



UNIVERSITI PUTRA MALAYSIA

***MARKET STRUCTURE, COMPETITIVE CONDITION, AND
PERFORMANCE OF THE GLOBAL TAKAFUL MARKET***

CHEONG SUE SIM

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**MARKET STRUCTURE, COMPETITIVE CONDITION, AND
PERFORMANCE OF THE GLOBAL TAKAFUL MARKET**

By

CHEONG SUE SIM

**Thesis Submitted to the Putra Business School, in Fulfilment of the
Requirement for the Degree of Doctor of Philosophy**

December 2019

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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December 2019

Chairman : Associate Professor Dr. Ahmad Fahmi bin Sheikh Hassan, PhD
Faculty : School of Business and Economics, UPM

Although the global coverage of the Takaful market has grown substantially since its introduction, there are various aspects of the Takaful market that have not been adequately explored. Studies have previously investigated the organisation structure that influences financial performance, but the market structure and competition on financial performance remain unclear in the Takaful market. Recently, the trend of consolidation and reforms in the global financial service industry has propelled the need to establish a sound and efficient financial system in the insurance industry. Consequently, many of these changes potentially yield significant implications on the involvement and competition, as well as the economic and financial performance of the Takaful market. Therefore, this study is specifically aimed to first, examine the market structure and competitive condition in the Takaful market. In particular, 153 Takaful operators from 14 countries based on availability sampling were included in the analysis. This study assessed the dynamics of the global Takaful market competition from 2008 to 2016 using the Herfindahl-Hirschman Index (HHI) and four-firm concentration ratio (CR₄). Furthermore, this study was deemed as the pioneer to examine the competitive condition of the Takaful market using the latest competition indicator, namely the PCS indicator. Overall, the Takaful market was revealed to demonstrate a shift from a highly concentrated market to a moderately concentrated market with a volatile trend of competition. Second, to examine the impact of market structure and competitive condition on the profitability of the Takaful market. The competing and opposing hypotheses that comprised the structure-conduct-performance (SCP) theory, efficient structure (ES) hypothesis, and the theory of relative market power (RMP) were included for analysis, irrespective of whether the profitability of insurers is caused by efficiency due to competition, market structure or individual market power. Using the two-step system Generalized Method of Moments (GMM) estimator, the study obtained empirical evidence that supported the SCP hypothesis. Based on the robust findings, foreign

ownership appeared to be the key determinant for the profitability of Takaful operators.

With respect to the relationship between the competitive condition and financial stability of the Takaful market, both competition-stability and competition-fragility hypotheses were also tested given their theoretical ambiguity in literature. The obtained results appeared consistent with the competition-stability paradigm and the transmission mechanism hypothesis. Although higher competition in the Takaful market is unable to assist Takaful operators to generate higher profit, it can enhance its market stability. Furthermore, there may be performance differences among Takaful operators according to MENA and non-MENA regions, the types of Takaful business, and ownership structure. Empirical results indicated that a higher market share was found to yield higher profitability for composite and family Takaful operators; thus, supporting the theory of RMP. Meanwhile, the ES hypothesis was only applicable to general Takaful operators. On the other hand, domestic-owned Takaful operators appeared to enjoy higher profitability than foreign-owned Takaful operators; thus, supporting the home field advantage hypothesis. However, there was no evidence that foreign ownership has any significant impact on the stability of Takaful operators. Apart from contributing to the literature, this study obtained essential insights that enhance the understanding of the circumstances of the Takaful market. Given that stability of the Takaful market can be important for policymakers in attempting to accelerate Takaful growth, the results of comparative studies provided significant policy implications for designing and implementing regulations to enhance market efficiency and to safeguard the interests of policyholders, apart from promoting the expansion and stability of the Takaful market.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**HUBUNGAN ANTARA STRUKTUR PASARAN, KEADAAN
PERSAINGAN, DAN PRESTASI PASARAN TAKAFUL GLOBAL**

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Sungguhpun liputan pasaran Takaful global telah berkembang pesat sejak pengenalannya, terdapat pelbagai aspek pasaran Takaful yang masih belum dipelopori. Kajian sebelum ini telah menyiasat struktur organisasi yang mempengaruhi prestasi kewangan, tetapi struktur pasaran dan persaingan dari segi prestasi kewangan masih tidak jelas dalam pasaran Takaful. Baru-baru ini, trend konsolidasi dan reformasi industry perkhidmatan kewangan global telah memacu keperluan untuk membina sebuah sistem yang stabil dan cekap dalam industri insurans. Hasilnya, kebanyakan perubahan ini akan membawa implikasi yang signifikan ke atas keterlibatan dan saingan dan juga prestasi ekonomi dan kewangan pasaran Takaful. Oleh itu, kajian ini disasarkan khas untuk: Pertama sekali, meneliti struktur pasaran dan keadaan persaingan dalam pasaran Takaful. Secara khususnya, 153 operator Takaful dari 14 negara mengikut persampelan ketersediaan termasuk dalam analisis ini. Dalam pada itu, kajian ini juga menilai dinamik persaingan pasaran Takaful global dari tahun 2008 ke 2016 dengan menggunakan Indeks Herfindahl-Hirschman (HHI) dan nisbah konsentrasi empat firma (CR4). Tambahan juga, kajian ini dianggap sebagai peneraju untuk mempelajari keadaan persaingan pasaran Takaful dengan menggunakan indikator pasaran, contohnya indikator PCS. Secara keseluruhannya, pasaran Takaful terbukti menunjukkan peralihan daripada pasaran yang amat tepu ke pasaran yang sederhana tepu dengan trend persaingan yang sengit. Kedua, meneliti kesan struktur pasaran dan keadaan persaingan ke atas kebolehtungan pasaran Takaful. Hipotesis bercanggah yang terdiri daripada teori struktur-tindakan-prestasi (SCP), hipotesis struktur cekap (ES), dan teori kuasa pasaran relatif (RMP) dimasukkan untuk analisis ini, untuk mengira sama ada kebolehtungan pemberi insurans adalah disebabkan oleh keberkesanan yang disebabkan oleh persaingan, struktur pasaran atau kuasa pasaran individu. Dengan menggunakan sistem dua langkah penganggar Kaedah Detik Umum (GMM), kajian ini memperoleh bukti empirik yang menyokong hipotesis SCP. Berdasarkan

keputusan yang mantap ini, pemilikan asing nampaknya merupakan penentu kunci bagi kebolehuntangan operator Takaful.

