ISLAMIC FINANCIAL SERVICES BOARD

IFSB WORKING PAPER SERIES

WP-08/07/2018

ISSUES ARISING FROM CHANGES IN *TAKĀFUL* CAPITAL REQUIREMENTS

Dauda Adeyinka Asafa
Professor Simon Archer

July 2018

NOTE: **This Working Paper should not be reported as representing the views of the Islamic Financial Services Board (IFSB).** The views expressed are those of the authors and do not necessarily reflect those of the IFSB.

.

Table of Contents

ABBREVIATIONS

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
AIG	American Insurance Group
ALM	Asset–liability management
AT1	Additional Tier 1
CBB	Central Bank of Bahrain
CET1	Common Equity Tier 1
ComFrame	Common Framework for the Supervision of Internationally Active Insurance Groups
CSM	Contractual service margin
FAS	Financial Accounting Standards
GFC	Global Financial Crisis
G-SIIs	Global Systemically Important Insurers
IAA	International Actuarial Association
IAIG	Internationally Active Insurance Group
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
ICPs	Insurance Core Principles
ICS	Insurance Capital Standard
IFRS	International Financial Reporting Standards
IFSB	Islamic Financial Services Board
IFSI	Islamic financial services industry
IIFS	Institutions offering Islamic financial services
MCR	Minimum capital requirements
PIF	Participants' investment fund
PRF	Participants' risk fund
RA	Risk adjustment
RSA	Regulatory and supervisory authority
SCR	Solvency capital requirements
SHF	Shareholders' fund
T1	Tier 1
T2	Tier 2
TCL	Target capital level
TO	*Takāful* operator
UAE	United Arab Emirates
UK	United Kingdom
US	United States of America

GLOSSARY

Asset–liability management	The ongoing process of formulating, implementing, monitoring and revising strategies related to assets and liabilities to achieve the entity's financial objectives.
Current central best estimate	The present value of probability-weighted cash flows expected to arise from participants' risk fund portfolio of *takaful* contracts, considering all currently available information.
Deficiency (*takāful*)	The situation where the liabilities of the fund exceed its assets so that the fund has a debit balance.
Deficit (*takāful*)	The situation where claims and other expenses exceed contributions for a financial period.
Exit value	The net realisable value of an asset – that is, its market price at the date of a balance sheet less the selling expenses; or, in the case of a liability, the amount for which it could be settled or transferred at that date plus the costs of doing so.
Going concern	The expectation that the *takaful* undertaking will continue its operations and take on new risks.
Insolvency	A debtor's inability to pay his or her creditors; also, an excess of liabilities over assets.
Institutions offering Islamic financial services (IIFS)	Institutions offering Islamic financial services that include Islamic banks, Islamic insurance/*takāful* institutions, Islamic windows and Islamic collective investment schemes.
Internal model (*takāful*)	A risk measurement system developed by a *takāful* operator to analyse its overall risk position, to quantify risks, and to determine the economic capital required to meet those risks.
Liabilities (*takāful*)	The financial obligations of both the shareholders' fund and the participants' risk funds/participants' investment funds.
Liquidity risk	The risk of potential loss to the institution arising from its inability either to meet its obligations or to fund increases in assets as they fall due without incurring unacceptable costs or losses.
Market-consistent valuation	A valuation of the assets and liabilities of participants' risk funds that is consistent with either the assessment of their risk and value by market participants ("mark-to-market" valuation) or, in the absence of a direct market evaluation, the valuation principles, methodologies and risk parameters that market participants would expect to be used ("mark-to-model" valuation).
Market risk	The risk of losses in on- and off-balance sheet positions arising from movements in market prices – that is, fluctuations in values in tradable, marketable or leasable assets (including *ṣukūk*) and in off-balance sheet individual portfolios (e.g. restricted investment accounts).

Members of the Sharīʿah board	Jurists specialising in contemporary transactional jurisprudence who are well acquainted with and experienced in the Islamic financial system, in particular, and the Islamic economic system in general. They issue binding Sharīʿah pronouncements and recommendations, and oversee the task of supervising and auditing the institution.
Minimum capital requirements (MCR)	The minimum solvency control level set for the participants' risk fund at which the supervisory authority would invoke its strongest actions, if corrective actions are not implemented.
Muḍārabah	A partnership contract between the capital provider (*rabb al-māl*) and an entrepreneur (*muḍārib*) whereby the capital provider would contribute capital to an enterprise or activity that is to be managed by the entrepreneur. Profits generated by that enterprise or activity are shared in accordance with the percentage specified in the contract, while losses are to be borne solely by the capital provider unless the losses are due to misconduct, negligence or breach of contracted terms.
Mushārakah	A contract between the institution offering Islamic financial services and a customer whereby both would contribute capital to an enterprise, whether existing or new, or to ownership of real estate or a movable asset, on either a temporary or a permanent basis. Profits generated by that enterprise or real estate/asset are shared in accordance with the terms of the *mushārakah* agreement, while losses are shared in proportion to each partner's share of capital.
Operational risk (*takāful*)	The risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. For *takāful* or *retakāful* undertakings, this also includes risk of loss resulting from Sharīʿah non-compliance, or from failure of a *takāful* or *retakāful* operator to fulfil their fiduciary responsibilities.
Participants' investment fund (PIF)	Fund to which a portion of contributions paid by *takaful* participants is allocated for the purpose of investment and/or savings.
Participants' risk fund (PRF)	A fund to which a portion of contributions paid by *takaful* participants is allocated for meeting claims by *takaful* participants on the basis of mutual assistance or protection.
Provisions (*takāful*)	The amounts set aside on the balance sheet to meet liabilities arising out of *takāful* or *retakāfu*l contracts, including claims provision (whether reported or not), provision for unearned contribution, provision for unexpired risks, *takāful* or *retakāful* provision, and other liabilities related to *takāful* or *retakāful* contracts (e.g. contributions, deposits and savings accumulated over the term of *takāful* or *retakāful* contracts).
Qarḍ	The payment of money to someone who will benefit from it, provided that its equivalent is repaid. The repayment of the money is due at any point in time, even if it is deferred.

Reserves	Amounts appropriated from the profit/net income to meet unforeseeable liabilities or statutory requirements, and forming part of either shareholders' capital or accumulated surplus.
Retakāful *(takāful)*	An arrangement whereby a *takāful* undertaking cedes a portion of its risks on the basis of treaty or facultative *retakāful* as a representative of participants under a *takāful* contract, whereby it would contribute a portion of the contribution as *tabarru'* into a common fund to cover against specified loss or damage.
Risk management	The process whereby the *takaful* undertaking's management takes action to assess and control the impact of past and potential future events that could be detrimental to the undertaking. These events can impact both the asset and liability sides of the undertaking's balance sheet, as well as its cash flow.
Risk margin	The component of the participants' risk fund's technical provisions that reflects the level of risk and uncertainty in the determination of the current estimate and produces a technical provision that reflects the value that another *takaful* operator would be expected to require in order to take over (hypothetically) the portfolio of obligations.
Risk weighting	The assigning of a weight to particular assets or liabilities based on their risk profiles.
Run-off (*takāful*)	The situation where a *takāful* operator no longer undertakes new business for a participants' risk fund, but continues to meet the fund's obligations in respect of in-force *takāful* contracts until the end of their terms, including benefits arising from those contracts.
Shareholders' fund (*takāful*)	A fund that represents the assets and liabilities of a *takāful* or *retakāful* operator that is not attributable to participants.
Sharī'ah	The practical Divine Law deduced from its legitimate sources: the Qur'ān, Sunnah, consensus (ijmā'), analogy (qiyās) and other approved sources of the Sharī'ah.
Solvency control levels (*takāful*)	Levels of regulatory solvency requirements, which, if breached, trigger restrictions on the *takāful* operator or interventions by the supervisory authority.
Solvency requirements (*takāful*)	The financial requirements that are set as part of the solvency regime and relate to the determination of amounts of solvency resources that a *takāful* undertaking must have in addition to the assets covering its technical provisions and other liabilities.
Solvency resources	The surplus of assets in excess of liabilities that is regarded as available for solvency requirements, in accordance with domestic law or supervisory regulations.
Ṣukūk	Certificates that represent a proportional undivided ownership right in tangible assets, or a pool of tangible assets and other types of assets. These assets could be in a specific project or specific investment activity that is Sharī'ah-compliant.

Tabarru' commitment *(takāful)*	The amount of contribution that the *takāful/retakaful* participant commits to donate in order to fulfil the obligation of mutual help in bearing the risks and paying the claims of eligible claimants.
Takāful	A mutual guarantee in return for the commitment to donate an amount in the form of a specified contribution to the participants' risk fund, whereby a group of participants agree among themselves to support one another jointly for the losses arising from specified risks.
Takāful operator *(takāful)*	Any establishment or entity that manages a *takāful* business – usually, though not necessarily, a part of the legal entity in which the participants' interests are held.
Takāful participant *(takāful)*	A party that participates in the *takāful* product with the *takāful* undertaking and has the right to benefit under a *takāful* contract.
Takāful undertaking *(takāful)*	A company established to manage the portfolio of the participants' risk fund. The shareholders of the *takāful* undertaking have a fund of their own that is separate from the participants' risk fund. The *takāful* undertaking is entitled to receive a fee for its management work and a share in the investment profit of the participants' investment fund.
Technical provisions *(takāful)*	The value set aside to cover expected obligations arising on *takāful* or *retakāful* contracts. For solvency purposes, technical provisions comprise two components: (a) the current central best estimate of the costs of meeting the *takāful* or *retakāful* underwriting obligations, discounted to the net present value (current estimate); and (b) a margin for risk over the current estimate.
Time horizon *(takāful)*	The period of time over which the adequacy of solvency resources is measured. For solvency purposes, this is often set to approximate the length of time that a *takāful* undertaking or a supervisory authority would reasonably need in order to take effective action after the revelation of an adverse event in a *takāful* undertaking's internal or regulatory reporting. The time horizon is part of the target criteria in the calibration of regulatory solvency requirements.
Total balance sheet approach (*takāful*)	An approach to assessing the overall financial position of a *takāful* undertaking that recognises the interdependence between the risks associated with a *takāful* undertaking's assets, liabilities, regulatory solvency requirements and solvency resources, and the potential impact of those risks upon the *takāful* undertaking's balance sheet.
Underwriting risk (*takāful*)	The risk of loss due to underwriting activities relating to the *takāful* participants' risk fund or *retakāful* risk fund. Sources of this risk include assumptions used in pricing or assessment that are subsequently shown to be incorrect by experience of, for example, claims.
Underwriting surplus or deficit (*takāful*)	The participants' risk fund or *retakāful* risk fund's financial result from the risk elements of its business, being the balance after deducting expenses and claims (including any movement in provisions for

	outstanding claims) from the contributions income and adding the investment returns (income and gains on investment assets).
Wakālah (takāful)	An agency contract where the *takāful* or *retakāful* participants (as principal) appoint the *takāful* or *retakāful* operator (as agent) to carry out the underwriting and investment activities of the *takāful* or *retakāful* funds on their behalf in return for a known fee.

LIST OF CHARTS AND TABLES

CHARTS

ABSTRACT

This working paper[1] examines issues arising from the regulation of *takāful* capital requirements in the light of the changes in the insurance sector capital requirements since the Global Financial Crisis of 2007–9 (GFC). The paper begins by providing an overview of the regulatory developments in the conventional insurance sector following the GFC, spearheaded by the International Association of Insurance Supervisors (IAIS). While the principles, concepts and techniques developed for conventional insurance could be applied to the *takāful* industry in many respects, it is important to address those issues resulting from the specific structure of *takāful* undertakings.

The paper provides a review of the process of solvency assessment for *takāful* undertakings as described in IFSB-11 and investigates the supervisory and market practices in relation to the capital requirements of *takāful* undertakings. The focus is mainly on four major aspects of *takāful* capital requirements: *takāful*-specific regulation, policyholders' protections, surplus sharing and distribution, and the priority of policyholders. Consequently, issues that pose significant challenges to the regulation and supervision of *takāful* capital requirements were identified and highlighted in the light of *takāful* operators' and supervisors' practices regarding *qard*, *wakālah* fees and profit-sharing ratios, surplus distribution and capital instruments.

The absence of guidelines specific to the *takāful* industry leaves opportunities for *takāful* operators (TO) to exercise inappropriate discretion in aspects that require regulatory guidelines and supervision. This practice raises concerns because of an increased risk of insolvency and a potential threat to consumers' confidence in the industry. Guidelines that recognise the specific structures and processes of *takāful* undertakings are recommended for effective and efficient operation of these undertakings.

Wakālah fees deducted from participants' contributions and *mudarabah* profit shares charged to the participants' risk fund (PRF), as well as surplus distribution to the *takāful* participants, constitute major outflows from the PRF and clearly tend to militate against the solvency and underwriting capability of the PRF. The continued deficits and resultant deficiencies of the PRF of many *takāful* undertakings are attributable to the magnitude of *wakālah* fees and *mudarabah* profit shares paid to the TO. This situation presents a scenario in which TOs routinely rely on *qard* to meet the obligations of *takāful* participants. Maintaining adequate reserves in the PRF should be the utmost priority of the TO. The paper highlights measures to control market practices that are capable of affecting the strength and stability of the PRF.

Insurance regulatory and supervisory authorities (RSAs) use different terminologies (e.g. Tier 1 capital, core capital or common equity) and apply various criteria to evaluate the quality and composition of solvency resources. This paper emphasises the need to adopt a common framework that recognises the different characteristics of capital instruments that qualify to absorb losses at different financial stages, particularly in the run-off and wind-up phases. Furthermore, the paper highlights issues regarding the priority of policyholders' valid claims during insolvency – in particular, legislation that defines insolvency and establishes criteria and procedures for the exit of *takāful* undertakings (legal entities) from the market.

The paper recognises that uneven regulatory development is a challenge to the development of the *takāful* industry, and emphasises the need for RSAs to address these issues through setting up appropriate guidelines in due course for the efficient operation of *takāful* undertakings and the protection of policyholders.

[1] The authors would like to thank Assistant Secretary General, Mr. Zahid ur Rehman Khokher for his guidance and support in the completion of this working paper. This acknowledgment is extended to the members of the IFSB Technical Committee who reviewed and approved the paper. We would like to thank Mr. Madaa Munjid Mustafa, member of the IFSB Secretariat and a former member of the IFSB Secretariat, Mrs. Katrina Md Ariffin, for their contributions during the development of the paper. We also extend our appreciation to Mr. Peter Casey, consultant of the IFSB, for his contributions and comments while drafting of the paper. Thanks to the support provided by Mrs. Nazarina Abdul Majid of the IFSB Secretariat in distributing the survey to the IFSB member institutions. Similarly, we thank Dr. Adewale Abideen and Mr. Abdul Hamid Abdul Wahab for reviewing the formatting of the paper. Finally, we are grateful to the insurance/*takāful* regulatory and supervisory authorities, *takāful* operators and other institutions who participated in the survey and for their useful comments during the revision of the draft paper.

EXECUTIVE SUMMARY

The background to, and principal raison d'être of, this paper is the need to address the issues arising in *takāful* capital requirements regulation in the light of changes in the insurance sector capital requirements since the GFC.

Over the past few years, the International Association of Insurance Supervisors (IAIS) has spearheaded regulatory reforms in the (conventional) insurance sector through the development of a three-tiered global accepted regulatory framework for the supervision of the sector. These reforms include the development of the Insurance Core Principles (ICPs), the Common Framework (ComFrame) and the Insurance Capital Standards (ICS) for the supervision of internationally active insurance groups (IAIGs). The goal is to create global, consistent standards to address the lack of comparability between jurisdictions. Furthermore, the European Commission has also incorporated the lessons learned from the crisis into its Solvency II directives, further contributing to the development of concepts and techniques for the regulation of insurance capital and, of course, influencing the approach of the IAIS. On the same note, the International Accounting Standards Board (IASB) has issued its new (long and complex) standard on insurance contracts (IFRS-17), which is expected to ensure a greater consistency in the methodologies used for general purpose financial reporting and for reporting to the regulators for prudential purposes, with as few changes as possible to satisfy prudential reporting requirements.

While the principles, concepts and techniques developed by these institutions could be applied to the *takāful* industry in some respects, its structure demands that issues specific to the *takāful* industry should be addressed accordingly. As a result, through a structured questionnaire, information was collected from 57 institutions (15 RSAs and 42 TOs). The survey was conducted on current market and regulatory practices with respect to *takāful* capital requirements, and focused on four key issues that are required for establishing a sound regulatory framework for the *takāful* sector. These key issues were: *takāful*-specific regulation, policyholders' protections, surplus sharing and distribution, and the priority of policyholders. Moreover, the survey specifically investigated supervisory and market practices on issues relating to *qard*, the *wakālah* fee and profit-sharing ratio, surplus distribution and capital instruments. As a result, issues that presented significant challenges to the regulation and supervision of *takaful* capital requirements were highlighted.

[[First, more than two-thirds of the jurisdictions do not have guidelines specific to the *takāful* industry. The absence of guidelines specific to the *takaful* industry creates an avenue for TOs to apply discretion in areas that require regulatory guidelines in order to carry out their operations. This practice raises concerns because of the increasing potential risk of insolvency. Guidelines that recognise the specific structure of *takāful* undertakings will help to highlight major differences between *takāful* entities and their conventional peers.

As highlighted in the survey, guidelines are generally lacking on specific aspects such as *wakālah* fees deducted from participants' contributions and profit ratios charged to the PRF. Where they do exist, the principles and practices are weak and relatively unclear. More importantly, the survey indicated that the PRFs of more than 70% of the *takāful* undertakings are in a state of deficiency owing to what could be described as an excessive level of fees and profit-sharing ratios (in *wakālah* and *mudarabah*, respectively) paid to the TO. This may be

attributed to the lack of appropriate guidelines for determining the levels of these fees and ratios.

Different methods of determining appropriate *wakālah* fees have been suggested, one of them being the use of expense analysis to be carried out by a team of finance/actuarial specialists. This kind of study has been applied in the conventional insurance field to determine expense ratios used during pricing of and reserving for insurance policies. Another suggestion is to set regulatory limits (i.e. fee caps) on *wakālah* fees, so that they closely approximate the actual expenses, with an allowable margin. On the other hand, it is argued that setting a cap for *wakālah* fees may not be appropriate due to the varying sizes and operations of TOs. Therefore, it is suggested that the profit margin be capped (e.g. at 3–4%), because a maximum profit margin after covering overhead costs can be easily monitored through regulatory reporting. *Wakālah* fees charged in respect of a *takāful* contract must be directly proportional to the costs associated with establishing and maintaining such a contract. This requires a combination of finance and actuarial expertise to determine a fixed upfront percentage to be charged against the participants' contributions (premiums) to the PRF.

