah fees, re-Takaful contribution ceded, management expenses, and commission paid are the dominant outflows in the Malaysian market, accounting for 38.4%, 16%, 12%, 10% and 7% of outflows, respectively. The results of lead, via the hypothesis development, to the explanatory variables Contribution Growth, Risk Retention, Wakalah Fees, Commission Paid, and Management Expenses, which were found to be significant in the regressions.

Takaful operators must manage the participants' fund with the view of securing liquidity needs, enabling efficient asset and liability matching, (ALM), and optimising risk-adjusted investment returns. (ALM) is the practice of managing risks that arise due to a mismatch between assets and obligations, and, in particular, the firm's risk of loss due to not being able to pay liabilities on time. In order for funds to be invested in a Sharia-compliant manner, the Islamic investment manager must carefully scrutinize the company's actual and proposed investment portfolio so that it does not invest in prohibited activities or financial instruments. Investment must not be taken made in interest-bearing bonds, some shares and certain classes of alternative assets. Return from investments provide an additional source of revenue for the participants' pool, so care must be taken to ensure

that the limited scope of assets available to Takaful operations does not compromise returns. If Takaful companies achieve lower returns than their conventional insurance peers, their competitive position in the market may be undermined and their ethical values may become more challenging to sustain

6.2.3 Implications for Risk Management:

While the regression results corroborate the hypotheses, particularly in the case of the Malaysian market, in terms of Step 6 of the deductive method, directly applying the results of research to practical decision-making (Chapter 1.4), it cannot be said that the research literature on Takaful is sufficiently developed to support such direct applications at the present time. However, the results of the research are of value in directing the attention of researchers, risk managers, and regulators to potential risks, which can at least be partially addressed at the present time, and on which further research contributions may shed further light.

Given the unique characteristics of the Takaful industry, Takaful companies must ensure that the risks underwritten comply with the principles of Islamic Sharia law. Its responsibility is to ensure that the assets that are the subject of the insurance meet the principles of the Sharia. Moreover, the Takaful operator is required to run its operations in an equitable and fair manner for all participants. It has to ensure that the contribution charged is reasonable, adequate, equitable and fair among participants. In this respect, underwriters play a pivotal role in ensuring that only appropriate risks are selected and that the rates charged are commensurate with the risk accepted. This mean that higher average risk should attract higher contribution charges.

6.2.3.1 Contribution Growth:

The results on Contribution Growth highlight the need for Takaful firms to effectively manage underwriting risk. Most of the underwriting contributions in the GCC are from motor and health insurance, which typically have a high proportion of claims. While the business of GCC Takaful firms is weighted towards general insurance, contribution growth in Malaysian Takaful companies has been derived mainly from family Takaful products. Diversification of product lines for GCC firms would help in reducing claims risk and in achieving stable and sustainable growth in contributions, profitability, and financial stability.

6.2.3.2 Risk Retention Ratio:

The result of analysing the breakdown of the participants' fund, and the Risk Retention Ratio suggests the potential for Takaful firms to reduce insolvency risk and improve financial performance through re-Takaful. However, there are serious challenges facing the re-Takaful industry, as discussed in Chapter 2.5.3. In particular, the Takaful market is insufficiently developed to meet the demands of Takaful firms. Because of this some Sharia scholars have taken the view that it should be permissible for Takaful firms to reinsure through conventional reinsurance firms. However, in the view of many scholars this compromises the fundamental obligations of Takaful firms to comply with the Sharia law. These points reinforce those made concerning the pressing need for adequate regulation to support the growth of the Takaful and re-Takaful industries.