Berkenaan dengan hubungan di antara keadaan persaingan dan kestabilan kewangan pasaran Takaful, kedua-dua hipotesis kestabilan persaingan dan kerapuhan persaingan juga diuji atas sebab ketidapastian teorinya dalam kesusasteraan. Keputusan yang diperoleh juga nampak konsisten dengan paradigma pertandingan-kestabilan dan hipotesis mekanisma siaran. Walaupun persaingan yang lebih tinggi dalam pasaran Takaful tidak dapat membantu operator Takaful menjana keuntungan yang lebih tinggi, ia mampu meningkatkan kestabilan pasarnya. Tambahan juga, prestasi operator Takaful mungkin berbeza mengikut kawasan-kawasan MENA dan bukan MENA, jenis-jenis perniagaan Takaful, dan struktur pemilikan. Hasil empirikal menunjukkan bahagian pasaran yang lebih tinggi didapati mampu membawa kebolehuntangan yang lebih tinggi untuk operator Takaful komposit dan keluarga; dan seterusnya menyokong teori RMP. Sementara itu, hipotesis ES hanya boleh diguna pakai untuk operator Takaful am. Sebaliknya, operator Takaful tempatan nampaknya menikmati kebolehuntangan yang lebih tinggi daripada operator Takaful milikan asing, yang seterusnya menyokong hipotesis kelebihan pasaran tempatan. Walau bagaimanapun, tiada bukti untuk menunjukkan bahawa milikan asing mempunyai sebarang kesan terhadap kestabilan operator Takaful. Selain menyumbang kepada kesusasteraan, kajian ini memperoleh gambaran keseluruhan penting yang meningkatkan pemahaman keadaan pasaran Takaful. Memandangkan kestabilan pasaran Takaful mungkin penting bagi penggubal dasar dalam mempercepatkan perkembangan pasaran Takaful, keputusan kajian perbandingan memberi implikasi dasar yang signifikan untuk mereka dan melaksanakan peraturan untuk meningkatkan keberkesanan dan untuk memelihara kepentingan pihak-pihak yang berkepentingan, selain menggalakkan perluasan dan kestabilan pasaran Takaful.

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LIST OF ABBREVIATIONS

AC	Average costs
AIG	American International Group
ASEAN	Association of Southeast Asian Nations
B-L	Bresnahan and Lau
CAGR	Compound annual growth rate
CR	Concentration ratio
DEA	Data envelopment analysis
ES	Efficient structure
ESS	Scale economies
ESX	X-efficiency
FE	Fixed effect
GCC	Gulf Cooperation Council
GDP	Gross domestic profit
GLS	Generalised least squares
GMM	Generalised methods of moments
GWP	Gross written premium
HHI	Herfindahl–Hirschman Index
H-stat	H-statistic
Ln	Natural logarithm
MC	Marginal costs
MENA	Middle East and North Africa
MR	Marginal revenue
OLS	Ordinary least square
NIM	Net interest margin
NIR	Non-interest returns
NPL	Non-performing loan
PCM	Profit cost margin
PCS	Performance-conduct-structure
P-R	Panzar-Rosse

PM	Profit margin
RE	Random effect
RMP	Relative market power
ROA	Return on assets
ROE	Return on equity
ROC	Return on capital
SCP	Structure-conduct-performance
SLS	Stage least squares
SEM	Structural equation model
TA	Total assets
TR	Total revenue



CHAPTER 1

INTRODUCTION

1.1 Research Background

Takaful is an Islamic insurance market that has experienced healthy growth since its inception during the 1970s. The continuous growth of the Takaful market has established its leading role as an important part of the Islamic financial system (IFS) in countries such as Iran, Sudan, Malaysia, Indonesia, and Gulf Cooperation Council (GCC) region. The current study exclusively focused on four core issues of the Takaful market, namely market structure, competitive condition, profitability, and financial stability.

Firstly, this study focused on the Takaful market structure and its competition. The intensified globalisation and liberalisation spur competition, which greatly matters to the Takaful market for numerous reasons. Competition plays a significant role in driving the economic growth and the overall industrial and the nation's development (see Hassan, Sanchez, & Yu, 2011; Greenwood, Sanchez, & Wang, 2012; Zhang, Wang, & Wang, 2012). Besides that, there is an influential relationship between competition and innovation in most industries, which affects the efficiency of the production of services, the quality of products and sustainability of the financial system, and the welfare of society (see Allen & Gale, 2004; Claessens & Laeven, 2005; Demirgüç-Kunt & Huizinga, 2010; Fu, Lin, & Molyneux, 2014). Although competition benefits the financial service industry, in the Global Takaful Insight report, Ernst and Young (2013) reported intense competition as the top business risk ranking of 2013 in the global Takaful market. Furthermore, there is also the recent trend of consolidation and reform in the global financial service industry for a sound and efficient financial system (see Choi & Weiss, 2005). Consequently, most of these changes potentially contribute significant impact on the market structure (concentration) and competition as well as the economic and financial performance (profitability and stability) of the financial service industry, including the Takaful market. Hence, the trend of the global Takaful market and its competitive condition were deemed noteworthy to explore.

Secondly, this study also focused on the impact of market structure and competition on the profitability of Takaful operators. The translation of the remarkable development of the Takaful market into profitability is not for certain. Referring to the Global Takaful Insight report, Ernst and Young (2013) also noted that the intense competition in the Takaful market led to its profit margin compression. Some of the reported causes included price competition (instead of product differentiation), low Takaful penetration rate, and increased number of new Takaful players. Furthermore, the number of studies that explored the relationship between concentration and profitability in the insurance industry was rather limited and these prior studies were mostly conducted in the developed countries, particularly in the US market (see Chidambaran, Pugel, & Saunders, 1997; Bajtelsmit & Bouzouita, 1998; Choi &

Weiss, 2005). Moreover, the reported findings of these prior studies were inconsistent. For instance, Bain (1964) developed the classic structure-conduct-performance (SCP) theory. The theory highlights that a low competition level due to the low number of players in a similar industry tends to reflect higher profitability. However, Carroll (1993) found insufficient evidence to support the SCP theory whereas Chidambaran, Pugel, and Saunders (1997), Bajtelsmit and Bouzouit (1998), and Pope and Ma (2008) found a positive relationship between concentration and profitability, which was in favour of the SCP theory. Meanwhile, Choi and Weiss (2005) found evidence that supported opposing stand of literature, ES hypothesis, which provided an alternative explanation for the concentration-profitability nexus based on the notion that efficiency is the driving force for profit. Considering the lack of consensus on the concentration-profitability nexus, this study enhanced the existing literature of this unique insurance market by assessing the impact of Takaful market structure and its competition.

Thirdly, this study also focused on the relationship between competition and financial stability in the Takaful market. Prior studies on the competition-stability nexus mostly focused on the banking industry and were conducted in the developed countries (Martin, 2012; Beck, Jonghe, & Schepens, 2013; Fu et al., 2014; Kouki & Al-Nasser, 2017; Clark, Radić, & Sharipova, 2018; Goetz, 2018) due to its significant impact on the economy. The prior findings on the relationship between competition and stability in the insurance industry were ambiguous with no direct assessment of stability in the Takaful market, as only two studies focused on the insurance industry and yielded inconclusive results. In particular, Cummins, Rubio-Misas, and Vencappa (2017) focused on the European life insurance market and emphasised the notion that competition promotes stability whereas Shim (2017) focused on the property and liability market in the insurance industry and found that concentration was correlated to instability instead. In this case, the current study aimed to assess the function of competition or competitive condition in affecting the financial stability amongst Takaful operators, especially in the case where there was no literature on the Takaful market within the mentioned context.

In view of the above, this study explored the four core issues of the Takaful market, namely market structure, competitive condition, profitability, and financial stability. In this chapter, the background of study and problem statement are presented, followed by the objectives of study and the corresponding research questions. Besides that, the scope and significance of the study are also described in detail. Lastly, the thesis organisation is presented at the end of this chapter.