The survey further highlights the fact that, in many jurisdictions, guidelines on the permanence and repayment of *qard* are unclear. A *qard* is a loan made by the TO from its shareholders' fund (SHF) to a PRF that it manages, and which must be either repaid or written off if it becomes evident that the PRF will be unable to pay it back over a given period of time (i.e. the *qard* is recognised as being impaired). In general, TOs are required to offer a *qard* facility to the PRFs that they manage, which can be drawn down to avoid the PRF being unable to meet its obligations. It is noted that standards published by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the International Financial Reporting Standards (IFRS) are the two commonly applied standards, which are also used for impairments test of *qard*. It is important that RSA should clearly set out in a written policy the details of how repayment and impairment are to be treated. In jurisdictions with a clear written policy, a period of between three and five years is prescribed before an existing *qard* is subjected to an impairment test. If it is deemed impaired, then it does not count as an admissible component of regulatory capital.

Surplus distribution to policyholders is identified as one of the main factors contributing to deficiencies in the policyholders' fund. The survey results show that quite a number of TOs distribute surplus while there is an existing *qard* yet to be repaid. It is suggested that controls on surplus distribution should be introduced, preferably through the corporate governance policies of the *takāful* undertakings, in addition to monitoring by the RSAs. The stability of the PRF reserves should be the utmost priority of the TOs, even if there were no *qard* to be repaid. Surplus distribution should take place only after its impact on the solvency position of the PRF is accounted for. A rule requiring an actuary's opinion on the potential impact of surplus distribution on the solvency position of the PRF would be beneficial in preventing inappropriate distribution of surplus by TOs.

Guidelines to ensure that TOs separate the assets of the PRFs from those of their SHFs are needed to protect the interests of the participants against potential agency problems. However, the fact that some TOs are claiming compliance with prudential requirements but not presenting the assets and liabilities of the respective funds separately in the financial

statements indicates a lack of transparency in their disclosures. Appropriate disclosures and the maintenance of accurate records are necessary to enable the existing and potential *takāful* participants, as well as other market participants, to evaluate the financial strength and risk exposures of a *takāful* undertaking. Moreover, a lack of transparency in the disclosure of assets and liabilities within the PRF makes monitoring of *takāful* funds difficult, especially when those funds are facing insolvency. The quality of information disclosed to the public is heavily dependent on the existing standards and practices applied in the preparation and presentation of the financial statements of *takāful* undertakings in each jurisdiction.

Presently, there is no standard that addresses the suitability of Shari'ah-compliant financial instruments (e.g. *sukuk*) issued as capital by the *takāful* industry. These include the definition of the components of regulatory capital and their various roles of loss absorbency in going-concern and insolvency scenarios. The survey revealed that supervisors who have guidelines on this aspect use different forms of terminology in their classifications. The absence of an appropriate standard that recognises and treats various capital components and financial instruments in line with the specific demands of a *takāful* industry capital requirement is obviously a challenge to the industry. The issuance of a subordinated *sukuk* in form of capital instrument by a TO represents an innovation that other TOs could explore to shore up their capital base (i.e. such sukuk could be capital only for the TO, not for the PRF, but it's the latter which typically lacks capital). This could particularly assist the *takāful* undertakings to build up their capital and asset composition as well as their profitability.

The priority of *takāful* participants' valid claims over the TO's claim for repayment of *qard* is particularly important in the case of insolvency; otherwise, the *qard* would not qualify as regulatory capital for the PRF. In most cases, it may be provided for in the jurisdictional civil law and perhaps with additional provisions by the insurance regulator. Ordinarily, it is expected that a typical insolvency law would rank the claims of *takāful* participants above the TO's ordinary creditors and shareholders. However, the survey showed that, for quite a number of jurisdictions, the regulations concerning the liabilities of *takāful* undertakings upon winding up remain largely unclear – or, rather, they are largely determined by *Shari'ah* scholars, not by the law or the regulator. Another point to note is the additional level of policyholders' protection (i.e. a policyholders' protection fund) instituted in some jurisdictions and the Shari'ah issues associated with this.

In summary, the survey highlights two important points. First, the regulation of *takāful* capital requirements remains a work-in-progress in a number of jurisdictions. The uneven regulatory development across jurisdictions is clearly identified as a challenge that needs to be addressed. The second point concerns the various issues of practice identified in TOs' operations, which, if not addressed, could affect the growth and long-term viability of the *takāful* industry. This study is expected to provide useful insights to RSAs charged with designing appropriate capital requirements regulations for the protection of *takāful* participants. A sound regulatory framework is thus essential to guarantee a sound solvency environment for *takāful* entities, which in turn is necessary for their efficient operation.

1.0 INTRODUCTION

1.1 Background

The recent Global Financial Crisis has demonstrated the strong interlinkages between the insurance sector and other sectors in the financial system. Although the crisis did not emanate from insurance activities, the insurance market was particularly vulnerable to the systemic risk[2] generated from other parts of the financial system, which brought the global financial system to the brink of virtual collapse. The events were a clear illustration of how the behaviour of one insurance firm or group can create widespread contagious effects that could impact on the entire global financial system.

According to the Financial Crisis Inquiry Commission appointed by the US government, the GFC was avoidable, and was caused by dramatic failures of corporate governance and risk management at many systemically important financial institutions, as well as by general failures in regulation and supervision. The Commission added that financial institutions affected by the crisis indulged in "a combination of excessive borrowing, risky investments, and lack of transparency". In the United Kingdom, the Turner Commission's report on the financial crisis contained similar remarks and recommended that a "change in regulation and supervisory approach is needed in order to reduce the vulnerability of the financial system to crisis".

In the light of these commissions' conclusions, regulatory concerns led to global calls for stricter capital rules. Consequently, a new set of prudential regulations and supervisory frameworks has evolved under which companies within the insurance sector will operate, essentially to address the perceived weaknesses in the insurance market. The new set of prudential regulations and supervisory framework provides the basis for dialogue among regulators and industry stakeholders concerning the methodology for constructing effective regulation and supervision. Furthermore, the near collapse during the financial crisis of American Insurance Group (AIG); long regarded as the world's largest insurance group, with a presence in over 130 countries) and its aftermath brought the issue of insurance insolvency sharply into regulatory focus, and it has been in the forefront of insurance sector prudential regulation ever since.

The last few years have seen the IAIS[3] play a central role in setting the pace for the current regulatory reforms through its three-tiered framework of regulation and supervision, comprising a set of core insurance principles (the ICPs), a common framework for supervising IAIGs, referred to as "ComFrame", and methods of handling the largest insurers (identified as global systemically important issuers, or G-Sills), whose size and scope could impact on the global markets. The ICPs are the globally accepted framework for the supervision of the insurance sector. They are structured to allow a wide range of regulatory approaches and supervisory processes to suit different markets and the range of insurance entities and groups operating within these markets. Although first issued in 1997, the document has undergone a series of revisions since then, with the October 2011 edition being particularly important and itself updated three times (most recently in November 2017).

In 2009, the IAIS commenced the development of an international supervisory framework focusing on group-wide supervision of IAIGs, and built upon the high-level requirements and guidance currently set out in the ICPs. ComFrame provides a framework to assist supervisors

[2] Systemic risk has a contagion effect, meaning that liquidity and payment problems affecting one or a few entities may spread and create disruptions in the rest of the market.

[3] Its membership consists of insurance regulators and supervisors of more than 200 jurisdictions in nearly 140 countries, representing 97% of global insurance premiums.

collectively to address the complexity of IAIG due to their international activity, and provides a basis for comparing IAIG regulations and supervisory processes across jurisdictions. In addition, Insurance Capital Standard Version 1.0 was published by the IAIS on 21 July 2017 for extended field-testing. The resulting comments and feedback are subsequently being used to develop ICS Version 2.0, which is expected to be formally adopted, together with ComFrame, in 2019. The goal is to create a globally consistent capital standard to address the lack of comparability among existing jurisdictional group capital standards. This will lead to improved convergence over time on the key elements such as valuation and capital. The recent release of an International Financial Reporting Standard on insurance contracts[4] (IFRS-17) marks a significant milestone in the post-GFC development of insurance prudential regulations, and outlines a path towards consistency in the measurement of insurance assets and liabilities.

Furthermore, in continuation of the post-GFC insurance sector's capital prudential regulation reforms, the Islamic Financial Services Board (IFSB) issued in December 2010 a standard on solvency requirements for *takaful* (Islamic insurance) undertakings (IFSB-11). The standard is essentially a modification and adaptation of IAIS regulatory capital requirements, taking account of the specific features and characteristics of *takaful* undertakings. However, IFSB-11 is being considered for revision and updating, in order to incorporate the recent regulatory developments. This is necessary to ensure that the regulation and supervision of the *takāful* industry is at par with the conventional insurance.

1.2 Objectives and Scope

In recognition of the issues that *takāful* sector supervisors face in relation to changes in *takāful* capital requirements, at its 37th Technical Committee meeting held in Cairo, Egypt in November 2015, a recommendation was made to the IFSB Council to approve the preparation of a research paper in this area. Consequently, the Council of the IFSB, in its 27th meeting held in Jeddah, Kingdom of Saudi Arabia on 8 December 2015 approved development of a research paper – "Issues Arising from Changes in *Takāful* Capital Requirements" – as part of the IFSB's Strategic Performance Plan 2016–2018.

The aim of this research paper is to study the potential issues in relation to capital requirements of *takāful*, such as surplus, capital instruments and *qard*. The need to identify regulatory and stability issues unique to changes in *takāful* capital requirements is considered as important, not only to complement the relevant conventional standards for the insurance sector but also in order to explore the issues not addressed in the conventional standards and which are unique to the *takāful* industry. The key objectives of the research paper are to:

a. Study the potential issues in relation to the solvency requirements of *takāful*, such as surplus, capital instruments and *qard*;
b. Identify regulatory and stability issues arising from global capital regulation for the insurance sector and other unique issues pertaining to necessary changes in *takāful* solvency requirements; and
c. Provide inputs for the future revision of the IFSB solvency standard and other related projects.

[4] IFRS-17 to form the valuation basis for the IAIS's standards.

By focusing on issues specific to *takāful* capital requirements, this research paper will enhance appreciation of the role of capital as a key element in understanding, quantifying and managing risk taking in *takāful* undertakings. It may also serve as guidance material for RSAs in their solvency supervision.

1.3 Structure of the Research Paper

The remainder of the research paper is structured as follows. Section 2 reviews the literature on approaches to the insurance sector's capital requirements regulation. The review highlights the relationship between insurance capital adequacy assessment and related risks, and discusses recent developments in valuation and reporting for regulatory purposes. Section 3 describes and illustrates the key survey findings. Section 4, the concluding section, elaborates on the challenges and practice problems.

2.0 REVIEW OF LITERATURE ON APPROACHES TO THE INSURANCE SECTOR'S CAPITAL REQUIREMENTS REGULATION

2.1 Introduction

Studies and publications on capital requirements regulation specific to the *takāful* sector are very limited; nonetheless, the relevant studies on conventional insurance can provide a basis upon which to discuss the approach to *takāful* capital requirements. This section reviews a number of academic and professional papers and monographs produced by bodies concerned with insurance capital requirements regulations and supervision, notably the IAIS and the European Commission (EC) and its Solvency II programme. The issues highlighted in the literature are largely applicable to the *takāful* sector; the review also draws substantially from the IFSB's publications and other notable authors.

2.2 Relationship between Insurance Capital Adequacy Assessment and Related Risks

Insurance contracts represent a promise to pay benefits to policyholders in order to cover the insured loss upon realisation of an insured event; policyholders in turn must make upfront payments (premiums) to insurers.[5] Insurers are faced with uncertainties relating to the timing and magnitude of future losses and the risk that the premiums charged and the provisions held will be insufficient to cover the losses. In managing these uncertainties, the insurance industry relies on the law of large numbers whereby individual risk events, although subject to large degrees of random variation, become very predictable at a portfolio level. Risk pooling harnesses the power of the group to eliminate financial volatility for the insured. It follows that the more business an insurer writes, the less it becomes exposed to the risk of random events and the more predictable are average payments for claims (or insured losses).[6]

In addressing these uncertainties, insurance companies must hold sufficient financial resources to deliver on their promise. Capital protects policyholders by ensuring that the insurance undertaking can meet claims even under serious adverse conditions. It can also be seen as a necessary means for the company to engage in underwriting and incurring insurance liabilities. Moreover, holding capital is but one of several supervisory requirements that insurers must meet in order to provide security for policyholders. The legal requirement to hold funds in excess of liabilities is called a capital requirement.[7]

Supervisors, as protectors of policyholders' interests, play an important role in ensuring that insurers have sufficient financial resources to provide for the appropriate level of policyholder protection. To this end, various jurisdictions have developed their own capital requirements framework or regime over time. Despite the differences in the way these regimes have evolved, they require insurers to hold sufficient capital to withstand unforeseen and extreme events without jeopardising promises made to policyholders.

[5] The definition given in IFRS-17: "A contract under which one party (the issuer) accepts significant **insurance risk** from another party (the **policyholder**) by agreeing to compensate the policyholder if a specified uncertain future event (the **insured event**) adversely affects the policyholder."
[6] Geneva Association (2016).
[7] Supervisors and rating agencies refer to capital as an indicator of financial strength.

Thus, capital requirements are established for solvency purposes so that insurers can absorb significant unforeseen losses and provide for degrees of supervisory intervention. It is indicated that the value of an insurer's promise to policyholders depends on the amount of the capital that it holds because this provides assurance to the policyholders that the insurer has the capacity to make all loss payments even if these are greater than expected.[8]More generally, the function of capital in financial institutions is to absorb unexpected losses, while that of provisions is to cover expected losses. Therefore, insurers are required to hold sufficient capital to maintain the firm default value at an acceptable level of confidence.[9]

Expectations of different stakeholders about the role of capital lead to variation in its definition and calculation. In particular, one may distinguish between regulatory capital and economic capital. *Regulatory capita*l is the minimum capital an insurer must hold in order to comply with regulatory requirements. It is determined in relation to the insurer's liabilities. *Economic capital* is the management's view of the risk-based capital required to support its operations. It is used as a measurement and risk-based decision-making tool for the allocation of capital to its most productive use. From a macroeconomic perspective, requiring insurers to maintain adequate and appropriate capital enhances the safety and soundness of the insurance sector and the financial system as a whole, without increasing the cost of insurance to a level that is beyond its economic value to policyholders or unduly inhibiting an insurer's ability to compete in the marketplace. For these reasons, setting the regulatory capital bar very high may not necessarily be in policyholders' best interest. Hence, supervisors must strike a balance between the levels of risk that policyholder obligations will not be paid and the cost to policyholders of increased premiums to cover the costs of servicing additional capital.

Insurers need to manage capital in such a way that policyholders' valid claims will always be fulfilled. The determination of capital needed to run the insurance operations profitably while also meeting the promises made to policyholders at all times requires modelling and assumptions, as well as comprehensive risk analysis and control frameworks.[10] The capital needed to fulfil this role must be calculated by reflecting the specific risk characteristics to which insurers are exposed. An understanding of the limitations inherent in the modelling is also crucial.[11]

Capital modelling and capital metrics are the key tools used by insurers in developing frameworks to identify, measure, monitor and manage the risks associated with all aspects of their business. The nature of an insurer's risks and how they have evolved influence the approaches taken in calculating capital. A fundamental concern in the literature is the determination of the appropriate level of solvency capital from the economic and regulatory perspectives. The seminal paper presented by Pentikaïnen (1967)[12] aims to find a reasonable balance between the regulatory objective of protecting policyholders and avoiding excessive capital requirements. It identifies various important aspects in assessing solvency, including

[8] De Haan and Kakes (2010). "Are non-risk based capital requirements for insurance companies binding?", *Journal of Banking & Finance*, Vol. 34, No. 7, pp 1618-1627.
[9] Butsic (1994). "Solvency measurement for property-liability risk-based capital application", *Journal of Risk and Insurance*, Vol. 61, No. 4, pp. 764–775.
[10] Liebwein (2006). "Risk models for capital adequacy: Applications in the context of Solvency II and beyond", *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 31, No. 3, pp. 528–550.
[11] Geneva Association (2016).
[12] Against the background of the Finnish *Insurance Regulatory Act 1953*.

the valuation of liabilities (especially technical provisions) and assets, premium levels for long-term policies and reinsurance.

Beard, Pentikaïnen and Pesonen (1984) first highlight the critical role of risk measurement in the prescription of capital requirements in the literature in their "theory of risk in insurance". They emphasise that the more precisely an insurer's capital calculations reflect the underlying risk drivers, the more accurately the insurer will quantify risk exposures. They further identify various risks encompassing underwriting risk, asset-related risks, and risks associated with inflation, levels of expenses and miscellaneous unquantifiable risks. However, their theory does not cover risk calibration, such as the "severity of ruin" (i.e. the total loss of capital).

Capital models are key tools for keeping track of the insurer's risk profile and implementing an insurer's strategy. The authors[13] develop stochastic methods using simulation modelling for estimating capital requirements, taking into consideration three main parameters of calculating capital – namely, target security,[14] risk horizon[15] and risk measure.[16] These parameters are very important in the determination of insurance capital requirements. In practice, individual risk driver simulations are combined in order to calculate capital and to reflect on the extent to which different risks are, or are not, likely to be correlated (i.e. likely to materialise jointly).

Value at risk (VaR) and conditional tail expectation (CTE or tail VaR) are techniques used to define a threshold of loss for a given risk horizon and target security (risk measure). The CTE is computationally more challenging than VaR, but has the advantage of capturing any unusual non-linear features in the tails of distributions.[17] Under this approach, the level of capital is set so that there is some fixed probability that assets will exceed the realised value of liabilities. In addition, attention is drawn to the issue of the size of loss beyond the threshold of ruin (i.e. the total loss of capital), the expected shortfall which measures the severity of the insolvency takes account of both the probability of insolvency (i.e. ruin) and its severity.