6.2.3.3 Wakalah Fees, Commission Paid and Management Expenses:

Wakalah Fees is a significant negative factor in explaining the solvency and profitability of Takaful firms. This supports the criticism of possibly excessive Wakalah fees raised by some authors, as discussed in Chapter 2.4. Regulatory reforms in the GCC mandating the disclosure of the levels of fees and charges in the accounts would enhance the fairness and transparency of the market. However, such regulation already exists in the Malaysian market where Wakalah fees already contribute twice as much to the outflows in the participant's fund than in the GCC. In the Malaysian market, because of the specifics of the business model Commission Paid and Management Expense are, respectively, significant negative and positive factors explaining solvency. For these factors, the research identifies potential risks and opportunities, but cannot be directly applied to provide the solutions.

6.2.4 Investment Income:

The results obtained do not show the expected significant positive relationship between Investment Income and Solvency or Investment Income and Profitability.

This may be due to the limited supply of Sharia compliant investment assets available, an issue addressed in Chapter 2.5.4. In conventional insurance fixed income securities across the range of maturities form a substantial part of the investment portfolio of conventional insurers, and play an essential role in asset and liability matching. Malaysia has the most developed Sukuk market, and Malaysian Takaful companies have been able

to develop their assets in a manner more closely approaching that of the typical conventional insurance industry manager. The Malaysian asset class allocation importantly contains the availability of short dated Islamic debt securities as well as longer term Sukuk, facilitated by the Malaysian government. These provide a more adequate replacement for Malaysian Takaful companies for bonds available to their conventional counterparts. The return on investment achieved in the GCC is generally low, and in contrast to Malaysia, the investment profile for Takaful companies in the GCC is not so similar to that of conventional insurers. Sukuk securities are heavily concentrated in Malaysia with only a small amount available in the GCC, the vast majority of which are domiciled in Saudi Arabia. Thus, Takaful investment managers in the GCC will continue to face greater challenges in managing their portfolios than their counterparts in Malaysia. Sukuk lacks the deep and liquid markets that exist for conventional fixed interest securities and this limited access to guaranteed returns hampers efficient portfolio management. However, sovereign Sukuk issuances in the other parts of the GCC are increasing and the gap between supply and demand is expected to narrow over time.

6.3 Research limitations and future research:

Most of the difficulties encountered in conducting this research are due to the current undeveloped state of the Takaful market. The main hindrance to the further development of the Takaful industry, and of Islamic finance generally, is the lack of an adequate legal and regulatory framework in the GCC. Current regulation does not support the GCC Takaful sector in fulfilling its obligations under the Sharia, and in particular, in respect of managing the risk of deficit in the participants' fund, a significant driver of the solvency and profitability of Takaful firms. Thus, the key recommendation of this research, and one that has been made by a great many researchers in the field of Islamic finance, is that the regulatory deficit be addressed as a matter of urgency.

Particular difficulties faced by the researcher are the severe lack of empirical data, and the fact that conclusive empirical results are hard to discern in markets where regulation is poor, and where any sensible and well-motivated set of risk factors is unlikely to explain very much of the variation in the key dependent variables.

These difficulties will recede over time as the market develops. The quantity and quality of cross-sectional and time-series data will expand naturally over time. Replicating,

refining, and extending the tests of this and previous studies will contribute further to our understanding of the Takaful market. The results of the research suggest other explanatory variables that can be added to the regression models. These include other accounting ratios derived from the breakdown of the participants' fund, including excess of loss, reserves, and unearned contribution ratios.

In the meantime, these research difficulties can be partially addressed by firstly, researchers continuing to undertake the onerous task of collecting the required empirical data themselves. Secondly, the power of regression tests can be enhanced by the use of robust methods, which are now available through many commercially available statistical packages.

While the building of a strong regulatory framework takes considerable time, governments can play an important role in the shorter term and at relatively little cost by making available to researchers the data that already exists. Governments wish to encourage investment into their economies, and investors are prepared to invest in risky investments provided they have the information required to identify and evaluate these risks. Researchers around the world will respond to the public availability of organised economic and financial data by providing the research on which these investment decisions can be made.

The author hopes that the research presented in this thesis too will contribute to further our understanding of the Takaful market in Malaysia and the countries of the GCC.

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