1.1.1 Overview of Takaful Market

The Islamic financial assets accounted for only a small fraction of the global financial market (less than 1% of the global financial assets), which amounted to USD 0.8 trillion in 2007. Despite that, the penetration of Islamic finance and insurance into the global market is evident, particularly after the global economic crisis in 2008. Furthermore, in these recent years, the double-digit growth rate of Islamic financial

assets worldwide has outperformed the growth rate of conventional financial assets. In fact, as shown in Figure 1.1, Islamic financial assets amounted to USD 1.8 trillion by the end of 2013 and increased up to USD 2.3 trillion by the end of 2016. It was projected to increase to USD 3.8 trillion by the end of 2023¹. Besides that, Islamic banking and finance has spread across more than 75 countries beyond the Islamic regions, such as Europe and North America (Ayub, 2007). In line with the expansion of Islamic finance as one of the fastest growing sectors today, Takaful (Islamic insurance) has emerged as an inseparable part of the global financial market.

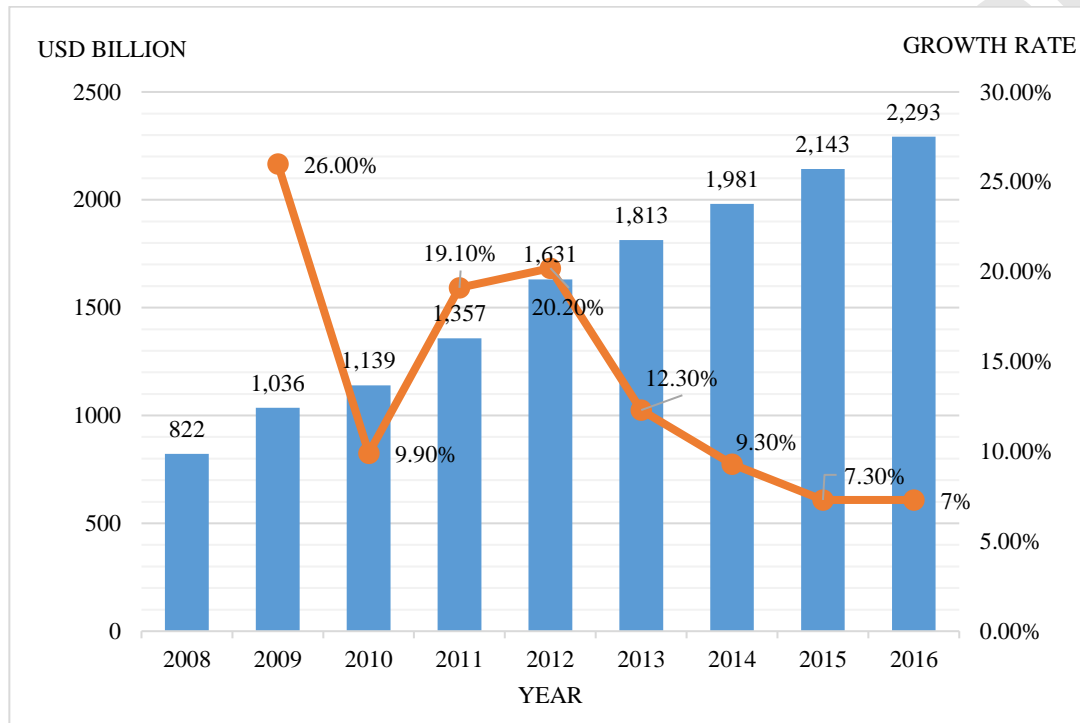


Figure 1.1 : Size and growth of Islamic financial assets, 2008-2016
Source: Global Islamic Finance Report (2017)

The concept of Shariah-compliance establishes the underlying basis of Takaful, which mainly serves to offer family Takaful and general Takaful under the Islamic laws to Muslims and Islamic companies. Since the 1970s, the population of Muslims has continued to grow rapidly, particularly in Islamic countries. In order to highlight the achievement of this unique market, as presented in Figure 1.2, the global Takaful contribution recorded USD 15.23 billion in 2011 and USD 26.1 billion in 2017. For the next five years, the compound annual growth rate (CAGR) was estimated to increase by 13%, exceeding USD 40 billion by 2023 (Research And Markets, 2018). According to numerous reports, the introduction of Takaful has boosted the Islamic global economy as well (Kwon, 2007).

¹ Ernst & Young (2014); PricewaterhouseCoopers (2013); Thomson Reuters (2018)

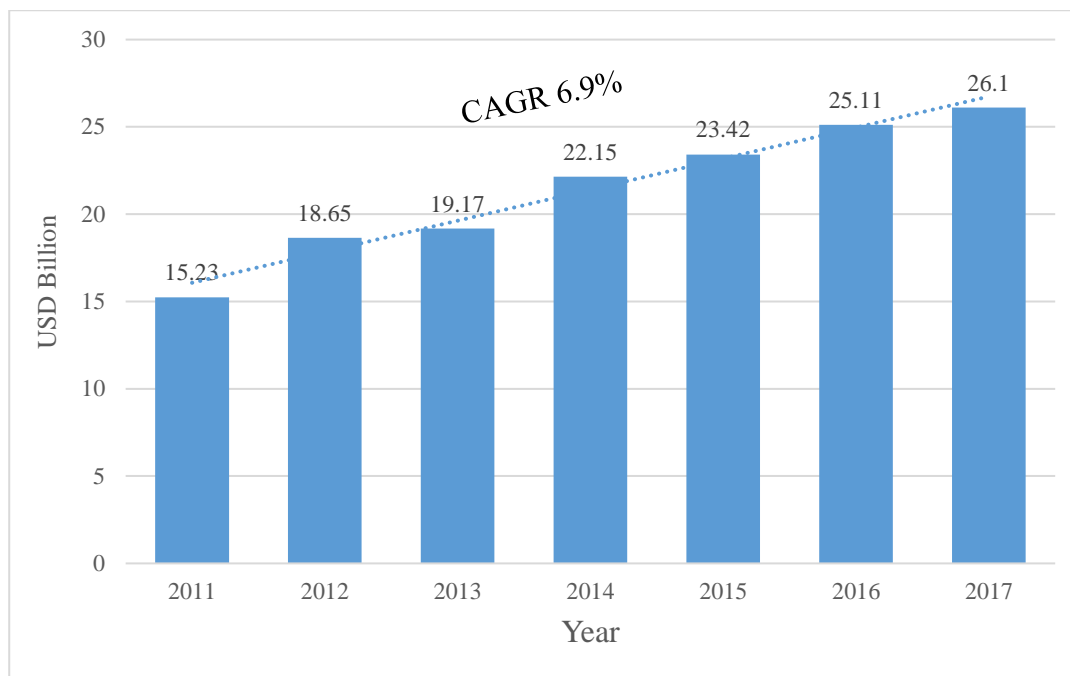


Figure 1.2 : Global Takaful contribution, 2011-2017

Source: Islamic Financial Services Board (2019)

The largest Takaful market is in Saudi Arabia, which covers half of the global Takaful market share, while Malaysia is the top Takaful performer in the Southeast Asian region. Unlike the conventional insurance market, the Takaful market in Malaysia has demonstrated a better growth rate, with the growth rate of 9.7% in the family Takaful (compared to the growth rate of -0.4% in the conventional life) and the growth rate of 8.3% in the general Takaful (compared to the growth rate of 6.6% in the general insurance) at the end of June 2015. Referring to Figure 1.3, in 2016 alone, 113 out of 339 existing Takaful operators were Takaful windows². The growth and development of the Takaful market are deemed plausible as a consequence of the profound impact of the global financial crisis on the economy of numerous countries, which subsequently promotes the Islamic financial service industry as an alternative to address the struggle of the conventional financial service industry (see Askari et al., 2012).