For regulatory capital, the amount of capital that an insurer needs to hold in order to be able to fulfil its obligations towards policyholders to a specified level of probability (e.g. a "1 in 200 event" is equivalent to one on the 99.5th percentile in the tail of a normal distribution) may be estimated using a VaR approach.[18] The expected shortfall corresponding to the tail VaR indirectly addresses the severity of insolvency by adjusting the lower limit of the severity distribution, which alters the expected cost of an insolvency in a manner consistent with the VaR approach.[19]

The models typically require choices about risk horizons, and how risks are likely to be distributed over various periods. It is important for insurers to understand their most significant risks, how they evolved over time as well as methods of mitigating them. This also includes how they might interact and combine with other risks. Models must be well calibrated at the outset and frequently updated with new information. Models are only as robust as their

[13] Artzner, Delbaen, Eber and Heath (1999); Daykin and Hey (1988); Daykin, Pentikaïnen and Pesonen (1993); and Butsic (1994).
[14] The probability that the insurer can withstand some definition of 'failure" over a given risk horizon.
[15] The period of time over which the probability of "failure" is assessed.
[16] The technique applied to define incurred losses consistently and how they are calibrated.
[17] Geneva Association (2016),
[18] "1-in-200 event" represents the worst outcome, with a probability of occurrence of 0.5%.
[19] Barth (2000).

underlying assumptions. A key difficulty in setting the assumptions underlying the capital models (model calibration) is the focus on the tails of risk distributions where there is limited historical information. The process of risk analysis requires scenario analysis and modelling the impact of extreme but plausible scenarios on the capital of an insurance outfit. However, data scarcity may require the process to rely on what can be referred to as "expert judgment" to deal with uncertainty and matters such as future mortality trends and the frequency and severity of natural disasters, which are difficult to quantify.

It is important, therefore, for an insurer to examine all of its significant risks to determine its risk-based capital. In its ICP, the IAIS has categorised risk into five types: (i) underwriting risk, (ii) credit risk, (iii) market risk, (iv) liquidity risk, and (v) operational risk – a grouping adopted in the IFSB's standard on risk management (IFSB-14). Additional capital can be held to cover the risk of market losses and creditor insolvency; however, for some aspects of operational risk and liquidity risk, capital may be of limited effectiveness. Contingency plans and robust internal controls are likely to be far more effective.

2.3 Recent Developments in Valuation and Reporting for Regulatory Purposes

The business model of insurance offers protection to consumers and businesses against unexpected events through the pooling of risk, and thanks to the law of large numbers. Risk pooling harnesses the power of the group to eliminate financial volatility for the insured. Insurers hold capital to ensure that the promises made to policyholders will be met even under adverse conditions, which the technical provisions are unable to cover.

Pursuance of insurance operation exposes insurers to different risks. Therefore, these risks must be treated appropriately in terms of reporting and regulatory requirements. Bearing this in mind, the context and purpose of the valuation of assets and liabilities of an insurer are key factors in determining the values that should be placed on them, and this in turn highlights the importance of capital in insurance valuations and reporting. This subsection outlines the valuation approach for assessing the capital requirements of insurers within the context of risk-based solvency requirements.

Over the years, approaches to the regulation of insurance capital requirements have evolved and are becoming more stringent and sophisticated, with increasing emphasis being given to weighting the riskiness of the assets held by insurers and incorporating this into the calculation of the capital requirement. As a result, capital modelling techniques have been developed which require assumptions, risk analysis and control frameworks.

The "total balance sheet approach",[20] as highlighted in the IAIS's Insurance Core Principles, refers to the recognition of assets and liabilities, and of the interdependencies between them, and is applied in determining the capital requirements. This approach indicates that the overall financial position of an insurer should be based on the consistent measurement of assets and liabilities, including explicit identification and consistent measurement of risks and their potential impact on all components of the balance sheet.

[20] IAIS (2015), Insurance Core Principles – capital adequacy: https://www.iaisweb.org/file/58067/insurance-core-principles-updated-november-2015.

Consistency in the measurement of assets and liabilities, when extended across insurers and periods, is likely to guarantee comparability.[21] Insurance valuation on consistent bases means that differences in values of assets and liabilities can be explained in terms of the differences in the nature of the cash flows, including their timing, amount and inherent uncertainty, rather than in terms of differences in methodology or assumptions. Such consistency may be applied at different levels, such as segments within a company, a company or a group. Ultimately, the aim is to match the duration of liabilities and financial assets (an investment portfolio), approximately if not perfectly, thus making asset–liability management (ALM) an important aspect of insurance valuation.

Insurance liabilities[22] may extend well into the future, depending on the nature of the business underwritten.[23] The valuation of liabilities is based on assumptions made about the future. Naturally, there is a risk that the future will be significantly different from what has been assumed. This raises the question whether the financial assets backing the liabilities will suffice to meet all future obligations. Insurers often endeavour to structure their investment portfolios so that cash flows from expected investment returns match the expected cash flow of future claims (cash flow matching).

Depending on jurisdictions, the amounts set aside to meet unexpected losses may be established either as capital or as a combination of capital and liabilities.[24] Capital is the instrument that insurers hold to help them understand, manage and mitigate the impact of the risks that might unfold. Insurers hold financial assets to support both expected claims and unexpected claims. The capital needed to fulfil this role must be calculated by reflecting the specific risk characteristics to which insurers are exposed. This leads us to the definition of capital.

Capital, in an insurance company, is a measure of funds in excess of what is needed to meet future obligations to policyholders (insurance liabilities) and other liabilities. It is measured on an available basis (how much does the insurance company have?) and a required basis (how much does the insurance company need?). Given the uncertain and often long-term nature of insurance liabilities, the details of insurance products, and the complexities of risk exposures, answering these questions can involve intensive calculations and assumptions about the way risks may evolve over time.

Valuation of assets and liabilities is referred to as “valuation for solvency purposes”.[25] Solvency assessment is the application of supervisory judgment to various measures and estimates of an insurer’s current financial position and future financial condition, which serve to demonstrate the insurer’s ability to meet its policyholder obligations when they fall due.

Solvency assessment based on consistent valuation of assets and liabilities is a prerequisite for obtaining a meaningful insight into the asset–liability positions of an insurer and an understanding of the financial position of an insurer relative to other insurers. It is also a

[21] Linder and Ronkainen (2004); IAIS (2015).
[22] Liabilities are generally established upon issuance of the contract; they reflect the expected value of future obligations.
[23] Insurance is typically classified into two main categories: life insurance and non-life insurance.
[24] The IASB insists on a rigorous separation of liabilities and capital (equity). In this context, liabilities (provisions) are intended to cover expected losses, while capital is intended to cover unexpected losses (in principle, to a specified level of confidence).
[25] See the “Valuation and Capital Adequacy” section of the IAIS ICPs.

strategic tool for managing its position in the market. A key tool in this regard is a set of financial statements that may differ from those used for general purpose financial reporting.

The valuation method determines the values an insurer would place on its assets or liabilities. Consistency in the valuation of assets and liabilities for solvency purposes does not necessarily imply that a single valuation basis is used for all assets and liabilities; rather, it is the application of principles that identify various features, including insurance liability measurement, risk margins and aspects of life insurance accounting.[26] As a result, the IASB's IFRS-17 will influence the valuation of assets and liabilities and the overall accounting model for regulatory purposes, and this will provide a meaningful and economically sound representation of insurance companies and the industry to the markets. Accordingly, the recently released standard on insurance contracts[27] (IFRS-17) is expected to ensure a greater consistency in the methodologies used for general purpose financial reporting and for reporting to the regulators for prudential purposes, which has few changes as possible to satisfy prudential reporting requirements.[28] Otherwise, there is a risk of public confusion and of the credibility of both reporting regimes being questioned.

The new framework for the measurement and reporting of insurance contracts for prudential regulatory purposes (i.e. IFRS-17) is based on principles such as features of insurance liability measurement, risk margins and aspects of life insurance accounting. Insurance contracts (obligations) are measured as the sum of the unbiased estimate of future cash flows reflecting the time value of money and current estimate (CE). Moreover, current values are used instead of historical cost because the historical cost of an asset or liability may not reflect a current prospective valuation of the future cash flows and, therefore, may not be consistent with the current economic valuation of other assets or liabilities. More generally, historical cost does not reflect changes in value over time.

The future cash flows in connection with the full settlement of policyholders' claims form the basis for measuring insurance liabilities, and this value is expected to correspond to the transfer value of the liability (i.e. the amount that would need to be paid to a knowledgeable third party to assume the liability). If an insurance liability is measured based on the notion of transfer, the ultimate settlement with the policyholders becomes a key consideration within the model.[29] Therefore, the measurement method particularly reconciles the idea of valuation based on transfer with an insurer's settlement obligations towards the policyholder.

The assessment of the financial position of an insurer for supervisory purposes addresses the insurer's technical provisions, required capital and available capital resources. These aspects of solvency assessment (namely, technical provisions and capital) are intrinsically interrelated and cannot be considered in isolation by a supervisor. This is to ensure that risk is appropriately recognised and considered, originating from the two sides of the balance sheet in an integrated or interactive manner. Technical provisions[30] and regulatory capital

[26] IAIS considers it most desirable that the accounting standards in the ICP should be consistent with the financial reporting standards (IFRS).
[27] IFRS-17, issued by IASB.
[28] IAIS believes that the differences between prudential reporting requirements and general purpose public reporting are reconcilable and can be publicly explained.
[29] See Flamee (2008).
[30] Technical provisions are the liabilities that represent the economic value of the insurer's obligations arising over the lifetime of the insurer's portfolio of insurance policies. These include a risk margin to cover the inherent uncertainty of those obligations. The cash flows associated with fulfilling an insurer's insurance obligations include the premiums receivable, the claims payable under the insurance policies, any other policy cash flows (e.g. future distributions under participating contracts) and the future expenses of administering the policies.

requirements[31] are significant components of valuation for solvency purposes, in addition to a risk margin (a methodology that the International Actuarial Association [IAA] has explored in cooperation with IAIS).

According to IFRS-17, the measurement of technical provisions includes a "risk adjustment for non-financial risk" (RA) which is equal to the compensation that an entity would require for bearing the uncertainty about the amount and timing of cash flows that arises from non-financial risk such as underwriting risk (IFRS-17, para. B37). Technical provisions are thus the sum of the best estimate of the liabilities and a risk margin, based on the cost-of-capital method. The development of the RA and the contractual service margin (CSM) over the reporting period is a new development in the valuation of insurance contract assets and liabilities. The CSM represents the unearned profit on a group of insurance contracts and serves to allocate the profit over the duration of the contracts to reflect the delivery of the service under the contracts over their duration and the concomitant extinction of the service obligation.

It may be appropriate to use "market-consistent values" for the economic valuation of assets and liabilities. A measurement that is based on principles, methodologies and parameters that the financial markets would expect to be used is termed a "market-consistent valuation". Observed market valuations or amortised cost valuations may be used for some assets and liabilities, while measurement models, such as discounted cash flow models, may be used for other assets and liabilities. Calibration of such discounted cash flow models to market valuations or amortised cost of other assets and liabilities can be of assistance in achieving consistency. Thus, the business activities of an insurance company determine the nature of its assets and liabilities, as well as the structure of its balance sheets.

2.4 Summary of the Process of Assessment of Capital Requirements for *Takāful* Undertakings

This section provides a brief summary of the approaches to capital requirements for *takāful* undertakings as compared to conventional insurance. The two-tiered structure of *takāful* undertakings, where funds are segregated, introduces issues in respect of the assessment of capital requirements for *takāful* undertakings. Accordingly, this requires modification of the approach taken in conventional insurance, where there is no segregation of funds. Typically, a *takāful* undertaking operates with two funds, the participants' risk fund and the TO's shareholders' fund, while in family *takāful* there is normally a savings component, the participants' investment fund (PIF). The PRF may be the risk fund of general *takāful*, such as motor vehicle, shipping and construction; or family *takāful*, such as education, health and annuity plans. Since these are separated, the assessments of the capital requirements are made separately for each fund. A PRF has little or no independent means of raising capital to enable it to meet an initial capital requirement or to ease capital strain later. In some product lines, it may be many years before a fund begins to generate surpluses. A TO may extend to the fund an interest-free loan (*qard*), and the availability of such a loan is referred to as a *qard* facility. *Qard* is frequently identified as a mechanism for providing capital to the PRF of a *takāful* undertaking. It is expected, in principle, that a PRF would repay the *qard* to the *takāful*

[31] The term "regulatory capital requirements" refers to financial requirements that are set by the supervisor and relates to the determination of amounts of capital that an insurer must have in addition to its technical provisions (see ICP-17).

operator's SHF when there is a sufficient surplus even though the tenure may be unspecified, and *qard* is deemed to be repayable, wholly or partially, when the PRF is in surplus.

Supervisors, therefore, have obligations to assess potential capital resources put forward by TOs for solvency assessment in each fund. A "total balance sheet" approach is recommended by the IFSB in its standard IFSB-11, as highlighted in the IAIS's Core Principles. This approach emphasises consistent valuation of assets and liabilities, including explicit identification and consistent measurement of risks and their potential impact on all components of the balance sheet. Therefore, the valuation method adopted determines the value to be placed on the assets and liabilities of a *takāful* undertaking. Consequently, the new IASB standard on insurance contracts (IFRS-17) is expected to be useful for this purpose.

The regulatory approach and the guidelines adopted in regulating TOs make a distinction between *takāful* and conventional insurance. As indicated in IFSB-11, in *takāful,* the determination of capital requirements in the PRF is based on a two-level approach. The first level of assessment is to ensure adequate capital resources in the PRF, to provide assurance (on a defined probabilistic basis, and taking account of the possibility of adverse developments in all the areas of risk to which the fund is exposed) that the PRF can meet valid claims from *takāful* participants. The level is the target capital level a TO should aim at, and is referred to as the "solvency capital requirement" (SCR). The second level, referred to as the "minimum capital requirement" (MCR), is a proportion of the SCR and represents a threshold a breach of which will trigger ultimate supervisory intervention.[32] The solvency capital assessments at this level focus on ensuring that a *takāful* undertaking has adequate capital resources to meet its financial and legal obligations.

The IFSB standard also highlights the possibility mentioned above of a TO providing capital backing by way of a *qard* to the PRF in the form either of a facility or of a loan if the facility is drawn down.[33] The MCR is therefore the ultimate buffer used to protect policyholders' interests in the case of a winding-up or a run-off scenario. The SCR is an ongoing concern risk measure, targeting a 99.5% VaR. It corresponds to the economic capital an operator needs in order to limit the probability of ruin to 0.5%; the undertaking should determine the probability of meeting all its liabilities over a defined period, usually one year. The SCR is regarded as a benchmark against which a *takāful* operator establishes its own higher target capital level (TCL) for PRFs that it manages. The best practice is to set the TCL above the SCR level to better reflect its overall risk tolerance and appetite set by the board of directors, its own risk profile, and the quality of its risk management practices. Additional risks such as liquidity risk, group risk, catastrophe (including environment) risk, as well as the risk of underestimation of liabilities, may be included. The prescribed SCR may differ among the supervisors. While some impose a solvency margin of at least 130% of the MCR, others calibrate the SCR at 150% before any surplus can be considered available for distribution or repayment of *qard*.

The SCR is estimated either by a standard approach or by internal models. The standard approach is a set of one-size-fits-all formulae that could be applied by all operators, irrespective of size, portfolio mix and geographical location. A TO could, however, choose to develop an internal model that better fits the risk profile, with the outcome subject to

[32] IFSB-11: *Standard on Solvency Requirements for Takaful (Islamic Insurance) Undertakings* (2010).
[33] The capital treatments of a *qard* facility and a drawn-down *qard* are different. Only the latter qualifies for inclusion in Tier 1 capital, and this is subject to its being subordinated to participants' valid claims in a winding-up.

supervisory approval. The amount of capital required in a conventional insurance set-up is predetermined primarily by two factors:

- How much capital is required to prefund expense overruns (where expenses exceed the sum total of expense provisions built into the pricing model); and
- The required risk capital to ensure a predetermined level of certainty that contingent benefits will be paid by the *takāful* operator.

In a *takāful* undertaking, the main concern with risk-based capital is how the second factor would be met. At the outset, there will be no surplus in the PRF; and in the early years, building up a surplus would result in existing participants being deprived of surplus distribution, a practice that is part of the business model of *takāful* in some jurisdictions. The experience as highlighted in a jurisdiction that recently adopted risk-based capital is for TOs to move to less capital-intensive products (i.e. higher-frequency/lower-severity products).

The regulatory framework recognises that capital is not necessarily fungible or available to absorb losses between funds within the same undertaking. This principle of "fungibility" is discussed in IFSB-11 under the heading "Transferability between the PRFs". In this context, the solvency requirements for a *takāful* undertaking should reflect and take account of any limitations on the transferability of funds within the undertaking. Such limitations may arise either from the contractual terms or from the legal framework that governs the undertaking's operations. This is particularly relevant to *takāful* operators authorised to carry on both family and general *takāful* business. In such cases, the assets or retained underwriting surplus of the fund may be isolated from other lines of business so that they can only be used to meet the *takāful* obligations for which the ring-fenced fund is intended. Thus, each fund must be assessed separately with capital support (in the form of *qard*) only from the SHF to the PRF. In these cases, surpluses identified in other funds are not available, or at least, not unconditionally available, to meet losses arising in other business within the undertaking. Where "window" operations are allowed, there is a need to ring-fence the (Sharī'ah-compliant) operations of a window from the (Sharī'ah non-compliant) operations of its host company.
An additional consideration arises from the fact that participants' funds may often be supported by loans (*qarḍ*) from shareholders' funds. So long as the *qard* facility is not drawn down, the assets backing it remain in the SHF. However, once the *qard* is drawn down, the assets backing it are injected into the PRF, which is recorded as a loan payable to the SHF. The latter records a loan receivable from the PRF. To avoid double counting in the solvency calculation, this loan receivable is not counted as an asset of the SHF for solvency purposes. This implies that the SHF should have sufficient capital to be able to provide the *qard* while satisfying the TO's solvency requirement.

The rules attaching to recognition and valuation of assets and liabilities at fund level in any capital adequacy framework for *takāful* are of critical importance, particularly, to ensure clarity regarding the position of funds and transparency of any cross-subsidy. Of particular concern are situations where participants' funds are in persistent deficit such that shareholders' funds are not merely providing a contingent capital buffer, but are in fact absorbing losses of the participants' funds on a regular basis. This situation raises an issue of Shari'ah-compliance since the TO is de facto acting as an insurer. In this connection, there is the need to think on how to manage the *takāful* undertaking so as to avoid such a situation.

The process of assessing capital requirements, as in conventional insurance, requires modelling and assumptions as well as comprehensive risk analysis and control frameworks. The capital needed to fulfil this role must be calculated by reflecting the specific risk characteristics to which *takāful* underwritings are exposed. As highlighted in the previous section, assessment of capital requirements takes into consideration three main parameters – namely, target security, risk horizon and risk measures. These parameters are very important in the determination of *takāful* capital requirements, and they are as well key tools used by operators in developing frameworks to identify, measure, monitor and manage the risks associated with all aspects of their business. Specifically, capital modelling emphasises precisely that an operator's capital assessments reflect the underlying risk drivers.

The valuation of liabilities affects, among other things: (i) the emergence of surplus within the PRF; (ii) the need for a *qard* to cover valuation strains; and (iii) the basis adopted for pricing *takāful* products and methods adopted. The valuation of family *takāful* contingent liabilities is left to the discretion of the TO's actuary. This approach, however, can result in issues of equitability when different products are priced differently, but are maintained in a single pool. It may also affect the distribution of surplus to the participants. Liabilities can be due to the use of best estimate assumptions plus padding in pricing, but valuing liabilities on a best estimate basis – that is, with no "padding". Under IFRS-17 accounting rules, the liabilities are valued with a margin for adverse deviation. The regulatory challenge is how the valuation methodology required for *takāful* products can best ensure equitability of treatment among *takāful* participants, and at the same time provide for capital build-up within the risk pool.

3.0 SUMMARY OF THE SURVEY FINDINGS

3.1 Introduction

The beginning part of this section presents an overview of the structure of *takāful* operations in relation to the capital requirements. The idea highlighted is derived from the following publications: Smith (2009), Archer and Karim (2009), and the IFSB's standard for *takāful* undertakings (IFSB-11) published in 2010.

The remaining subsections summarise the survey findings on the supervision of capital requirements regulation for *takāful* undertakings and the practices of *takāful* operators. The information was collected from 57 institutions, which comprised 15 RSAs and 42 TOs. The *takāful* operators include 26 full operators and 16 window operators.[34] The questionnaire was structured with consideration of four issues important to *takāful* capital requirement: (i) *takāful*-specific regulation; (ii) policyholders' protections; (iii) surplus sharing and distribution; and (iv) the priority of policyholders.

3.2 Overview of *Takaful* Structure and Operations

An overview of the structure of *takāful* operations shows that a *takāful* scheme is, in principle, a cooperative risk-sharing arrangement established for the benefit of the participants. Thus, *takāful* regulation is established primarily for participants' protection. The establishment of adequate participants' protection centres on three main issues – namely, compliance with *takāful* principles, obligation to provide *qard*[35] at all times, and participants' priority.
In respect of compliance with *takāful* principles, the views of both RSAs and TOs were sought on the compliance with Sharī'ah principles, the capital requirements framework specific to *takāful* undertakings and the levels of assessment of capital adequacy. All those TOs that responded have Sharī'ah governance included in their governance framework to ensure that funds management complies with Sharī'ah rules and principles. Four different types of Sharī'ah advisory structures were identified among the respondents; 33.3% were recorded for respondents with both internal and external Sharī'ah advisors, and those having central Sharī'ah advisors in addition to their internal Shari'ah advisor. The operators with only external Sharī'ah advisors or internal Sharī'ah advisors represent 22% and 14% respectively (see Chart A3.1 in the Appendix).

A distinction is made among the Sharī'ah advisors. According to the TOs, the role of internal Sharī'ah advisor is to form an opinion and ensure compliance with Sharī'ah principles in all aspects of *takāful* operations, and to report to the board of directors. The external Sharī'ah auditor inspects and forms an opinion on the Sharī'ah-compliance of the entity during an accounting period, and reports at the end of that period. The National Sharī'ah Advisory Committee oversees the Shari'ah rulings and the activities of internal Sharī'ah advisors in each *takāful* entity. Chart A3.2 illustrates seven important areas of *takāful* operations that require a Sharī'ah advisor's approval;[36] however, the three most cited aspects are underwriting surplus distribution and investment instruments (81%), followed by allocation of *qard* facility (69.1%) and investments portfolio (61.9%). Just over a fifth (21%) of the respondents provide

[34] See the list of the respondents in the Appendix.
[35] *Hassan* is dropped from the *qard* to emphasise leveraging.
[36] See the Appendix.

technical training for the Sharī'ah advisors on matters relating to capital requirement regulations.

The survey finding shows that 40% of the RSAs have revised their capital requirements regulation to reflect post-GFC developments in regulation and supervision of the insurance industry, with due recognition of the specific nature of *takāful* operations. Another 20% of the respondents indicated that their revised insurance solvency regulation is without *takāful* provisions.

Takāful regulation should recognise the specific structure of *takāful* undertakings, which require separation of policyholders' funds from the operator's shareholders' fund. This is a major difference between *takāful* schemes and conventional insurance. Segregation of funds into participants' risk fund and *takāful* operators' shareholders' fund provides the basis for which the role of each fund is delineated. The finding indicates that all the TOs maintain at least one PRF segregated from the *takāful* operator's SHF in spite of the fact that only 60% of the RSAs require their *takāful* operators to segregate the funds, and separately present the assets and liabilities of *takāful* funds in the financial statements with variation in the prescribed accounting standards (see chart A3.3).[37]

Chart A3.4 illustrates the level of funds at which the TOs carried out solvency (capital adequacy) assessment. Some 46.7% of the RSAs indicated that their supervised TOs are required to perform a solvency assessment at the PRF level. The response from the TOs shows that 85.7% are conducting solvency assessment at the PRF level. However, the prescribed minimum SCR differs across the jurisdictions. For instance, while some RSAs required *takāful* operators to maintain a solvency margin of at least 130% of the minimum capital requirement, others set the minimum SCR at 150%. The solvency margins held by 26.7% of the jurisdictions are risk-based (i.e. directly linked with assets and technical provisions),[38] whereas for others the SCR is based on total capital available. One strength of the risk-based approach to capital assessment is that it responds to an operating model whereby capital requirements properly reflect risk. An operator's fund with much higher financial strength than its corresponding PRF usually will enhance the capital adequacy assessment in respect of the entire *takāful* operations. This enhanced financial strength arises from the operator's obligation to provide *qard* to the PRF whenever it is in distress. The MCR of a *takāful* company is determined by applying risk factors to each of the identified risk components, reducing the resultant amounts by identified risk mitigants, and aggregating the result. Further reduction may be possible by identifying diversification effects.

According to the survey, the business activities (e.g. long-term and general underwriting business) of a *takāful* firm determine its MCR. The undertakings are classified into four different categories, with a minimum capital requirement stipulated for each category.[39] Moreover, 21% of the respondents (mostly family *takāful* operators) indicated that those PRFs with a participants' investment fund are consolidated for the purpose of solvency assessment.

[37] AAOIFI and IFRS standards are the two main sets of accounting standards being employed.

[38] The challenge faced in implementing a risk-based capital approach due to its complexity and the level of judgment it requires.

[39] The four categories are as follows: Category 1: an undertaking whose licence is limited to the following *takāful* business: fire, damage to property, and miscellaneous financial loss. Category 2: marine cargo, marine hull, aviation, motor, engineering, liability, and any other *takāful* policy under general class not specifically mentioned. It may also include activities in category 1. Category 3 includes any of the following types of activities: long-term *takāful* business segment of all types, and personal accident whose term is over one year and saving-linked. Category 4 comprises any form of *takāful* whose licence includes any type of *takāful* business specified in category 1, 2 or 3.

3.3 Policyholders' Protections

As earlier highlighted, segregation of the PRF and the operator's SHF is recognised as one of the fundamental features of a *takāful* capital requirements framework. The separation of PRF and the operator's SHF requires that a capital requirement assessment be performed separately for each fund. Since a PRF may not have the capital required to meet reasonable solvency requirements (i.e. due to its mutual nature), a hybrid structure has been developed in which a *takāful* operator, being a company limited by shares, provides a form of capital backing to the PRF. Thus, *qard*[40] is often (but not in all cases) identified as a mechanism for transferring capital resources to a PRF from the operator's SHF to allow the PRF to meet its solvency requirements and commitments – in particular, policyholders' valid claims. This hybrid structure results in a need for capital requirements regulation that, among other things, reflects this feature.
Views of the RSAs and TOs were sought on the following practices with respect to *qard*: (i) requirement for a *qard* facility; (ii) approval from the Sharī'ah advisors; and (iii) the policy for repayment and possible impairment of a *qard* that has been drawn down, including the calculation of a PRF's solvency status before *qard* is drawn down.

Chart A3.5 illustrates the comments from RSAs and TOs on the requirements and practice with respect to the *qard* facility. Nearly half (46.7%) of the RSAs indicated that they have a written policy on a *qard* facility to cover any deficiency in a PRF for payment of claims. According to these supervisors, the provision of a *qard* facility is mandatory, and is included in the subscription document issued by the *takāful* entity to its participants. The *qard* facility is limited only by the amount in the TO's SHF. On the other hand, 13.3% of the RSAs indicated that, since the *takāful* provision is not included in their regulatory framework, the policy on drawing down a *qard* is left to be determined at the entity level. Only one jurisdiction explicitly prohibits the use of *qard* under any circumstances. The chart shows that 93% of the TOs use *qard* as a means to transfer capital resources from the operators' SHF to the PRF. Chart A3.6 highlights different points at which a *qard* is drawn by TOs. Among the TO respondents, 43% selected "when the cash is needed to pay claims", whereas 79% chose "when it is needed to prevent the PRF's technical provisions exceeding its assets". Another 26% indicated: "When it is needed to allow the PRF to meet a defined solvency margin." From this observation, it is apparent that a significant number of respondents selected more than one option.

On the question of a Sharī'ah advisor or a Sharī'ah committee granting approval prior to the draw-down of *qard* (i.e. to meet a deficiency in the PRF), 20% of the jurisdictions surveyed indicated that they require such approval, whereas 80% of respondents indicated that they allow each operator to develop their own policy should a deficiency arise in a PRF. In relation to this, TOs were asked to indicate the basis for their treatment of deficits and surplus. A large majority (95%) of the respondents indicated that they base their method for determining surplus and deficit on the prescribed accounting standard. The two most commonly applied accounting standards are the AAOIFI Financial Accounting Standards (FAS) and the International Financial Reporting Standards.

The treatment of *qard* is fundamental to the question of whether *takāful* is the same as or different from conventional insurance. Both accounting standards (AAOIFI and IFRS) provide

[40] *Qard* is the transfer of ownership in fungible wealth to a person on whom it is binding to return wealth similar to it (AAOIFI Shari'ah Standard, 2017).

views on the treatment of *qard*.[41] There are three main views: (i) treat it as "an item of expense" of the TOs, while subsequent recovery may be deemed "other income"; (ii) treat it as "equity" of the TOs in the fund; and (iii) treat it as a "financial instrument".[42] A number of jurisdictions specify that *qard* will be treated according to the following rule: "The amount of *qard* will be written off and/or repaid over a period not exceeding 5 years and disclosed as an off-balance sheet item and not included as part of available capital for solvency purposes."[43] The rule further highlights the fact that "the TO must have a clear written policy addressing the manner in which *qard* will be repaid and specify a *qard* impairment testing mechanism".[44]

The *qard* is a liability (*qard* payable) of the PRF, not an asset. It is treated as a subordinated loan (a form of regulatory capital) for solvency purposes. The counterpart of the *qard* in the PRF is the liquid assets provided by the TO – that is, by the SHF – to enable the PRF to meet its obligations. The *qard* receivable is an asset of the SHF, but is ignored for solvency purposes to avoid double counting. Therefore, if the *qard* payable in the PRF is considered to be impaired, it does not count as an admissible component of regulatory capital.

The requirement to write off *qard* after a prescribed period puts these regulations at direct odds with the Shari'ah advisors, who feel that debt must always be paid off irrespective of how long it takes. The issue of *qard* repayment and impairment raises the question of risk transfer to the operator, as opposed to risk sharing among the participants. Chart A3.7 shows the practice with respect to the repayment and impairment of *qard*. Only 40% of the respondents' RSAs adopt the practice set out in the AAOIFI standard, where "the deficit resulting from commitment of the current year may be covered from the surplus of the succeeding year". It follows, therefore, that a *qard* should be repaid only if the PRF generates a surplus, and thus it should not be repayable in the event of continuing deficits.

The policy on *qard* deployment and recovery consists of three main items: (i) the conditions that will necessitate the draw-down of *qard;* (ii) the process, assessment and methodology of the deployment of the *qard*; and (iii) the recovery process, as well as the circumstances under which it is no longer feasible for it to be repaid. Among the survey respondents, 83.3% of the operators indicated that they have a policy on repayment and impairment of *qard* irrespective of whether such a rule exists in their jurisdictions. According to these TOs, "the repayment is made from any future surpluses which arise in a PRF, following actuarial advice and in consultation with the Shari'ah advisors". A period of between three and five years is recommended for *qard* to be written off upon an impairment test.

The setting up of *qard* as a means of providing capital support from the operator's SHF to the PRF introduces supplementary issues such as "earmarking of assets" in the SHF and the terms and conditions under which a *qard* facility is made available (e.g. the repayment policy). This survey seeks information from the RSAs on the "earmarking of capital resources" in the operator's SHF for backing a *qard* facility. Only 13% of the respondents' RSAs impose this requirement, with most other RSAs stating otherwise. A similar question was posed to the *takāful* operators; 83% indicated that once a *qard* facility is transferred to the PRF from the SHF, it is deducted appropriately from the available capital in the SHF in the solvency

[41] AAOIFI Financial Accounting Standard 13 (2015).
[42] Asian-Oceanian Standard-Setters Group (AOSSG) Islamic Finance Working Group Reporting Islamic Financial Transactions under IFRS (2018), *An update on Financial Reporting Issues relating to Islamic Finance* (2010).
[43] Central Bank of Bahrain (CBB) Rulebook CA-8.4.16.
[44] CBB Rulebook CA-8.4A.6.

calculation. The views of RSAs were sought on the consideration of a *qard* for solvency assessments in the PRF prior to being drawn. Forty percent of the RSAs indicated that there are no such requirements, but that, once it is drawn, the net admissible assets in the PRF are included in the respective assets and liabilities components of the balance sheet and consequently in the solvency calculation. On whether a limit is set on the extent to which *qard* can be drawn from the SHF, 60% of the RSAs indicated that they prescribe no limit.

3.4 Priority of Policyholders

3.4.1 Eligible Capital Resources

Capital is often considered as a residue in accounting theory, and is broadly defined as the amount of assets in excess of the amount of the liabilities. In the insurance sector, capital is a measure of funds in excess (i.e. residue) of what is needed to meet future obligations to policyholders (insurance liabilities) as well as other liabilities. As the case may be, the excess or residue includes not only the equity attributable to the shareholders of the business, but also any element of equity (surplus) that is attributable to the policyholders. This arises where policyholders are entitled to the profits of the operation or a part of it, as in the case of a mutual, a life insurance offering "participating" (with-profit) products or a *takāful* undertaking. In this case, underwriting or other surpluses attributable to policyholders, but retained in reserves rather than allocated for distribution, form part of equity. Regulators often draw a distinction between amounts that are available to "absorb" losses, and amounts that have been "appropriated" as bonuses, dividends or other profit shares, which have been converted into liabilities even though they are still held and not yet paid out.

Traditionally, insurance solvency regimes regarded capital as a single item (as earlier defined). Risk-based capital seeks to set the capital adequacy level so that it is commensurate with the risk profile of the *takāful* operations and acts as a financial buffer for the *takāful* exposure. The approach recognises both that eligible capital can encompass a range of capital items and investment instruments, and the differential ability of those items to absorb losses. Regulatory capital requirements are the level of capital resources that a *takāful* operator needs to maintain for regulatory purposes.[45] Some items of capital that do not qualify as "capital" under regulatory reporting should be shown as liabilities in the financial statements. Depending on how *takāful* is structured, a *takāful* operation may involve potential capital "instruments" that do not have an exact equivalent in conventional insurance. However, the consistency principle may be applied to determine their status.[46] For example, in a jurisdiction that assesses the PRF separately from the *takāful* operator's fund, for capital adequacy purposes, *qard* is considered as a form of leverage financing that allows capital to be transferred to the PRF. Therefore, *qard* received may be considered as capital in the PRF, provided it is subordinated to the need to meet claims and can only be repaid out of surplus. With regard to this, care must be taken to avoid using the same capital to cover two different risks (otherwise referred to as "double gearing").

The survey sought information on current practices with regard to eligible capital resources. Just over half (53%) of the RSAs categorise capital resources into a two-tier structure based on the nature of capital using different nomenclature (such as Tier 1 capital, core capital or

[45] Geneva Association (2016).
[46] See IFSB-11.

common equity). The findings also indicate that 26.7% of the supervisors adopt some specific guidelines on the classification of the quality of capital resources.

Although the IFSB's standard on capital adequacy (IFSB-15) was originally not intended to address issues of capital resources for *takāful* undertakings, it could provide the basis for considering appropriate Shari'ah-compliant, risk-based capital components for *takaful* undertakings, and may provide guidance on possible involvements of *takaful* entities in *sukūk* issuance. The features of capital (such as definition, treatments of [regulatory] eligible capital, and criteria for capital components) as highlighted in the standard can also be applied to *takaful* institutions.[47]

Generally, the criteria for assessing the quality and suitability of capital resources for regulatory purpose depend on the ability of the capital components to absorb losses at different financial stages, particularly, in the run-off and wind-up phases. The three key characteristics that influence the quality and suitability of capital resources include the extent to which the capital component is fully paid, the degree to which the capital is permanent and cannot be withdrawn, and the absence of any prior claims to which the capital component is subordinated. These characteristics reflect the essential qualities of loss absorbency and availability, and form the basis for categorising capital into different quality classes (such as "tiers") – from the highest quality of equity capital of the operator that carries no obligation of repayment or distributions down to "ancillary capital", which may be called by the operator if needed. Classification of capital using a "tiering approach" presents a practical way of differentiating between the quality of capital instruments, and a number of jurisdictions indicated that they favour this approach.[48] The capital available to a *takaful* operator includes the aggregates of Tier 1 and Tier 2 capital less deductions.[49]

Under the "tiering approach", the quality of capital in each tier is reflected in a risk-based capital model by setting limits on the extent to which capital of lower quality can be taken into account for solvency purposes. Common equity capital is classified as Tier 1 capital (CET1) and may be viewed largely to absorb losses in a going-concern situation and in an insolvency scenario, whereas subordinated debt may be viewed largely as protecting policyholders only in insolvency.[50] Each of these capital components may be expressed either as a percentage of required capital (i.e. a minimum level of 50% of required capital for high-quality capital elements, and/or an upper limit for lowest-quality capital which might be 25% of required regulatory capital). In addition, a limit may be set on the extent to which required capital may be composed of certain specific types of capital elements.[51] Appendix Table A3 presents the characteristics of capital instruments that could be classified as Tier 1 capital or core capital/common equity capital.