Accordingly, the increase of Takaful demand may be driven by the growing awareness of Islamic banking and finance as well as the growth of the Muslim population³. Moreover, the modus operandi of Takaful that allows the policyholders to receive underwriting profit-sharing and shareholders to receive dividends has attracted, not just Muslims, but also the non-Muslims (Adeyemi, Hamid, & Dauda, 2015). With the average annual growth rate of the global Muslim population (1.5%), the growth rate of non-Muslims (0.7%) has also doubled. An increase of 35% in the global Muslim population, from the 1.6 billion (23.4% of the global population [6.9

² see Thomson Reuters (2017)

³ see Global Islamic Finance Report (2017)

billion] in 2010) to 2.2 billion (26.4% of the projected global population [8.3 billion] in 2030)⁴, was predicted. However, the Takaful penetration⁵ level in countries with a large population of Muslims remains low (less than 2%), which suggests the lack of access to Takaful protection (Rahman, Yusof, & Bakar, 2008; Yazid, Arifin, Hussin, & Daud, 2012).

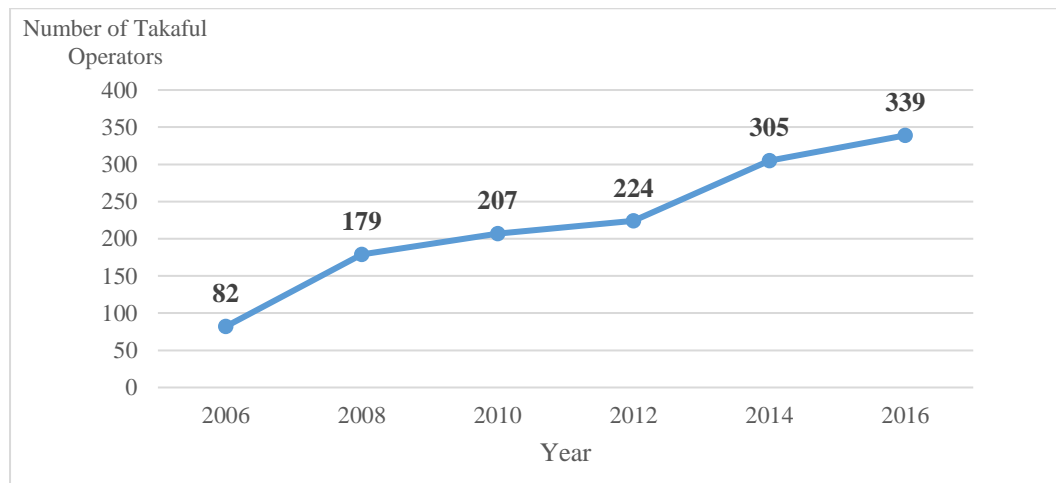


Figure 1.3 : Number of Takaful operators (Including Takaful Windows)

Sources: Finance Forward (2016); Global Islamic Finance Report (2016); Thomson Reuters (2017)

In view of the above, an increase in the global demand for Islamic financial services, including Takaful, in the next few decades is expected. Although the Takaful demand in ASEAN and GCC have increased rapidly and the internalisation of the Takaful business has become increasingly prevalent, this area of study has remained underexplored. Evidently, it is imperative for scholars and practitioners to explore the Islamic financial service industry.

According to Alpen Capital Takaful Report (2012), as cited in Adeyemi et al. (2015), the financial liberalisation policy has stimulated continuous development in the Takaful market through intensified competition and increased participation. The impressive growth of the Takaful market has attracted new Takaful operators. However, the translation of such remarkable growth of the Takaful market into profitability is not for certain. Intensified competition is believed to be the key factor to drive significant pressure on the profitability of Takaful operators—young Takaful operators rely on aggressive pricing strategy to compete against other players in the similar market, rather than product innovation and customer segmentation, where such pricing strategy can be unsustainable (Ernst & Young, 2012, 2013). As shown in Table 1.1, the introduction of higher solvency and capital requirements across several authorities in the face of increased competition are expected to yield highly

⁴ see Pew Research Center (2011)

⁵ Takaful penetration refers to the gross Takaful premiums as a percentage of GDP

capitalised companies, but this would affect the short-term profitability of Takaful operators.

Table 1.1 : Solvency regulation for Takaful business

Country	Authorities		Date of Issue	Solvency Regulation
Malaysia	Islamic Financial Services Board (IFSB) and International Association of Insurance Supervisors (IAIS)	Standard on Solvency Requirements for Takaful (Islamic Insurance) Undertakings	October 2007, October 2008, December 2010	<ul style="list-style-type: none"> ➤ The standard sets out important key principles for the structure of solvency requirements for a Takaful undertaking. ➤ Provides guidance on the structure of capital requirements, enterprise risk management for solvency, and capital adequacy purpose as well as the internal models for insurers' risk and capital management
Malaysia	Central Bank of Malaysia	Risk-Based Capital Framework for Takaful Operators	30 October 2012	<ul style="list-style-type: none"> ➤ The minimum paid-up requirement was increased to RM 100 million.
Indonesia	Financial Services Authority (Otoritas Jasa Keuangan)	Undang-Undang No. 40 (POJK No. 23)	29 December 2016	<ul style="list-style-type: none"> ➤ Minimum paid-up capital of IDR 100 billion ➤ Obligatory fund, 20% of the minimum paid-up capital
UAE	Insurance Authority UAE	Section 2 of Financial Regulations for Takaful Insurance Companies	December 2014	<ul style="list-style-type: none"> ➤ Minimum paid-up capital of AED 100 million ➤ Minimum guarantee fund (> 1/3 of the solvency capital requirement) ➤ Fulfil the solvency capital requirement
Bahrain	Central Bank of Bahrain (CBB)	Rulebook Volume 3	2011	<ul style="list-style-type: none"> ➤ BD 5 million for Tier 1 capital
Sri Lanka	Insurance Board of Sri Lanka (IBSL)		2016	<ul style="list-style-type: none"> ➤ The minimum capital requirement is LKR 500 million for each insurance business class.
Saudi Arabia	Saudi Arabian Monetary Agency (SAMA)		In process	<ul style="list-style-type: none"> ➤ The minimum paid-up capital was increased to 500 million riyals from 100 million riyals.

1.1.2 The Interrelationship between Market Structure, Competitive Condition, and Performance (Profitability and Stability)

Prior studies on Islamic finance mainly focused on Islamic banking issues that were related to its concept, regulatory, and framework (see Abdeen & Shook, 1985; Wahab, Lewis, & Hassan, 2007; Khan, 2010) as well as the growth, issues, and challenges of the industry (A. S. Ahmad, 2006; Ayinde, 2015; Hussain, 2015; M. H. Ibrahim, 2015; Moghaizel, 1990; Muslehuddin, 1966). Although there were enriched literature on the comparative analysis between Islamic finance and conventional finance in various aspects, the obtained empirical evidence was mainly limited to the debatable differences between Islamic finance and conventional finance (see Safiullah, 2010; Beck, Demirgüç-Kunt, et al., 2013; Baele et al., 2014; Janjua & Akmal, 2014; Mollah & Zaman, 2015). There has been a shift in the focus of recent studies by exploring the relationship between the organisational structure and performance in the Islamic financial service industry for a specific country or multiple countries (Kader, Adams, Hardwick, & Kwon, 2014; Mollah & Zaman, 2015). Besides that, the relationship between the market structure and competition and the impact of this exclusive relationship on the organisational performance across diverse sectors of the financial service industry were explored, including insurance (Bello, Sepiriti, & Letete, 2009; Choi & Weiss, 2005; Pope & Ma, 2008) and banking industries (see Lloyd-Williams, Molyneux, & Thornton, 1994; Al-Muharrami, Matthews, & Khabari, 2006; Samad, 2008; Chortareas, Garza-Garcia, & Girardone, 2011; Azzam & Rettab, 2013; Kasman & Kasman, 2015). However, to date, a formal study on the relationship between the market structure and organisational performance in the Islamic financial service industry, especially the Takaful market, was not conducted. Through the present study, a better understanding of the new form of the financial service industry, particularly after restructuring and reform exercise, was expected. Thus, the Takaful market should not be omitted from the investigation despite its changing market structure over the past decade.

There are two competing and contrasting hypotheses that reflect the relationship between the market structure and organisational performance. Based on the industrial organisation economics model, the structure-conduct-performance (SCP) and efficient structure (ES) hypotheses were established to address the question of whether the competition or market power results in efficiency that reflects the profitability of the insurers. The conventional cum popular market power approach using the SCP paradigm proposes that the market structure directly influences the economic behaviour of the companies. In that case, the companies generate supernormal profits by lowering the competition through fostering collusion among large companies in the market. Besides that, there is another market power approach via the theory of relative market power (RMP), where companies with sizeable market share and well-differentiated products, without collusion, are hypothesised to have the market power to determine prices, resulting in extra profits for the companies. On the other hand, the ES hypothesis interprets the relationship between the market structure and organisational performance as efficiency. This concept suggests that highly efficient companies have lower cost structure, which contributes to higher profit. Therefore, the causality is reversed from the concept of SCP, where

efficient companies are able to boost their market share by charging lower price than what their competitors offer, while they preserve profitability, resulting in higher concentration (Chortareas et al., 2011). The inconsistent findings from prior studies (see Gilbert, 1984; Smirlock, 1985; Evanoff & Fortier, 1988; Lloyd-Williams et al., 1994; Molyneux et al., 1994; Berger, 1995; Maudos, 1998; Choi & Weiss, 2005) as well as the unclear link with the Takaful market call for more studies.

After all, a competitive, robust Takaful market has steadily gained growing public interest. A healthy financial status is vital for the Takaful market to have a strong position to further expand in the future. Referring to Table 1.2, the increased number of failure cases of insurers, especially the near-collapse of AIG, which was long regarded as the world's largest insurance group, during the global finance crisis has triggered concern on the stability of the insurance industry, including the Takaful market despite its low failure rate (see Muye & Hassan, 2016). Hence, this aspect was deemed noteworthy to explore, especially in identifying the factors that lead to higher insolvency risk—the obtained findings can help to secure both health and stability of other segments of the financial system that are linked to the Takaful market. Although higher solvency and capital requirements stimulate merger and consolidation, which help to remedy the crisis, these actions may have an impact on its competition and stability. Addressing that, examining the impact of competition on the stability of the insurance industry, including the Takaful market, is imperative.

Table 1.2 : Failure of insurers

Country	Insurer	Year	Incidents
United States	American International Group (AIG)	2008	Suffered a liquidity crisis with a loss of USD 99.2 billion and almost a near-failure due to the credit default swaps that were written for collateralised debt obligations and asset-backed securities ⁶
Japan	Yamato Life Insurance Company	2008	Reported failure in 2008 with USD 2.7 billion in liabilities due to the problematic investments in securitisation products ⁷
Malaysia	Tahan Insurance Malaysia Berhad	2009	Recorded a shortage of RM 29.2 million in solvency margin, against the requisite of RM 50 million, and at the same time reported a net loss of RM 301.8 million in 2008 ⁸
United States	Penn Treaty Network America Insurance Company	2017	The insurer filed for insolvency in March 2017 due to their premium charges that were insufficient to fund all projected future claims. Hence, the insurer could not renew those under-priced policies ⁹ .
Indonesia	Asuransi Takaful Umum (ATU)	2017	Initially targeted for liquidation due to the intense competition and failure to meet capital requirement See “Takaful Malaysia to sell its stake in Indonesian subsidiary” (2017)
United Kingdom	Alpha Insurance A/S	2018	Liquidation due to the failure of its largest reinsurers, CBL Insurance Ltd
Denmark	Qudos Insurance A/S	2018	The insurer was placed into liquidation on 20 December 2018 due to high business risk.

Besides that, the impact of financial crisis on the Islamic finance appears to be less apparent, which reflects the stability of the Islamic finance industry, as compared to the conventional finance industry (Derbel et al., 2011). With that, the Takaful market is believed to be more stable and acts as an alternative that complements conventional insurance. Nevertheless, Islamic finance, including the Takaful market, encounters greater challenge, particularly in solvency and capital requirement compliance. In particular, the Takaful operators experience higher risks, as compared to the conventional insurance, as they are restricted to only invest in fixed income securities and threatened by high allocation of real estate and equities (Karim, 2010).

⁶ See United States (2011)

⁷ See Agencies (2008)

⁸ See Bank Negara Malaysia (2009)

⁹ See “Insurance commissioner announces court approval of liquidation of Penn Treaty and American Network Insurance companies; assures policyholders claims will be paid by State Guaranty Funds pursuant to State Law” (2017)

Nevertheless, Muye and Hassan (2016) suggested a significant and positive relationship between Takaful activity and economic growth. Focusing on the importance of market stability for market growth, the empirical verification of the stability and solvency area has remained sparse for the Takaful market. Adeyemi et al. (2015) suggested that solvency ratio has moderating impact on the efficiency between foreign-owned and domestic-owned Takaful operators. In order to assess the relationship between competition and performance in terms of insolvency, there are two competing and contrasting hypotheses involved, namely the competition-fragility and competition-stability hypotheses. The competition-fragility hypothesis, which describes how the market power goes hand-in-hand with lower competition and higher stability, is more conventional, while the competition-stability hypothesis suggests that competition enhances financial stability because competition encourages efficiency and pushes the more fragile companies out of the market. Majority of the previous studies focused on the banking industry and revealed inconclusive findings (see Allen & Gale, 2004; Berger et al., 2009; Beck, Jonghe, et al., 2013; Fu et al., 2014; Schaeck & Cihak, 2014; Kasman & Kasman, 2015; Akins et al., 2016). Despite the vital role of the insurance industry in supporting the financial market, studies that explored the insurance industry, particularly the Takaful market, remain scarce, which propelled the current study to explore.

1.2 Problem Statement

Despite the infancy of Takaful market, the competition in the Takaful market continuously increases, which reduces its profitability and consequently, affects its stability. These challenges have grown in importance in light of the increasing number of insolvency cases in the Takaful market. For instance, the first domestic family Takaful operator in Indonesia, specifically the Asuransi Syariah Mubarakah, was declared bankrupt in 2016, while the top general Takaful operator in Indonesia, specifically the Asuransi Takaful Umum (ATU), was targeted for liquidation in the early of 2017.