A bedrock of highest-quality capital is usually required for *takāful* operations; therefore, a TO will not be allowed to operate if its Tier 1 capital has been eroded below a prescribed level

[47] See Appendix Table A1, which summarises the key criteria for classifying these instruments as established in IFSB-15.
[48] Restrictions are placed on capital that is eligible to cover capital requirements using "tiering".
[49] See Appendix Table A2 for the list of capital elements and excluded items.
[50] Going concern is a situation where an entity is still solvent and continuing operations, whereas Insolvency is sometimes termed "wind-up capital" or "gone concern" capital.
[51] For example, perpetual subordinated loan capital and perpetual cumulative preference share capital may be limited to 50% of required capital.

through operating losses.[52] The solvency assessment in *takāful* operations is focused on the PRF, which is considered to have two sources of regulatory capital: surplus (reserves from retained surpluses; consideration is given to other reserves in some jurisdictions) within the PRF and *qard* from the TO's fund.[53] An undrawn *qard* (a *qard* facility) may also count as solvency capital at a lower tier.[54] However, for the *qard* to count as capital for solvency purposes, it must be appropriately subordinated to policyholders' valid claims on a winding-up. The limit on the utilisation of lower-quality capital (i.e. preference shares and subordinated debt instruments) might be expressed as a percentage of the total amount of capital or of the required solvency margin.[55]

The appropriateness and adequacy of the capital resources of a PRF and a TO's SHF to meet their respective obligations as they fall due are essential in the assessment of the solvency requirements of *takāful* operations. Therefore, capital resources available for solvency purposes in a PRF are equal to its technical provisions plus an additional risk margin or buffer which is the amount available in the PRF to cover possible underestimation of technical provisions (in IFRS-17, an "adjustment for non-financial risk").[56]

3.4.2 Criteria for Assessment of the Quality and Suitability of Capital Resources

As previously highlighted, the nature of capital resources is used to establish criteria for an assessment of the quality of capital elements for regulatory purposes. The following are the key criteria employed.

Subordination

For a capital element to be available to protect policyholders, it must be legally subordinated to the rights of policyholders and senior creditors of the insurer in an insolvency or winding-up.[57] Equally important is the absence of encumbrances that undermine the subordination or render it ineffective. An example is rights to offset, where creditors are able to set off amounts they owe the insurer against the subordinated capital instrument. In this context, the determination of suitable capital elements for solvency purposes is critically dependent upon the legal environment, which is governed in each jurisdiction by the law operating in regard to insolvency and winding-up. Usually, the payment priority in a wind-up situation is stated in law. In some jurisdictions, insurers can issue subordinated debt that provides protection to policyholders and creditors in insolvency. While policyholders are often given a legal priority above other creditors such as bondholders, this is not always the case; some jurisdictions treat policyholders and other creditors equally.

Availability

Capital resources must be fully paid before they can fulfil the requirement of being available to absorb unforeseen losses. However, in some circumstances, a capital element may be paid

[52] Appendix Chart A3.8 illustrates the process of winding-up of two *takāful* companies in a jurisdiction due to deterioration in their Tier 1 capital resources.
[53] See Appendix Table A2.
[54] *Ibid.*
[55] Smith (2009). "Solvency and Capital Adequacy in Takaful", in S. Archer, R. A. A. Karim and V. Niehaus (eds), *Takaful Islamic Insurance* (pp. 193–216), Singapore: John Wiley & Sons Pte Ltd
[56] IFSB-11 (2010).
[57] This means that the holder of a capital instrument is not entitled to repayment, dividends or interest once insolvency or winding-up proceedings have been started until all obligations to the insurer's policyholders have been satisfied.

for “in kind” (i.e. issued for non-cash), in which case the extent of and circumstances in which such a payment is acceptable must be determined. Certain contingent elements of capital are treated as available capital resources in circumstance where the probability of payment is expected to be sufficiently high (e.g. the unpaid part of partly paid capital, contributions from members of a mutual insurer, or letters of credit). Contingent elements of capital, in some cases, are counted as capital, but such inclusion may be subject to meeting specific supervisory requirements such as the ability and willingness of the counterparty concerned to pay the relevant amount; the recoverability of the funds, taking into account any conditions that may prevent the item from being successfully paid in or called up; and any information on the outcome of past calls that have been made in comparable circumstances by other insurers, which may be used as an indication of future availability.

The availability of capital instruments may also be impaired when capital is not fully fungible within an undertaking to cover all losses arising from the insurer’s business. This applies to family *takāful* (i.e. the assets of the PIF are segregated from the rest of its operations in a ring-fenced fund). In such cases, assets in the fund may be used only to meet obligations to policyholders with respect to which the fund has been established. In these circumstances, the available capital resources relating to the ring-fenced fund can be used only to cover losses stemming from risks associated with the fund (until transferred out of that fund) and cannot be transferred to meet other obligations.

Permanence

A suitable capital resource for solvency purposes must be available for a sufficiently long period to protect against losses, and must be available when needed. Therefore, it is important to determine a minimum period during which capital should be outstanding for it to be suitable as a capital resource for solvency purposes. Some of the factors to consider in assessing the extent of permanence of a capital element are: the duration of the obligations to policyholders; contractual features of the capital instrument that influence the period for which the capital is available (e.g. lock-in clauses, step-up options or call options); any supervisory powers to restrict the redemption of capital resources; and the time it might take to replace the capital element on suitable terms as it approaches maturity.

Absence from Mandatory Servicing Requirements or Encumbrances

The extent to which capital elements require servicing are considered in the assessment for solvency purposes.[58] Some capital elements that have a fixed maturity date may have fixed servicing costs that cannot be waived or deferred before maturity. The presence of such features affects the undertaking’s ability to absorb losses on a going concern basis and may accelerate insolvency if the payment of a servicing cost results in the insurer breaching its regulatory capital requirements. Some capital instruments are structured to restrict the payment of dividends or interest and any redemption of capital resources where such payment may create a breach or a near breach of the regulatory capital requirements and/or eroded through incurring losses. The payment of dividends or interest may also be subordinated to policyholders’ interests in the case of winding-up or insolvency. These features may contribute to the ability of the capital instrument to absorb losses on a wind-up basis if any claims to unpaid dividends or interest are similarly subordinated.

[58] Servicing in the form of interest payments, shareholder dividend payments and principal repayments.

It is necessary also to consider whether a capital element contains encumbrances that may restrict its ability to absorb losses, such as guarantees of payment to the capital provider or other third parties, hypothecation,[59] or any other restrictions or charges that may prevent the insurer from using the capital resource when needed. Where the capital element includes guarantees of payment to the capital provider or other third parties, the priority of that guarantee in relation to policyholders' rights needs to be assessed. Encumbrances may also undermine other characteristics such as the permanence or availability of capital.

3.4.3 A Case Study of *Ṣukūk Mushārakah* Issued to Meet Tier 2 Capital Requirements

As shown in the survey, one-third of the respondent RSAs have proposed unrestricted non-exchange-based *sukūk* (e.g. *ṣukūk mushārakah* or *mudarabah*) for structuring "Additional Tier 1/Upper Tier 2" capital instruments, as the case may be. One RSA attested to the issuance of subordinated *ṣukūk mushārakah*, which is counted as tier 2 capital instruments in the assessments of *takāful* undertaking's capital requirements. Further highlights from the issuer's prospectus indicate that the subordinated *ṣukūk mushārakah* is an equity-based *ṣukūk* contract with a tenure of 10 years. The investors who subscribed to the subordinated *sukūk mushārakah* ("*sukuk* holders") form a partnership with the issuer to invest directly in the "business", while the issuer will contribute the "business" (as capital-in-kind) to the *musharakah* venture. Any profit derived from the *musharakah* venture is distributed to each *mushārakah* partner based on a profit-sharing ratio that has been determined prior to the issuance of the subordinated *sukūk mushārakah*. However, any loss incurred in the subordinated *sukūk mushārakah* shall be borne by each *musharakah* partner in proportion to each *musharakah* partner's respective capital contribution to the *musharakah* venture. Details about, and the structure flow of, the subordinated *mushārakah ṣukūk* can be found in the issuing document.[60]

3.4.4 Insolvency Protection

The regulations in most jurisdictions concerning the liabilities of *takāful* undertakings upon winding-up remain largely unclear. The relative infancy of most *takāful* undertakings overshadows this issue. However, there have been cases of *takāful* undertakings being wound up in a number of jurisdictions, which requires this issue to be treated in detail – in particular, the financial stages of run-off and winding-up.

The survey indicates that 60% of the respondent jurisdictions have an existing insolvency provision entrenched in their civil laws which ranks policyholders and their beneficiaries under policies above ordinary creditors and shareholders. For instance, the UAE's *Insurance Law* (article 95) provides that the debt and liabilities of an insurance company (including a *takāful* firm) will be settled in a specified order whereby the rights of insurance beneficiaries under policies are to take priority over those of ordinary creditors and shareholders of the *takāful* company.[61] Similar provisions exist in Malaysia, Jordan and Turkey. However, there are no equivalent provisions in the Qatar insolvency regulation, the Central Bank of Bahrain Rulebook

[59] "Hypothecation" is a legal term that refers to the granting of a hypothec to a lender by a borrower. In practice, the borrower pledges an asset as collateral for a loan while retaining ownership of the assets and enjoying the benefits therefrom.

[60] See Etiqa Takaful Berhad. (2014). *indicative principal terms and conditions of the proposal.* Retrieved from issuance.sc.com.my: http://issuance.sc.com.my/MemberAccessIssuance/documents/view-file/4395

[61] See Insurance Authority United Arab Emirates (IAUAE). (2014). *Financial Regulations for Insurance Companies.* Retrieved from Insurance Authority Web site: https://ia.gov.ae/en/Documents/Financial%20Regulations%20for%20Insurance%20Companies.pdf

and *Financial Institutions Law*, or under the Saudi *Insurance Law*. In these countries, winding-up rules are not yet fully defined. Moreover, the civil code in Kuwait has no provision concerning the priority of policyholders' claims other than in respect of the return of premiums/contributions. Likewise, in Oman, the current *Insurance Law* issued by Royal decree (No. 12/79) does not address policyholder protection in the provision relating to insolvency of an insurance company. Meanwhile in Pakistan, *takāful* operations are governed under the *Insurance Ordinance* (2000). According to the ordinance, the winding-up of *takāful* companies in Pakistan may either be by court order (having satisfied the relevant provisions in accordance with the order) or by voluntary winding-up (as specified under Part XVIII of the *Insurance Ordinance*). However, no voluntary winding-up will take place unless the liabilities incurred under *takāful* contracts have first been transferred, or provision has otherwise been made for settlement of these liabilities. In addition, section 9(3) of the *Insurance Ordinance* requires an operator to make adequate provision for the irrevocable transfer of insurance liabilities to a registered insurer before seeking revocation of registration. This provision provides an added protection for the participants in case the *takāful* operator wishes to cancel its registration as a TO.

3.5 Surplus Sharing and Distribution

3.5.1 Sharing and Distribution of Underwriting Surplus

The underwriting surplus for a financial period is the excess of the total premium contributions paid by policyholders (participants) during the financial period over the total indemnities paid in respect of claims incurred during the period, net of *retakaful*/reinsurance and after deducting expenses and changes in technical provisions.[62] The policyholders have the exclusive right to the underwriting surplus. Several fatwas and Sharī'ah rulings have been issued to this effect. The shareholders do not share in this surplus because it belongs to the policyholders collectively, as defined in the *takāful* agreement. However, the surplus may be invested for the account of the policyholders, provided the Sharī'ah provisions regulating such investment are observed. The party undertaking the investment is entitled only to the consideration specified for this purpose (i.e. the percentage of investment profit in the case of *mudarabah*, or the amount of the fee in the case of agency). It is to be noted that, according to the above, in the case of *mudarabah* only the investment profit is to be shared, not the entire surplus for the period (which includes both the underwriting surplus and the investment profit).

Takāful operators are required to develop a policy for determining the surplus or deficit from *takāful* operations. The basis for determining and allocating that surplus or deficit to the participants and the shareholders, and the method of transferring any surplus or deficit to the participants must follow the prescribed accounting standard (i.e. IFRS and AAOIFI). For jurisdictions that follow AAOIFI standards, the policy developed must consider all relevant AAOIFI standards, including Financial Accounting Standard No. 13: *Disclosure of Bases for Determining and Allocating Surplus or Deficit in Islamic Insurance Companies*. In addition, the Shari'ah supervisory board as well as the board of directors of the TO must approve the policy.

IFRS and AAOIFI standards are the two most common accounting standards prescribed by RSAs as the basis for treating the distribution of underwriting surplus. In some jurisdictions, TOs are required to have a clear written policy on surplus distribution; in others, they may decide by referring to their Shari'ah advisor's decisions. Most RSAs mentioned that their focus

[62] AAOIFI, FAS-13 (2015), p. 497.

is on the solvency assessment, which is intended mainly to appraise the strength of the PRF. On the consideration of solvency prior to the distribution of surplus, 46.7% of RSAs stated that distribution could only take place after reflecting on its impact on the solvency position of the fund. The reason given is that maintaining an adequate solvency position in the PRF is necessary to manage the participants' reasonable expectations. It is noteworthy that over half of RSAs made no such statement.

The survey examines the practice of distributing surplus before full repayment of a *qard* among the respondent TOs. Only one jurisdiction permits the distribution of surplus prior to the full repayment of a *qard*, whereas other RSAs have no guidelines on the settlement of a *qard* before any surplus distribution, thereby leaving TOs to be guided by their internal policy. As one TO stated, "the determination of surplus distribution lies with the board of directors. Thus, they have the discretion to retain, and distribute part or the entire surplus depending on the circumstances with approval from the supervisor." In addition, the survey highlights the differences among RSAs regarding sharing of underwriting surplus. One-third of the RSAs prohibit the sharing of underwriting surplus, whereas another one-third of the respondents permit the sharing of underwriting surplus. It is noted, however, that the sharing of underwriting surplus is not directly related to the *takāful* model in operation. The sharing of investment and underwriting surplus is allowed in jurisdictions where the pure *mudarabah*, *tawuun* (cooperative) and *waqf–mudarabah* models are practised. On the other hand, the distribution of underwriting surplus (i.e. as a performance fee) is allowed in some jurisdictions that have adopted a pure *wakālah* model. This is in addition to the upfront *wakālah* fees charged to the PRF. The *takāful* model in operation across the jurisdictions is distinct, indicating lack of a clear and definite pattern across jurisdictions. Then again, the distribution of underwriting surplus prior to full repayment of *qard* is permitted by few RSAs (13.3%), showing that the practice as such is not widespread.

3.5.2 Sharing of Investment Income

The survey findings show that a significant percentage of TOs (60%) manage investments under a *mudarabah* arrangement, which permits sharing of derived income according to a pre-agreed ratio. Most operators declare that there is no guidance on the sharing of investment income; hence, TOs are left to determine the sharing based on the recommendation of their Shari'ah advisors. It is observed that the profit-sharing ratio differs among the operators. For instance, the ratio varies from 25% to 40% of the investment gains.

3.5.3 Trends in the PRF, *Qard, Wakālah* Fees and Surplus Distribution of Representative *Takāful* Companies in Some Selected Jurisdictions

In addition to the findings from the survey questionnaire, annual reports and financial statements of eight representative *takāful* companies in four different jurisdictions were examined in order to view trends in the PRF, distributable surplus, *qard*, and *wakālah* fees charged to the PRF. *Takāful* companies were selected from jurisdictions that have regulatory provision for *qard*, distributable surplus and *wakālah* contracts. As stated earlier, the identity of the selected *takāful* companies and their respective jurisdictions are not disclosed, but their business and duration of establishment are shown in Table 3.5.1.

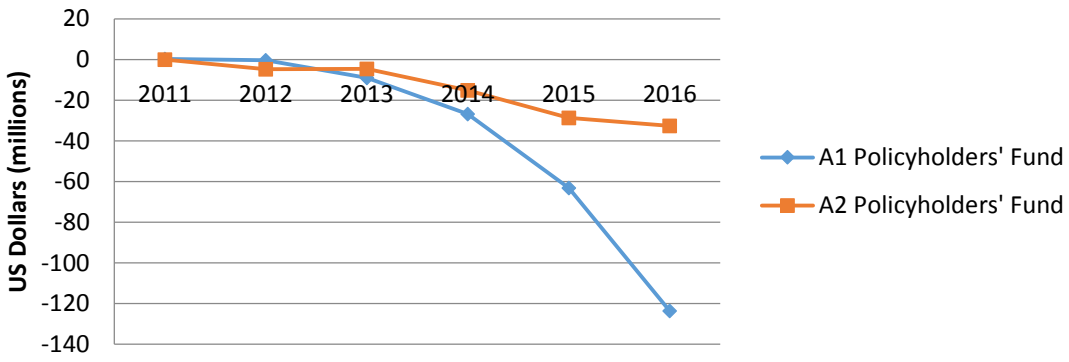
Table 3.5.1: Business and Duration of Establishment of Selected *Takāful* Companies

COUNTRY	TAKAFUL COMPANY	BUSINESS	YEAR OF ESTABLISHMENT	AGE
A	A1	Composite	1979	39
	A2	General	2011	7
B	B1	Composite & *Retakaful*	1978	40
	B2	General	1993	25
C	C1	Family	2008	10
	C2	General	2003	15
D	D1	Composite	2005	13
	D2	Composite	1984	34

Source: Authors/IFSB workings, 2018

Chart 3.5.1a illustrates the trend in the consolidated PRF (i.e. a combination of general and family *takāful*) of two selected *takāful* undertakings designated A1 and A2 in country A between 2011 and 2016.[63] In both undertakings, significant deficiencies arose in the PRFs during these periods. In 2011, the A1 *takāful* firm recorded a surplus of US$0.27 million in the PRF and in subsequent years recorded deficits in the PRF. This deficit increased from US$0.55 million in 2012 to US$123.7 million in 2016. Similarly, the deficit in the PRF of A2 *takāful* firm increased from US$0.14 million in 2011 to US$32.6 million in 2016.