The low-profit margin is a major problem that affects the Takaful operators. Apart from competing with the conventional insurers who have the advantage of economies of scale, the Takaful operators also have to compete with other Takaful operators. For example, the Takaful operators in GCC experience significant pressure to attain profitability due to the intense competition. This condition creates significant underwriting losses, which further trigger problems of perpetual *qard*¹⁰ in MENA region and burning up capital. The over-reliance on *qard* does not offer adequate motivation for the operators to manage their businesses in the best interest of shareholders and policyholders. Such unfavourable circumstance reduces the confidence for imminent recovery¹¹ As a result, profitability remains as an important attribute of business expansion and survival for a Takaful operator. Considering the

¹⁰ Qard hassan is an interest-free loan provided by shareholders if there is a deficit. Perpetual qard arises when the policyholder fund remains in deficit for a long period of time without any qard impairment or remedial action planned to reduce the qard.

¹¹ “Global : Takaful operators need to break dependence on Qard,” (2018); Milliman (2017).

vital role of insurance industry in supporting the economic activity (French, Vital, & Minot, 2015) and the significance of developing the Takaful market to promote economic growth (see Muye & Hassan, 2016), the low-profit margin may not be economical for the companies to sustain their business. Therefore, its failure may disrupt its provision of essential services for the real economy and proliferate the systemic risk in the financial system, which negatively affects its financial stability (Das, Davies, & Podpiera, 2003). Hence, this aspect calls for concern.

Furthermore, prior studies that focused on the Islamic finance performance (see Kader et al., 2014; Mollah & Zaman, 2015; Hodori & Masih, 2017) assessed the relationship between the organisational structure and profitability. However, these studies did not address the relationship between market structure and profitability. Although competition promotes better market performance, the high number of players in a similar industry (low market concentration) may spur price competition, resulting in low profit margin. Most past studies paid less attention on the extent of influence of the market structure on profitability in the insurance industry, including Takaful market; furthermore, at the same time, there are financial liberalisation, restructuring, and reform that strengthen the competitiveness of the financial service industry today. This led to the question of whether the Takaful market structure and its competition level serve as the key drivers of the profitability of the Takaful operators.

Meanwhile, market concentration was widely applied in prior studies to examine the market structure. As for the relationship between the market concentration and profitability, several studies (see Pope & Ma, 2008; Al-Muharrami & Matthews, 2009; Tan, 2016; Khan, Ahmad, & Chan, 2018) provided empirical evidence that supported the SCP hypothesis, where a positive and significant relationship between the market concentration and profitability was found. However, certain studies were in favour to the ES hypothesis based on their argument that efficiency is the key driver for higher profitability, instead of market concentration (see Choi & Weiss, 2005; Sharma, Gounder, & Xiang, 2013). As most of these studies focused on the banking industry, the findings on the insurance industry were limited. To date, no other study assessed the relationship between market concentration and profitability in the Takaful market.

Adding to the above, there is no consensus on whether competition leads to financial stability in the insurance industry. In fact, competition can be rather detrimental for the industry, as the increased level of competition in the insurance industry may drive premiums down, resulting in lower profitability with low buffer; consequently, the chance of insolvency would increase. For instance, Beck, Jonghe, and Schepens (2013) argued that higher market concentration is related to lower financial stability. On the other hand, the recent strand of literature provided evidence that competition fosters financial stability (Clark et al., 2018; Cummins, Rubio-Misas, & Vencappa, 2017; Fu et al., 2014). On the other hand, studies that examine simultaneously the impact of competition on profitability and stability are rare in the banking industry (see Goetz, 2018; Kouki & Al-Nasser, 2017) but none in insurance industry, including the Takaful market. Most of these studies demonstrated the propensity to

explore the banking industry because banks are the core providers of credit to the economy. Nevertheless, the contributions of the insurance industry to the financial service industry and economy are deemed equally significant. Apart from banks, the conventional insurance companies and Takaful operators exhibit an imperative stabilising effect on the market ("Insurance players urged to consolidate", 2018). Insurers play an important role in the stability of financial system because (1) they represent a large group of investors in the financial markets; (2) they work closely with banks and other financial intermediates, where insolvency of insurers would cause contagion effect to the banking sector; (3) they insure household and company balance sheet risk (European Central Bank, 2009). Hence, the failure of the insurance industry potentially affects other financial subsectors due to its business nature (French, Vital, & Minot, 2015). As past studies mainly focused on the banking market, only a few studies focused on the insurance market and none of the studies assessed such relationship in the Takaful market—which were addressed in the current study.

In addition, as mentioned in the previous paragraph, studies that examined the market structure-profitability nexus and competition-stability in the insurance industry were limited. Moreover, the reported results were inconclusive. Although both Takaful and conventional insurance offer protection for unexpected events, their principles, objectives, and operations are different. Besides that, the Takaful market may encounter greater challenges, particularly in terms of competitiveness, solvency, and capital requirement compliance. In particular, the Takaful operators experience higher risks, as compared to those of conventional insurance, as they are restricted to only invest in fixed income securities and threatened by high allocation of real estate and equities (Karim, 2010). Hence, the results from past studies on conventional insurance may not be suitable and directly applicable to the Takaful market. Hence, the examination of Takaful market in the current study is important. In addition, past studies also did not address the performance differences due to the differences in market development. There are very few studies on the MENA region and none of these studies focus on market structure, competitive condition, and stability of the Takaful market. It is important to note that although the insurance market in the MENA region is still in its nascent stage compared to the more developed countries due to low insurance density, penetration, undercapitalization and an underdeveloped legal and regulatory support system (Sherif & Hussnain, 2017). However, the most imperative growth in global Islamic financial assets and most developed Takaful markets have been recorded in the MENA region with over 20% growth rate per year over the past several years (Ernst & Young, 2013; Islamic Financial Services Board, 2015). In addition, the dominant religion in MENA is Islam. In view of the positive relationship between Takaful demand and Muslim population (Sherif & Hussnain, 2017) and Muslims are predicted to be the largest religion group after 2050 (Pew Research Center, 2015), it is rational to expand the analysis by grouping the sample study into MENA and non-MENA. Besides, past studies also did not address the performance differences due to the differences in Takaful business. The drivers for general Takaful can be significantly different from those for family Takaful, where combined analysis may be skewed and yield misleading results (Milliman, 2017). Thus, it is rational to expand the analysis by

grouping the sample to family Takaful operators, general Takaful operators, and composite Takaful operators¹².

As for the methodology aspect, the PCM and P-R model were widely applied in previous studies to measure competitive condition. Rosenthal (1980), Stiglitz (1989), and Bulow and Klemperer (2002) incorporated PCM in their studies and found that more intense competition leads to higher PCM, instead of lower margins. Besides that, the P-R model is only applicable to examine the overall competitive nature of the entire market, but not the market segment. Notably, a good measure of competition is vital to assess the impact of competition on the performance of Takaful companies. Therefore, unlike the PCM and P-R model, a relatively new and more robust measure of competition in the financial service industry, specifically the PCS indicator, was used in the current study. Hay and Liu (1997) and Boone (2008) developed the PCS indicator based on a robust theoretical basis, low data series requirement, and easy application, which allow the estimation of the development in competition over time (Jacob & Van, 2015).

The profitability and financial stability pertinent issues in the Takaful market discussed above warrant an in-depth assessment on the roles of the market structure and competition in influencing the performance of the Takaful market. Hence, the current study focused on the changes in the trend of Takaful market structure and its competition. Additionally, this study addressed an important gap by assessing the impact of the market structure and competition on the profitability of Takaful operators as well as the relationship between the competitive condition and financial stability of the Takaful market. Of importance, an in-depth assessment on the Takaful performance difference between the MENA and non-MENA regions, its types of business and ownership structure are important aspects to be given due consideration.

1.3 Research Objectives

As the trend of consolidation and reforms in the global financial service industry may impact on the financial performance of the Takaful market, this study generally aimed to examine the market structure and competitive condition as well as the impact of market structure and competition on the performance of the Takaful market from 2008 to 2016. The specific objectives of the study are presented as follows:

¹² Composite Takaful operators combines both family and general Takaful businesses.

General Takaful operators offer non-life protection on a short-term basis, with contract lasting one year or less. For, example, fire Takaful, motor Takaful and home Takaful.

Family Takaful operators offer a combination of protection associated with human life and long term savings, usually covering more than one year. For example, child education Takaful, medical and health Takaful.

- 1) To examine the market structure and competitive condition in the Takaful market
- 2) To examine the impact of market structure and competitive condition on the profitability of the Takaful market
- 3) To examine the relationship between the competitive condition and stability of the Takaful market
- 4) To evaluate the performance of Takaful operators according to MENA and non-MENA, the types of Takaful business, and ownership structure

1.4 Research Questions

With respect to each specific objective, the following research questions were addressed in this study:

- i) What are the market structure and competitive condition in the Takaful market?
- ii) How do the market structure and competitive condition affect the profitability of the Takaful market?
- iii) What is the relationship between the competitive condition and stability of the Takaful market?
- iv) How is the performance of Takaful operators according to MENA and non-MENA, the types of Takaful business, and ownership structure?

1.5 Scope of Study

This study exclusively focused on the competitive condition and financial performance of global Takaful operators. Considering the limited number of prior studies and inconclusive empirical evidence in the insurance industry including the Takaful market, this study simultaneously examined the relationship of market structure (CR_4 and HHI), market power (market share), and competition (PCS) with specific dimensions for the performance of Takaful operators, including the profitability (profit margin) and financial stability (Z-score) in the Takaful market. This study utilized the PCS indicator as a proxy for competition instead of PR H-statistic, which was widely employed in empirical banking studies due to limited data availability. H- statistic method requires further data on costs, possible market demand elasticity and market equilibrium to allow for meaningful interpretations. The study employed the system GMM estimator rather than the OLS, RE, FE and Difference GMM estimator to examine the market structure-profitability nexus and competition-stability nexus because first, this estimator offers a more flexible variance-covariance structure for the momentary conditions. Secondly, the system GMM demonstrates superior capability to handle the estimation problems in the panel data in relation to the non-exogenous characteristics of the firm-specific variables.

Meanwhile, the SCP theory, ES hypothesis and theory of RMP were covered in this study to examine the market structure-profitability nexus; the competition-stability and competition-fragility hypotheses to examine the competition-stability nexus while the global advantage hypothesis and the home field advantage hypothesis were covered in this study to identify the performance difference among the domestic and foreign Takaful operators under this study. There were 226 full-fledged Takaful operators in 48 countries, however, this study was limited to 153 Takaful operators in 14 countries with data available for a nine-years period (2008 to 2016) chosen based on the availability sampling method. This study also enhanced the past studies by discussing the performance of Takaful operators according to different economic conditions and Takaful market developments (MENA and non-MENA region), different types of Takaful businesses (composite, family, and general Takaful operators), and ownership structure (domestic and foreign ownership structure) through different sub-samples.

1.6 Significance of Study

In general, there were several factors that justified the rationale of the current focus on the Takaful market. The resultant outcomes of the current study were expected to benefit three main groups, namely the research community, government and policymakers, and the Takaful operators and industrial stakeholders, such as practitioners and investors.

1.6.1 Significance to the Research Community

As the Takaful market has gained increasing attention in the global financial market, it has become increasingly crucial for more studies to explore the Takaful market. However, most of the prior studies mainly focused on conventional insurance. Furthermore, the scope of earlier studies on Takaful was narrower. To date, there is no published work that focused on the Takaful market in terms of market structure, competitive condition, profitability, and financial stability simultaneously, which was addressed in the current study.

Besides that, given that prior studies on market structure-profitability nexus mainly focused on the banking industry, especially in the US and European markets, it was found that there is a positive relationship between market concentration and profitability, but there is no conclusive empirical findings when it comes to the adoption of different methodologies and proxies. This study extended the existing body of knowledge on market structure and competition to comprehend whether the market structure or efficient structure significantly affects the performance of the Takaful operators with respect to the empirical application of the classical industrial economics theory of SCP and ES hypotheses, by using worldwide data. It is imperative to determine whether the Takaful markets in different regions are perfect

competition, monopolistic competition, or monopoly¹³. The obtained insights would assist in comprehending and predicting their market behaviour. Additionally, this study offered empirical evidence on whether increasing competition increases the stability of the Takaful market. Furthermore, the obtained results of the current study also enhanced the understanding of the difference in profitability and financial stability between foreign-owned and domestic-owned Takaful operators through the incorporation of foreign ownership structure. Apart from expanding the scope of the prior studies, this study was deemed unique given the obtained empirical evidence from the comparative study, which provided valuable results to justify whether different regions and types of Takaful business generate dissimilar results and the reasons for these differences.

Using the most recent competition indicator, namely the PCS indicator, this study was also the first to comprehend the Takaful market in a cross-region context since Cummins et al. (2017) was only concerned with the European life insurance market. Consequently, this study established the underlying basis for future research on the Takaful market, which is poised to become one of the major emerging international markets over the next decade or so.

1.6.2 Significance to the Government and Policymakers

This study offered empirical findings that would assist the government and policymakers to effectively monitor the development of the Takaful market and to intervene with the results generated. In view that research had played significant role in the policy making process, the obtained findings would suggest potentially useful and meaningful insights for these significant stakeholders to review current Takaful market structure and effectiveness of current policies to achieve their objectives. For instance, it is necessary for the Malaysian government to determine whether detariffication is effective to improve the efficiency of the Takaful market by increasing competition through reduction of the government's barriers towards foreign Takaful operators to enter the domestic market. Then, re-design policies that continues to further promote or limit competition, to endorse supervision and regulations that minimise insolvency risk, and to cultivate confidence in the financial

¹³ Market structure can be categorized from the least competition level illustrated by a pure monopoly market, to the greatest competition level represented by perfect competition market with intervening intermediate forms, monopolistic competition and oligopoly market. Perfect competition indicates a market structure with high competition when many companies produce homogenous products, and have zero barrier to enter and exit the market because of free legal restraints. Monopoly means the only company with exclusive market power over its production output, subsequently generating supernormal profits than in any other market structure. In general, the essence of monopoly is the absence of substitutes or severe restriction on their numbers. Being the only supplier in the market, it has the power to influence and set its price without taking into account the competitor's behavior and possibility of special action directed against the new competitor in addition to any other natural or contrived obstacles. For monopolistic competition, there are many companies in the market. However, the product differentiation (reputation, appearance, quality, type, extra function and location) provides the company with some degree of market power to control and fix prices without taking into account the competitor's prices and business action respectively as it has insignificant effect on the market.

sustainability of the Takaful market since the failure of Takaful operators would interrupt the financial system and negatively affect the economy.