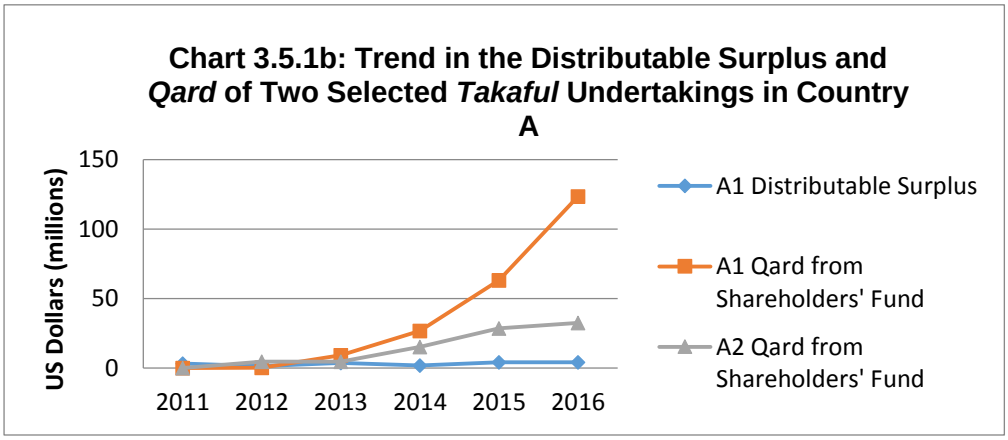
Chart 3.5.1a: Trend in the Policyholders' Fund of Two Selected *Takaful* Undertakings in Country A



Source: Authors/IFSB workings, 2017

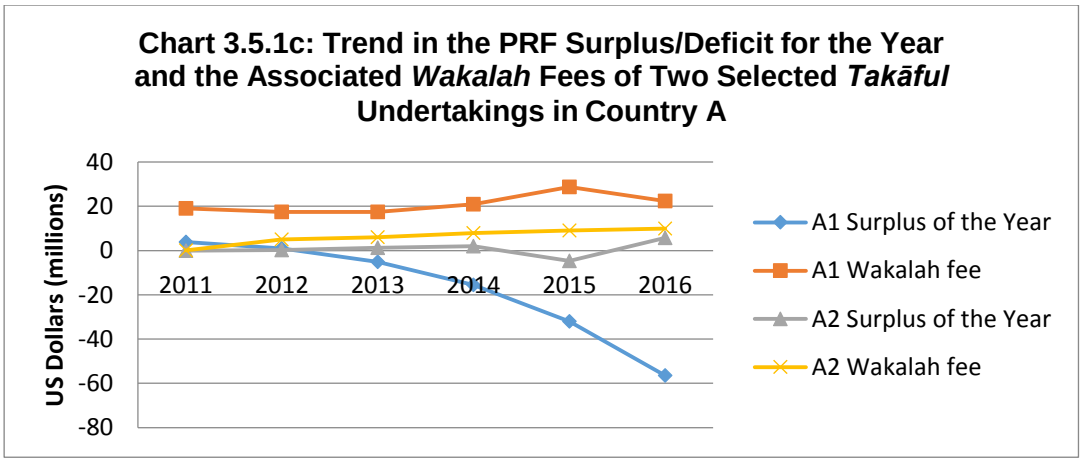
Chart 3.5.1b shows the trend in the distributable surplus and *qard* of the *takāful* firms in country A. As indicated in the chart, *qard* financed by the shareholders' fund of the A1 *takāful* firm increased from US$0.40 million in 2012 to US$123.7 million in 2016. The amount of *qard* corresponded to the accumulated deficiency in the PRF. In addition, the distributable surplus of AI *takāful* firm rose from US$3.39 million in 2011 to US$4.14 million in 2016. A lower distributable surplus of US$1.54 million was recorded in 2012. However, A2 *takāful* firm does not distribute surplus to the *takāful* participants.

[63] Note that the information given on the consolidated PRF (general and family) is reported as presented in the annual reports and financial statements of *takāful* undertakings in that country.



Source: Authors/IFSB workings, 2017

Chart 3.5.1c illustrates the trend in the *wakālah* fees and surplus attributable to the PRF for each year between 2011 and 2016. As indicated in the chart, the surplus attributable to PRF for A1 *takāful* firm increased from US$32.15 million in 2011 to US$74.3 million in 2016, representing an increase of 22.6% over the period of six years; whereas for A2 *takāful* firm the surplus attributable to the PRF declined by 11.6%, from US$113.6 in 2011 to US$71.1 in 2016. The *wakālah* fees charged for managing the *takāful* operations on behalf of the *takāful* participants were within the range of 45–50% of the gross contribution written. According to the chart, the *wakālah* fees for the two firms show an increasing trend, which does not really reflect the trend in the PRF surplus or deficit.



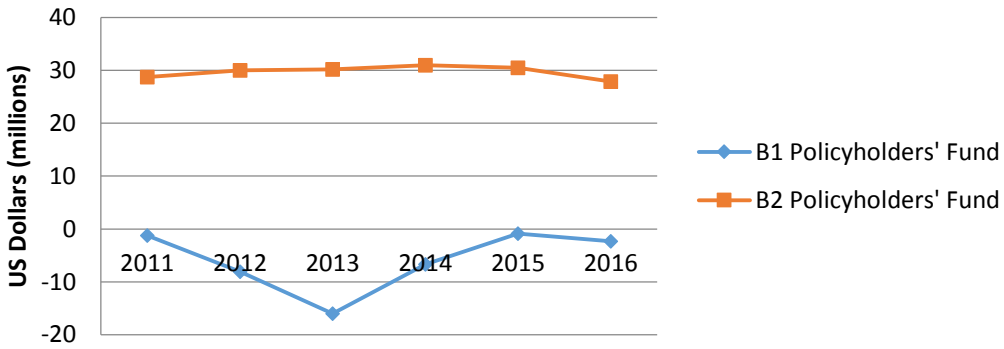
Source: Authors/IFSB workings, 2017

Chart 3.5.2a presents the trend in the PRF for representative *takāful* undertakings in country B from 2011 to 2016. These companies[64] (i.e. B1 and B2) hold significant insurance market shares in their country of operations. The deficit in the PRF of B1 *takāful* undertaking increased from US$1.25 million in 2011 to US$16 million in 2013; subsequently, it decreased continuously to US$0.88 million in 2015 before a slight increase in 2016. On the other hand,

[64] Middle East Insurance Review . (2013, January 2013). *Southeast Asian waters a black spot for shipping-Allianz.* Retrieved from Middle East Insurance Review Web site: http://www.meinsurancereview.com/News/View-NewsLetter-Article/id/26789/Type/eDaily/Region-Southeast-Asian-waters-a-black-spot-for-shipping-Allianz

the PRF of B2 *takāful* company shows a positive and stable trend, from US$28.7 million in 2011 to US$31 million in 2014, before declining slightly in 2016.

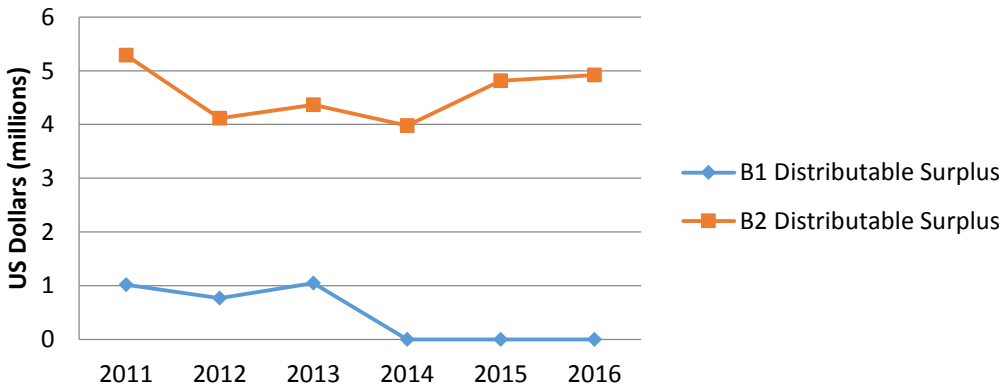
Chart 3.5.2a: Trend in the Policyholders' Fund of Two Selected *Takaful* Undertakings in Country B



Source: Authors/IFSB workings, 2017

Chart 3.5.2b illustrates the trend in the distributable surplus to the *takāful* participants in both undertakings B1 and B2. There were deficits in the PRF of B1 *takāful* company, which increased from US$1 million in 2011 to more than US$15 million in 2013; subsequently, it decreased to nearly zero in 2015, thanks to a surplus in 2014 and discontinued distribution of surplus to the *takāful* participants. On the other hand, B2 *takāful* company recorded a level trend in its PRF during the period and maintained a level of surplus distribution of between US$4 million and US$5.5 million during the period.

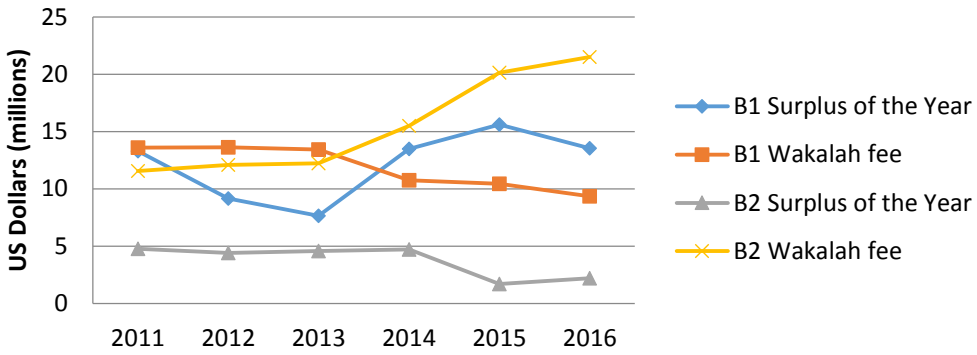
Chart 3.5.2b: Trend in the Distributable Surplus of Two Selected *Takaful* Undertakings in Country B



Source: Authors/IFSB workings, 2017

Chart 3.5.2c shows the trend in the *wakālah* fees and surplus attributable to the PRF for each year from 2011 to 2016. As shown in the chart, the surplus attributable to the PRF of B1 declined from US$13.3 million in 2011 to US$7.6 million in 2013, and subsequently increased to US$15.6 million in 2015; for B2, by contrast, it declined from US$4.77 million in 2011 to US$2.19 million in 2016. With respect to *wakālah* fees, the amount charged to the B1 *takāful* PRF decreased from US$13.6 million in 2011 to US$9.4 million in 2016, representing a 3.3% decrease. On the other hand, the amount charged on the B2 *takāful* PRF increased continuously, from US$11.6 million in 2011 to US$21.5 million in 2016, representing an 86.2% increase.

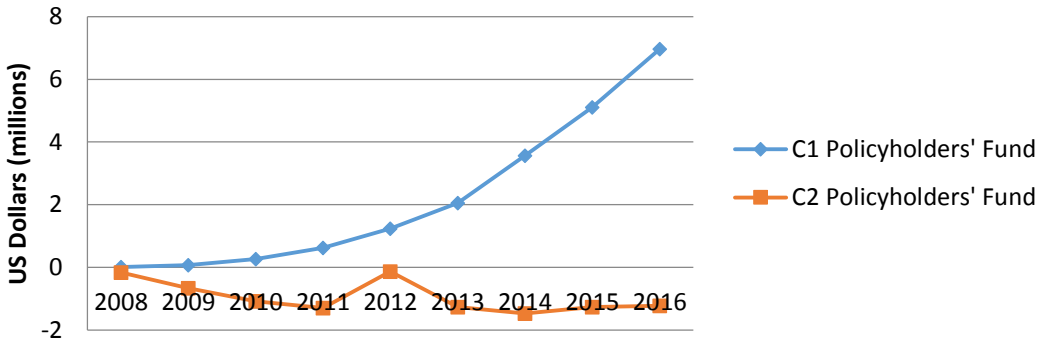
Chart 3.5.2c: Trend in the PRF Surplus/Deficit for the Year and the Associated *Wakala*h Fees of Two Selected *Takaful* Undertakings in Country B



Source: Authors/IFSB workings, 2017

Chart 3.5.3a presents movements in the PRF of a Family *takāful* firm named C1 and a general firm *takāful* named C2 in country C between 2008 and 2016. As shown in the chart, the PRF of C1, the Family *takāful* firm, increased from US$0.015 million in 2008 to US$6.96 million in 2016. However, the PRF of C2 General *takāful* firm accumulated a deficiency, which increased from US$0.16 million in 2007 to US$1.22 million in 2016. Moreover, as noted in the 2015 annual report, in view of the accumulated deficit in the PRF over the years, the management carried out an impairment exercise to assess the recoverable amount with respect to the balance receivable by the SHF from the PRF. Consequently, an impairment loss of US$4.09 million was recognised in the profit and loss account of the SHF during the period. This amount is no longer payable by the PRF to the SHF, which is thus left with a deficit balance of US$1.29 million.

Chart 3.5.3a: Trend in the Policyholders' Fund of Two Selected *Takaful* Undertakings in Country C

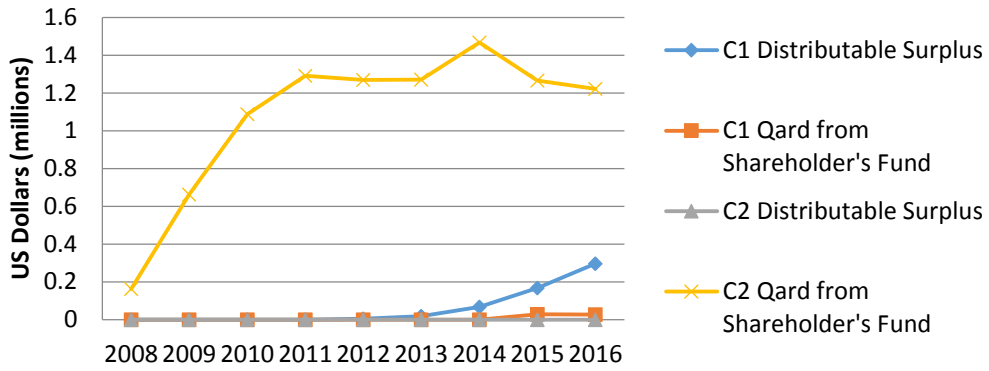


Source: Authors/IFSB workings, 2017

Chart 3.5.3b illustrates the trend in the distributable surplus to the *takāful* participants and amount provided as *qard* by the shareholders' fund of both representative *takāful* companies C1 and C2 in country C. As highlighted in the chart, C1 *takāful* firm commenced surplus distribution in 2012 with US$3,900 and increased progressively to US$296,755 in 2016. The next line in the chart shows the cumulative amount of *qard* required by PRF of C2 *takāful* firm

to meet reasonable expectations of the participants. Between 2007 and 2016, the amount of *qard* required to meet PRF obligations increased by 65.3%, from US$31,526 to US$1.2 million.

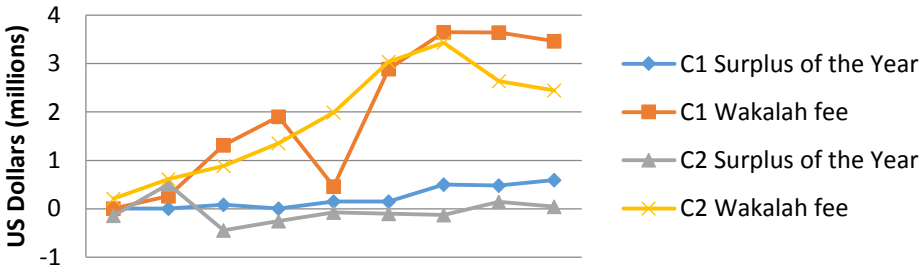
Chart 3.5.3b: Trends in the Distributable Surplus and *Qard* of Two Selected *Takaful* Undertakings in Country C



Source: Authors/IFSB workings, 2017

Chart 3.5.3c shows the trend in the *wakālah* fees and surplus attributable to the PRF for each year from 2011 to 2016. As shown in the chart, for C1 the surplus attributable to the PRF rose from US$7,358 in 2008 to US$0.59 million in 2016. At the same time, for C2 the deficit attributable to the PRF decreased progressively from US$0.15 million in 2008 to a surplus of US$0.045 million in 2016. With regard to *wakālah* fees, the amount charged to C1 *takāful's* PRF rose from US$7,141 in 2008 to US$3.46 million in 2016. Similarly, the *wakālah* fees charged to C2 *takāful*'s PRF increased from US$0.145 million in 2008 to US$2.44 million in 2016. The fees charged to the respective *takāfuls*' PRF show sharp increases between 2011 and 2016, and do not directly reflect the financial position of the PRF.

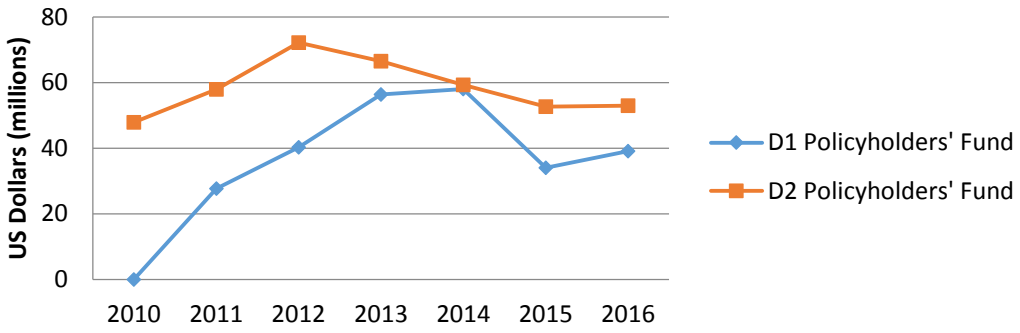
Chart 3.5.3c: Trend in the PRF Surplus/Deficit for the Year and the Associated *Wakalah* Fees of Two Selected *Takaful* Undertakings in Country C



Source: Authors/IFSB workings, 2017

Chart 3.5.4a represents the PRFs of the general business segments of the representative *takāful* companies in country D. As depicted in the chart, the PRF of D1 *takāful* firm increased from US$27.68 million in 2011 to US$58.40 million in 2013, and subsequently fell to US$39.09 million in 2016. Moreover, the PRF of D2 *takāful* firm shows a similar trend to that of D1 *takāful*, increasing from US$47.9 million in 2010 to US$72 million in 2012 and subsequently declining to US$53 million in 2016.