1.6.3 Significance to Takaful Operators, Practitioners, and Investors

The profitability is significant and necessary for a Takaful operator to sustain and succeed, given that the characteristics of Takaful market competition will affect choice behavior among the Takaful market participants. Hence, the obtained findings of whether market structure and efficiency are drivers of profitability would suggest beneficial insights for Takaful operators to re-plan their product pricing and marketing strategy in order to increase profitability. Although small Takaful operators can't change the market structure, but understanding the market structure and analysing its negative impacts help Takaful operators to change their business model and approach to reduce the negative effect, eliminate wasted effort and consequently increase profitability.

On the other hand, changes in market structures will impact the security prices and investment return; and the sustainability of the Takaful market is also important for other stakeholders, such as investors and policyholders. It is important to retain confidence and preserve value for the investors. The loss of investors' confidence will lead to capital outflows, which affects the Takaful market negatively. Besides, the policyholders are highly sensitive to the reliability of the respective Takaful operators based on the reason that the majority of Takaful family plans have long operating lifespan. Last but not least, this study provided essential insights on how the market structure in the Takaful market is arranged or organised to the potential entrants of the Takaful market. How competitive the environment in that market is or even how much power, if any, a company in that industry has in terms of market shares will assist potential entrants in better decision-making in risk management in order to reap greater benefits. Given fragmented market (perfect competition) have lower start-up cost where is easier for new entrants to enter and exist the market while highly consolidated market (oligopoly) has more restriction to enter but enjoy the pricing control benefit. Hence, the obtained findings of this study on market structure provide essential insights for new Takaful operators on their strategy planning as how to enter either highly consolidated or few incumbent Takaful markets will be different based on the market structure of the Takaful market of a particular country.

1.7 Chapter Summary and Thesis Organisation

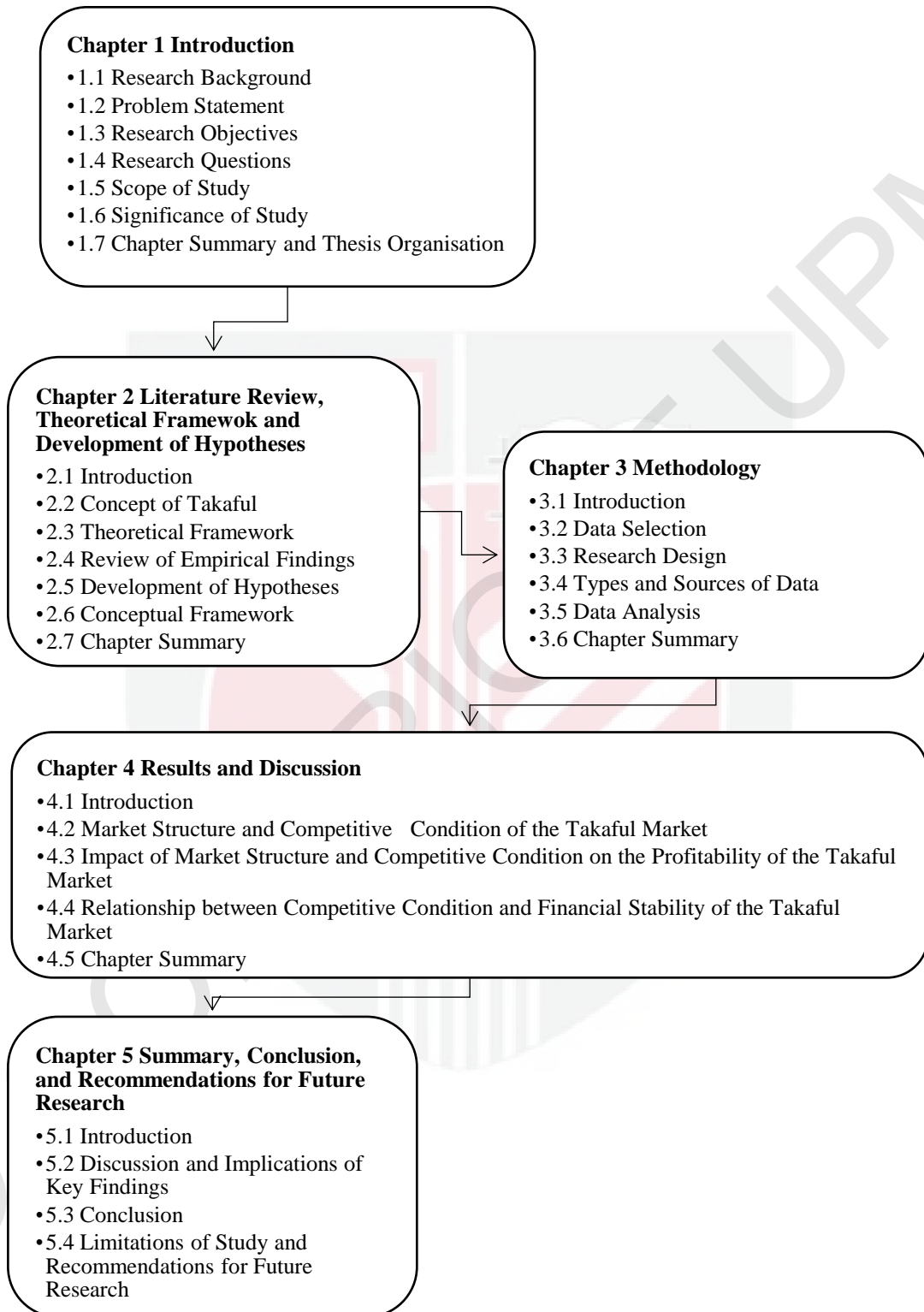
Overall, the thesis is organised as follows:

Chapter 1 introduced the background of the study and provided justification for the current study. Specifically, this chapter described the problem statement, which is the central of research. With that, the objectives of study and the corresponding research questions were established. This chapter generally concluded the essential framework of the study.

Chapter 2 presents the definition of Takaful, description of different types of Takaful model, and differences between Takaful and conventional insurance. Besides that, this chapter also reviews the history and development of the Takaful market. Furthermore, this chapter presents the theoretical framework of study and a review of previous studies related to the theories. Following that, this chapter also describes the proposed hypotheses for testing and the development of research framework and conceptual framework.

Chapter 3 discusses the methodologies and procedures of conducting the current study with respect to the objectives of study. Meanwhile, Chapter 4 presents and discusses the obtained results of study. Finally, the last chapter summarises the obtained findings, concludes the overall study, and offers several policy recommendations.

A graphical framework of this thesis is presented in the following:



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- Al Mahi, A.S.M.M., Sim, C.S. and Hassan, A.F.S. (2017), “Religiosity and demand for takaful (Islamic insurance): a preliminary investigation”, *International Journal of Applied Business and Economic Research*, Vol. 15 No. 24, pp. 485-499.
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