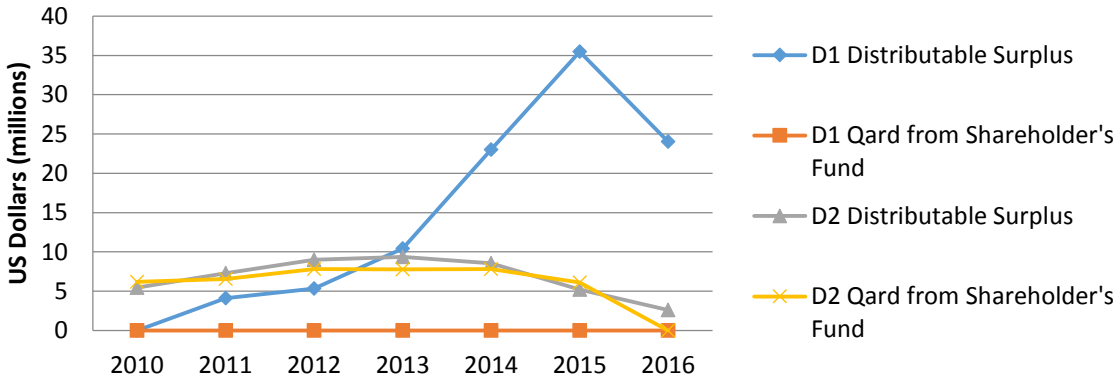
Chart 3.5.4a: Trend in the Policyholders' Funds of Two Selected *Takaful* Undertakings in Country D (General *Takaful*)



Source: Authors/IFSB workings, 2017

Chart 3.5.4b illustrates the movements in *qard* and distributable surplus for the general *takāful* business segments of composite *takāful* firm D1 and D2 in country D. Distributable surplus to D1 *takāful* participants rose from US$4.11 million in 2011 to US$35.46 million in 2015, and then fell to US$24 million in 2016. Following a similar trend, the distributable surplus to D2 *takāful* participants increased from US$5.42 million in 2010 to US$9.37 million in 2013; it subsequently declined to US$2.58 million in 2016. In the same way, the chart shows the movement of *qard* of D1 from US$6.19 million in 2010 to US$7.81 million in 2014, and then a slight decline to US$6.11 million in 2015. During the period under review, the PRF of D1 *takāful* met its obligation without any need for *qard* from the shareholders' fund, and at the same time achieved substantial surpluses.

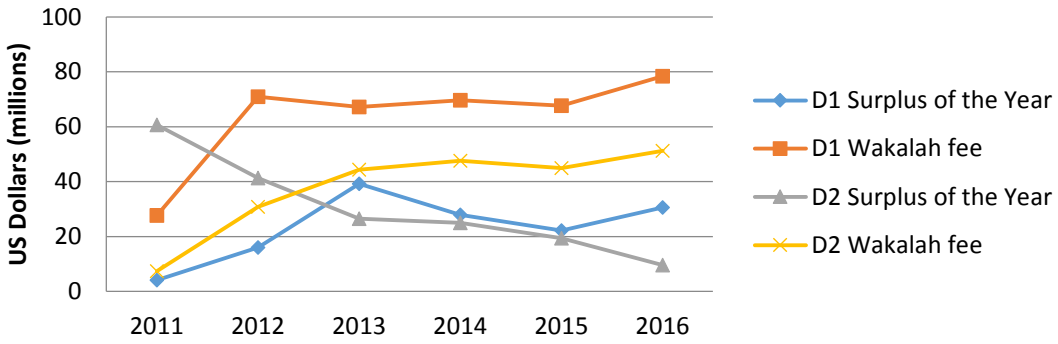
Chart 3.5.4b: Trend in the Distributable Surplus and *Qard* of Two Selected *Takaful* Undertakings in Country D (General *Takaful*)



Source: Authors/IFSB workings, 2017

Chart 3.5.4c shows the trends in the *wakālah* fees and surplus attributable to the PRF for each year from 2011 to 2016. As shown in the chart, the surplus attributable to the PRF of D1 increased from US$4.07 million in 2011 to US$39.21 million in 2013 and later fell to US$30.60 million in 2016. Moreover, the surplus attributable to D2 *takāful* firm declined progressively from US$60.6 million in 2010 to US$9.61 million in 2016. This represents an 84.1% decline. The *wakālah* fees charged to the PRF of D1 increased from US$27.7 million in 2011 to US$78.4 million in 2016, representing a 183% increase. Likewise, the amount charged to the D2 *takāful* firm PRF rose from US$7.35 million in 2011 to US$51.20 million in 2016.

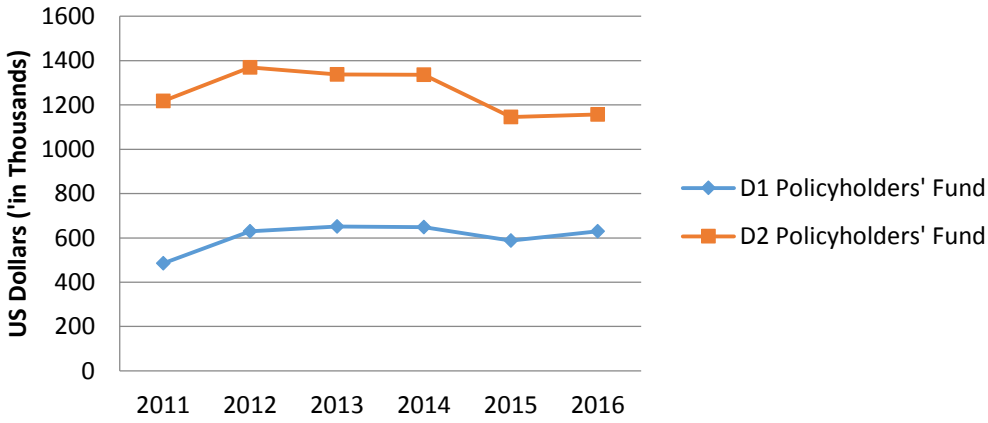
Chart 3.5.4c: Trend in the PRF Surplus/Deficit for the Year and the Associated *Wakalah* Fees of Two Selected *Takaful* Undertakings in Country D (General *Takaful*)



Source: Authors/IFSB workings, 2017

Chart 3.5.5a shows the trend in the PRF of the family *takāful* business segment of composite D1 and D2 *takāful* companies in country D. As shown in the chart, the PRF of D1 *takāful* firm rose from US$485.38 million in 2011 to US$629.58 in 2016, and the PRF of D2 *takāful* firm increased from US$1,218.34 million to US$1,157.54 million in 2016, representing an increase of 29.7% and a decline of 5%, respectively.

Chart 3.5.5a: Trend in the Policyholders' Fund of Two Selected *Takaful* Undertakings in Country D (Family *Takaful*)



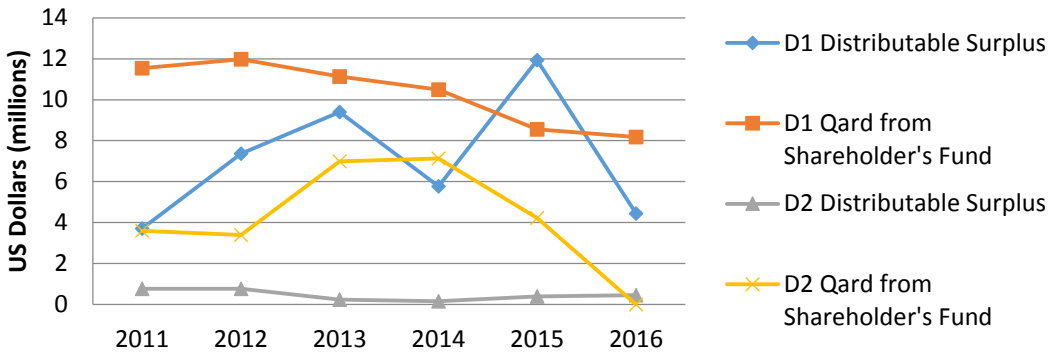
Source: Authors/IFSB workings, 2017

Chart 3.5.5b illustrates the trend in the *qard* and distributable surplus to the participants of family *takāful* of both D1 and D2 *takāful* firms in country D. As highlighted in the chart, the PRF of D1 *takāful* firm paid back the sum of US$8.18 million in 2015, being the amount drawn as *qard* from the shareholders' fund since 2011. The surplus amount distributed to the participants of D1 family *takāful* firm increased from US$3.7 million in 2011 to US$11.93 million in 2015, then fell by 62.8% in 2016, which amounts to US$4.44 million. The amount distributed to the D2 family *takāful* participants rose from US$4.4 million in 2010 to reach a peak in 2013 of US$9.4 million, and then declined gradually to US$2.59 million in 2016.

The amount of *qard* paid to the PRF of D2 family *takāful* participants rose from US$3.71 million in 2011 to US$7.13 million in 2014, representing a 98.7% increase, and thereafter declined by 40.7% to reach US$4.23 million in 2015. The decrease in accumulated *qard* payable to the

D2 family *takāful* operator's SHF was due to the amounts repaid and written off between 2011 and 2014, as indicated in Table 3.5.2.

Chart 3.5.5b: Trend in the Distributable Surplus and *Qard* of Two Selected *Takaful* Undertakings in Country D (Family *Takaful*)



Source: Authors/IFSB workings, 2017

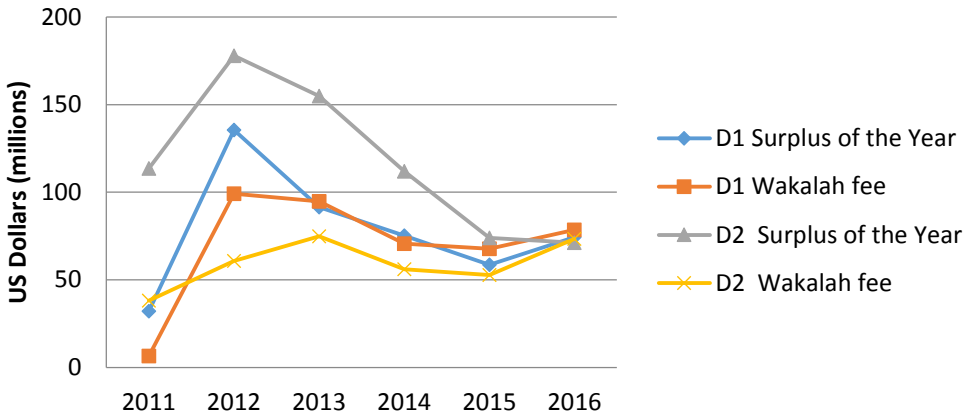
Table 3.5.2: Amount of *Qard* Written off by Company D2 Family *Takaful* in Country D

Year	2011	2012	2013	2014
US$ (million)	0.36	1.16	3.48	0.103

Source: Authors/IFSB workings, 2017

Chart 3.5.5c illustrates the trend in the *wakālah* fees and surplus attributable to the PRF for each year from 2011 to 2016. As indicated in the chart, the surplus attributable to the PRF of D1 family *takāful* rose from US$32.16 million in 2011 to US$135.57 million in 2012 and afterward declined progressively to US$74.30 million in 2016. The surplus recorded in 2015 was the lowest; this amounts to US$58.67 million. Similarly, D2 family *takāful* recorded the highest surplus of US$177.77 million in 2012 and declined in the subsequent years to US$71.11 million in 2016 (recorded as the lowest). As shown in chart 3.5.5c, despite the decline in the surplus attributable to PRF in each year, the amount of wakālah is consistently increasing. For instance, the amount of *wakālah* fees charged to the D1 PRF rose from US$6.61 million in 2011 to US$78.43 million in 2016, representing a 92.2% increase. In the same way, the amount of *wakālah* fees charged to the D2 PRF increased from US$38.12 million in 2011 to US$73.39 million in 2016, representing a 48% increase.

Chart 3.5.5c: Trend in the PRF Surplus/Deficit for the Year and the Associated *Wakalah* Fees of Two Selected *Takaful* Undertakings in Country D (Family *Takaful*)



Source: Authors/IFSB workings, 2017

3.6 Investment Guidelines

The survey identified market risk as one of the material risks affecting the *takāful* business across jurisdictions. Respondents in almost two-thirds of the jurisdictions covered in the survey cited lack of effective investment guidelines and supervisory supports as one of the factors affecting their return on investment, which often fell below expectations. As highlighted in the survey, 30% of the RSAs do not provide investment guidelines for *takāful* funds. As a result, *takāful* operators use their own discretion about what comprises a suitable combination of assets. However, they mentioned experiencing difficulty in finding suitable investments, especially *sukuk*; thus, their asset components mostly comprised Shari'ah-compliant equities and real estate. The respondents (operators) further emphasised the importance of *sukuk* and other Shari'ah-compliant money market fixed-income instruments, as well as cash, deposits and short-term instruments for policyholders' funds.

Investment guidelines across regulatory regimes vary, with each RSA adopting a different regulatory approach for the supervision of investment activities in *takāful* undertakings and insurance firms. One common approach is for regimes to apply risk weightings on asset classes; others limit, or even mandate, the proportions of investments of particular kinds. Overall, it is obvious that the asset allocations of respondents' *takāful* operators are substantially influenced by regulatory capital requirements. This is mostly observed in regimes with strong guidelines on investments. Moreover, in jurisdictions with no specific guidelines on investments, *takāful* operators emphasised the need to minimise market volatility as a reason for increasing their investments in safe areas such as fixed-income securities, deposits and money market instruments. However, family *takāful* operators, in particular, emphasised that the longer-term nature of saving products influenced their investments in real estate, equities and mutual funds.

Those RSAs that claimed to have investment guidelines made it known that TOs are advised to pursue proper diversification of assets in the PRF, and to focus on low-risk and income-producing assets. Equally important are guidelines recommending the appropriate matching of assets and liabilities. According to the TOs, these guidelines highlight different combinations of assets and investment instruments, such as Islamic securities (*sukuk*), Shari'ah-compliant

shares, government Islamic papers, investment accounts' Islamic money market instruments, and Shari'ah-approved unit trusts. The operators also noted that the demands or objectives of each fund dictate its investment strategy. Moreover, the strategy employed may range from "aggressive" to "balanced". According to the operators, the PRF carries liquid assets (i.e. money market instruments) principally for payment of claims, whereas the SHF is invested in assets of varied durations, from short to medium term (i.e. *sukuk* and Islamic bank deposits), with the utmost priority being given to liquidity in order to meet claims and management obligations. It is also observed from the asset specifications that, in family *takāful*, the PIF carries unit-linked funds that contain a mix of Shari'ah-compliant equities, *sukuk* and Islamic bank deposits intended to generate reasonable returns for the policyholders.

One RSA indicated that the rules on asset specification are particularly applicable to life insurers and family *takāful* operators. They are required to hold a minimum cash and deposits of 30% in the statutory funds' portfolio, which otherwise contains only investment-linked assets. An additional requirement is that real estate investment in any fund should not exceed 20%. Usually, investment duration is longer-term – that is, five to 10 years – in order to match the associated liabilities. Likewise, the PIF follows a similar duration – or even much longer – in order to provide stable income streams and capital appreciation to the policyholders. Thus, the investment strategy as expressed by the operators is to maximise their expected return on investment while protecting against associated risk.

The respondents were especially keen to see the issuance of more government *sukuk*, which are particularly attractive because of their security, their relative liquidity and, in some cases, their currency matching. In addition, where regulatory regimes mandate particular types of investments, government bonds are often among the required classes. Other considerations presented by the operators include long-term pricing targets for sustainability of the product, consideration for maturities and profiles of liabilities, and liquidity positions.

4.0 KEY CHALLENGES, RECOMMENDATIONS AND CONCLUSION

4.1 Key Challenges and Recommendations

A survey using a structured questionnaire was conducted on both current market and regulatory practices with respect to *takāful* capital requirements. The findings were based on the information received from the respondent RSAs and TOs. Also included are the trend analyses of the data obtained from financial statements and annual reports of *takāful* companies in selected jurisdictions. Thus, issues that presented significant challenges to the regulation and supervision of *takāful* capital requirements were highlighted.

As stated in the previous section, the questionnaire focused on four key issues that are necessary for establishing a regulatory framework that provides an adequate level of policyholders' protection. These issues are: *takāful*-specific regulation, policyholders' protections, surplus sharing and distribution, and the priority of policyholders. To uncover the key challenges, we compared existing practices among the RSAs and *takāful* operators. The challenges as highlighted in the survey are presented below.

The survey indicates that 66.7% of the jurisdictions have enhanced their insurance sector's capital requirement framework since the GFC. Notably, some of the RSAs pointed to the EU Solvency II directives as a guide. However, only 26% of the jurisdictions recognise the specific nature of *takāful* operations and incorporate the provisions accordingly into their revised insurance solvency regulations. This indicates that over 70% of the jurisdictions do not have any specific regulation for the *takāful* industry. Thus, in the absence of relevant rules and guidelines, *takāful* undertakings have substantial freedom and discretion in carrying out their operations. This practice raises concern because of the increased potential risk of insolvency.

Takāful regulations should recognise the specific structure of *takāful* undertakings, which requires separation of policyholders' funds from the operator's shareholders' fund. This illustrates a major difference between *takāful* schemes and conventional insurance. The recognition of the distinct nature of each fund in a TU demands that each fund be assessed separately concerning capital requirements. This will help to relate the amount of capital required for the corresponding funds to the risk associated with their obligations. In addition, the solvency requirements must provide the rules and mechanisms under which these funds interact (transfer of capital resources), both during insolvency and when the company is viewed as a going concern.

However, in most of the jurisdictions surveyed, the regulation of specific aspects of *takāful* principles and practices is weak and unclear; in particular, there is no regulation of aspects such as *wakālah* fees, profit ratio and *qard*. Although these are Shari'ah-related matters, which require the input of Shari'ah scholars, the accumulation of a surplus or a deficit in the PRF will generally reflect the adequacy of pricing the risk (i.e. the level of contribution required) in addition to other management practices. More importantly, the survey has highlighted the fact that the PRFs of more than 70% of the *takāful* operators surveyed are in a state of deficiency owing to what can best be described as "excessive fees and profit-sharing ratio" (i.e. in the form of *wakālah* and *mudarabah*) charged against the fund. As illustrated in the charts (i.e. 3.5.1c, 3.5.2c, 3.5.3c and 3.5.4c), the trend in the *wakālah* fees charged to the PRF does not reflect the reserve position of the fund. The fees charged against the fund increased continuously irrespective of the deficit position of the fund. For instance, while the surplus attributable to D2 *takāful* company declined from US$60.6 million in 2010 to US$9.61 million

in 2016, the amount of *wakālah* fees charged to the fund rose from US$7.35 million in 2010 to US$51.20 million in 2016, representing an increase of almost 600%. This practice could be thought of as extreme and disproportionate. TOs should not (whatever their expenses) take *wakālah* fees that would endanger the solvency of the PRF.

Generally, in the absence of appropriate rules that can moderate the behaviour of TOs with respect to *wakālah* fees and the profit-sharing ratio charged on the PRF, the operators use their discretion, which in most cases means that fees constitute a significant proportion of participants' contributions. In principle, *wakālah* fees on average should be significantly lower than the difference between net contributions and net claims paid. It is expected to cover the total sum of management expenses, distribution costs, including intermediaries' remuneration, and a margin of operational profit. Furthermore, it is important that TOs adopt prudent product fee structures, especially, to reflect the inherent risks; appropriate product pricing will ensure operations function smoothly and will generate surpluses in the PRF. The deficits accumulated in the PRF are largely the result of high fees and a disproportionate profit-sharing ratio charged to the fund.

Different methods of determining appropriate *wakālah* fees have been suggested by RSAs. One such method is the use of expenses analysis to be carried out by a finance/actuarial team.[65] This kind of study has been carried out in the conventional insurance field to determine expense ratios used during the pricing and reserving of insurance policies. Another suggestion is to set regulatory limits on *wakālah* fees (i.e. fee caps) so that they closely reflect the actual expenses, with an allowable margin. On the other hand, it is argued that setting a cap on *wakālah* fees may not be appropriate, due to the varying sizes and operations of TOs, and that it may be more appropriate to cap the profit margin (e.g. at 3–4%) after covering overhead costs, which can easily be monitored through regulatory reporting. *Wakālah* fees charged in respect of a *takāful* contract must be directly proportional to the costs associated with establishing and maintaining such a contract. This requires a combination of finance and actuarial expertise to determine a fixed upfront percentage to be charged to the contribution in the PRF.

The essence of solvency assessment in the PRF is to provide a reasonable assurance that the fund has sufficient financial resources to meet its underwriting obligations even in adverse conditions. However, the high fees charged to the PRF, and the high profit ratio in favour of the operator's SHF imply that the fund will be continuously in deficit, and will, therefore, rely perpetually on a *qard* facility from the operator's SHF to make up for the deficiency. *Qard*, however, is a mechanism for transferring capital from the SHF of a *takāful* operator to the corresponding PRF to cover arising deficiencies. The survey shows that, in many jurisdictions, there is no guideline on the permanence of *qard*. The *qard* facility is a loan which must be repaid, or written off when it becomes evident that the PRF is unable to repay it within a given period of time. Guidelines on the permanence and repayments of *qard* are therefore required.

The survey indicated that only 40% of the respondent RSAs are applying the AAOIFI Standard[66] as the basis for accounting for repayments and impairments of *qard*; the remaining jurisdictions are adopting IFRS accounting policy. In other words, both standards provide clear guidance and a basis on which to account for the permanence and impairments of *qard*. Generally, it follows that any deficit from commitment (*qard*) in the current year may be

[65] Expense ratio analysis is a measure of what it costs to operate an insurance company.
[66] AAOIFI Shari'ah Standard No. 26 (*Takaful*), para. 10/8.

covered by a surplus in the succeeding year. Therefore, *qard* can only be repaid if the PRF generates a surplus. In the event of continuing deficits, the fund must be subjected to an impairment test. Detailed guidelines on how repayment and impairment are to be treated should be clearly set out by RSAs as a written policy. A period of between three and five years is allowed before an existing *qard* is subjected to an impairment test, after which, if the repayment is deemed not feasible, such capital may become a non-admissible asset in the PRF for solvency assessments.

As highlighted in the survey, distribution of any surplus to the policyholders constitutes another major outflow of the policyholders' fund. It is surprising that quite a number of *takāful* operators distribute surplus, while there is an existing *qard* from the shareholders' fund that is yet to be repaid (Chart 3.5.2b). This practice further worsens the deficit position of the PRF. It is suggested that controls on surplus distribution should be introduced, preferably, through the corporate governance policies of the *takāful* undertakings, in addition to monitoring by the supervisors.[67] The stability of the PRF reserves should be the utmost priority of the TOs. Even if there were no *qard* to be repaid, it is expected that the surplus should be retained in case the PRF underperforms in subsequent periods. This is especially crucial when the TO is starting up, and is yet to gain business volume. Therefore, the reserve position of the PRF should be given priority over surplus distribution. On the other hand, surplus distribution can only properly take place after reflecting on its impact on the solvency position of the fund. The fact that only 20% of the jurisdictions have guidelines on surplus distribution is cause for concern. The rule that requires an actuary's indication of the potential impact of surplus distribution on the PRF's solvency position will assist in reprioritising the position of *takāful* operators.

Guidelines to ensure that *takāful* operators separate the assets of the PRFs from those of the TO's SHF are needed in order to avoid any ensuing agency problems. This is necessary in view of the fact that *takāful* participants have few mechanisms for protecting their interests in a *takāful* scheme. In family *takāful* schemes, the assets of the PRFs, the shareholders' funds and the participants' investment fund need to be separated in accordance with appropriate international accounting, auditing and financial disclosure standards and practices. This will ensure an insightful and meaningful reflection of their financial position and performance, as well as allowing comparisons between the reporting periods.[68] The survey shows that 60% of the supervisors require their operators to segregate the PRFs and the *takāful* operator's SHF, as well as separately presenting the assets and liabilities of the respective *takāful* funds in the financial statements and annual report in accordance with the applicable accounting standards. This requirement is designed to prevent a situation where the TO exploits its position as the manager of the PRF to act in its own interest, taking advantage of the private benefits of control.

It is interesting to note that all the operators who responded to the survey maintained at least one PRF segregated from the *takāful* operator's SHF, including those operators from jurisdictions without specific *takaful* rules. However, the fact that some *takāful* operators are claiming compliance, but not presenting the assets and liabilities of the respective funds separately in the financial statements indicates a lack of transparency in their disclosures. Thus, the segregation of funds and the associated *qard* mechanism may only exist as a "paper

[67] See IFSB-8: *Guiding Principles on Governance of Takāful Undertaki*ngs (2009).
[68] *Ibid.*

transaction". Appropriate disclosures and maintenance of accurate records are necessary for the existing and potential *takāful* participants, as well as for other market participants, to evaluate the financial strength and risk exposure of a *takāfu*l undertaking. Moreover, lack of transparency in the disclosure of assets and liabilities within the policyholders' fund makes monitoring of *takāfu*l funds difficult, especially those facing insolvency. The quality of information disclosed to the public is heavily dependent on the existing standards and practices applied to the preparation and presentation of the financial statements of *takāfu*l undertakings in each jurisdiction.

In relation to the above, differences in accounting standards present another challenge that could not be ignored by RSAs. The choice of accounting standard produces the methodology and assumptions (valuation bases), and determines the values placed on assets and liabilities in the balance sheet. The survey finding indicates that 26.7% of the jurisdictions are following AAOIFI standards, whereas other jurisdictions are adopting IFRS. The differences in accounting standards adopted across jurisdictions show a lack of clear direction in having a common accounting framework, which will facilitate comparison of *takāful* undertakings' financial position and performance across jurisdictions.

The implication is that an international firm operating in many countries will find it difficult to consolidate its financial statements because of the need for various adjustments and deductions in migrating from one standard to another. Better coordination is expected among regulators to streamline financial reporting standards and other practices. There is also the need for greater harmonisation between the treatment of AAOIFI and IFRS accounting and auditing reporting issues in *takāful* business. Generally, national insurance regulators need to understand the importance of having a common platform in matters relating to financial reporting.

Clear guidance is also required to enhance disclosure requirements on adequacy, independence and reporting lines of key control functions and thus improve the effectiveness of corporate governance and risk management of *takāful* undertakings. This should be supported by well-developed accounting and auditing standards in line with international best practices. Equally important is the need for regulations relating to risk-based supervision, enhanced fit and proper requirements.

Furthermore, implementation of the IASB's new accounting standard on insurance contracts (IFRS-17) presents additional challenges for jurisdictions that have adopted the standard. A transition period of around three and a half years after issuance (1 January 2021) is given to insurers (including *takāful* operators, for jurisdictions adopting IFRS standards) to prepare their financial statements in conformity with the new standard. This implies that the RSAs will establish preliminary requirements for the adoption, which will require building new systems and processes to produce and report the numbers, and metrics for steering the business.

Limited availability of investment opportunities is identified as a critical factor militating against TOs achieving significant surpluses. Investment earnings are generally a major source of income for the insurance sector. Apparently, the limited set of investment instruments available to *takāfu*l undertakings affects their earnings, particularly in jurisdiction that are yet to develop fully their Islamic finance sector. In addition, volatility affects the actual market value of the investment assets, including those needed to cover liabilities; this is liable to affect the surplus of the funds holding the assets. Conventional insurance companies, unlike *takāful*

undertakings, will commit a substantial portion of their investment portfolio to fixed-income securities (mostly in excess of 80%) in order to reduce risk on the asset side of the balance sheet and maximise the amount of capital available to support their liabilities.[69]

Given the limited set of investment instruments available for *takāfu*l operators, their asset portfolio is usually characterised by a high concentration of equities and real estate; these asset categories are in high-risk asset classes. Given the uncertainty in the financial market, the resultant effect for a typical *takāfu*l undertaking with this type of asset mix is a low risk-adjusted return and a high volatility of the investment portfolio.[70] In most cases, the volatility in a TO's return is a consequence of their asset composition, rather than their risk selections. This situation may put pressure on a *takāfu*l entity's solvency margin. Investment performance is very critical for the competitiveness of *takāful* companies.

It is interesting to note that quite a number of RSAs are enforcing limitations on exposure to a single asset class, especially those that are considered high-risk, such as real estate and equities. Regulatory guidelines have been provided in some jurisdictions to allow issuance of high-grade Shari'ah-compliant instruments (*sukuk*). TUs may take advantage through either issuance or investment. There is high optimism that the appeal of the *sukuk* market will gain wider acceptance among TOs in general, whose investment choices are at present very limited. However, the bane of this window of opportunity is concerned about the quality of the underlying assets and the enforceability of *sukuk* holders' claims to the assets backing the structure in the event of default. Regulatory efforts should be deployed in this area.

At present, no framework has addressed the quality and content of capital resources appropriate for each of the risk components in the capital requirements assessments of a *takāful* undertaking. A risk-based capital framework is required to evaluate the extent of loss absorbency of capital elements put forward for this purpose. The supervisory authority may apply potential limits for the solvency resources to be qualified to cover different levels of the solvency requirements of PRFs and the *takāful* operator's SHF. In this regard, the quality of capital resources (Sharī`ah-compliant financial instruments) to absorb losses at different financial stages of a *takāful* undertaking – namely, as a going concern, in run-off, winding-up and insolvency is of utmost concern. The survey shows that 53% of the RSAs categorise capital resources into a two-tier structure based on the nature of capital while adopting different recognition, treatment and nomenclature for various components of capital. The non-existence of a common framework that recognises and treats various capital components and financial instruments in line with the specific demands of a *takāful* industry capital requirement is obviously a challenge to the industry.

While finding appropriate Sharī'ah-compliant capital and investment instruments, few RSAs have provided an enabling regulatory environment for issuing Sharī'ah-compliant fixed-income instruments (*sukuk*) which could help support diversification of *takāful* undertakings' income-based investment opportunities. However, the number of subordinated *sukuk* issued by *takāful* undertakings is still very limited. According to the survey findings, only two jurisdictions presently have specific guidelines on subordinated *sukuk* as a form of capital instrument, and only one *takaful* undertaking has so far utilised this opportunity to shore up its capital base.

[69] IFSB, *Islamic Financial Services Industry Stability Report* (2016).
[70] Tolefat, A. (2011). Investment Portfolios of Takaful Undertakings. *Takaful Islamic Insurance: Concepts and Regulatory Issues*, 217-238.

Innovation in this particular area is vital in order for *takāful* undertakings to build up their capital and asset composition, as well as to generate investment income to increase their earnings.

The priority of *takāful* participants is particularly important in the case of insolvency; in most cases, it is provided for in the general legislation and law, and perhaps with additional provisions by the insurance regulator. The legislation defines a range of options for the exit of *takāful* undertakings (legal entities) from the market. It defines insolvency, and establishes the criteria and procedure for dealing with the insolvency of (*takāful* undertakings) legal entities. In the event of winding-up proceedings of (*takāful* undertakings) legal entities, the legal framework gives priority to the protection of policyholders, and aims to minimise disruption to the provision of benefits to policyholders. The expected insolvency laws to be applied typically rank the rights of *takāful* participants above those of the *takāful* operator's ordinary creditors and shareholders. The survey showed that only 60% of the jurisdictions have insolvency provisions rooted in their civil law, which rank the rights of *takāful* participants and their beneficiaries under policies above those of ordinary creditors and shareholders. For the remaining 40% of respondents, the regulation of liabilities of *takāful* undertakings upon winding-up remains largely unclear – or, rather, it is largely determined by Shari'ah scholars. Equally important is the additional level of protection provided to the policyholders as highlighted in three jurisdictions through the institution of an insolvency risk fund or participants' guarantee fund.

4.2 Conclusion

The survey findings highlight the fact that capital requirements regulation of the *takāful* sector is still at the developmental stage or uncompleted in many of the jurisdictions covered in the survey. While the *takāful* industry has evolved rapidly in recent years, the development of *takāful* regulation varies considerably across the jurisdictions. Consequently, the level of policyholders' protection differs from one jurisdiction to another, depending on the strength of regulation.

The issues and challenges identified should be addressed for growth and long-term viability of the *takāful* industry. It is believed that a robust capital requirements regulatory framework supported by a sound risk management culture can provide sufficient protection for policyholders. This is necessary for the *takāful* industry to maximise its potential and continue to demonstrate a strong growth momentum within the Islamic financial system. Moreover, the proper implementation of a capital requirements regulatory framework requires supervisors to have the legal authority to perform its tasks and the ability to exercise this authority to a satisfactory level. A well-developed legal system, including the independence of the judiciary, is necessary to protect the supervisors in the case of actions arising out of acts done in good faith.

It is noteworthy that some countries which hitherto have had no dedicated "rulebook" or a specific Act or regulation covering *takāful* business were, at the time of the survey, issuing or preparing prudential regulations specific to the *takāful* industry. It is important to emphasise that appropriate capital requirements regulation is necessary to ensure the soundness and stability of the *takāful* industry. Besides keeping insolvency risk under control, capital requirements regulation can help to improve *takāful* industry capitalisation, asset quality and reserve adequacy.

An important driver for this study is the likelihood of providing useful insights to the RSAs charged with designing appropriate measures of capital requirements regulation for the purpose of policyholders' protection. Given the fact that the *takāful* industry's regulatory landscape is still evolving and spreading rapidly across jurisdictions, Appendix Table A4 highlights some important *takāful* guidelines as provided in the regulation of the insurance sector in four selected countries (Malaysia, Bahrain, UAE and Pakistan). It is believed that these countries have an appropriate regulatory framework that is essential to guarantee a sound solvency environment for efficient *takāful* operations.

In summary, a well-designed capital requirements framework is necessary in order for the *takāful* industry to build on and further strengthen its position and achieve a more resilient, competitive and inclusive industry.

APPENDIX:

Table A1: Characteristics of the Three Components of Capital

Characteristic	Common Equity T1 Capital (CET)	Additional Tier 1 Capital (AT1)	Additional Tier 2 Capital (AT2)
Loss absorbency	Represents the most subordinated claim in case of liquidation of the institution offering Islamic financial services (IIFS), having a claim on the residual assets after all senior claims have been repaid. Serves as a first loss position, and is able to absorb losses on a going concern basis.	*Mushārakah sukūk* (with the underlying assets as the whole business of the entity) – loss absorbency instruments**.**	*Muḍārabah or wakālah sukūk*: capital instruments in the form of the underlying assets could be convertible (as specified in the contract) into shares of common equity at the point of non-viability or insolvency. After conversion of the *sukūk*, T2 capital would rank *pari passu* with CET1, along with AT1 capital.
Issuance process and procedure	At the issuance of common equity instruments. IIFS should not create expectations in the contract that the instrument will be redeemed, cancelled or bought back (call option) under any circumstances.	Issued and paid-up, and neither the IIFS nor its related party can purchase the instrument, or fund its purchase, either directly or indirectly. Repayment of principal through repurchase or buy-back is allowed subject to supervisory approval.	Issued and paid-up, and neither the IIFS nor its related party can purchase the instrument or fund the purchase of the instrument, either directly or indirectly. Issuance that takes place outside an operating entity of the IIFS or the holding company in the consolidated group such as through a "special-purpose-entity" must follow specific requirements. For instance, the proceeds of issuance must be made immediately available to an operating entity or holding company in the consolidated group, in a form that meets or exceeds all the other criteria of Tier 2.
Permanence/ Maturity and callability	The principal amount of common shares is perpetual in nature and is never repaid except in the case of liquidation. However, in some cases the law	*Mushārakah sukūk* is perpetual in nature and has no maturity date. There are no step-up features (i.e. periodic increases in the rate	The minimum maturity must be at least five years. The instrument shall not have step-up facilities and be without any incentive to be redeemed by the issuer. For recognition in regulatory capital, any amortisation of the

	and the IIFS's statutes may permit common shares to be repurchased, subject to the approval of the supervisory authority.	of return). For an instrument with callable options, a call option is permitted to be exercised only after five years and subject to some supervisory requirements. Caveat: an IIFS may be permitted to exercise a call option if it successfully exhibits that its capital position is above the regulatory capital requirement after the call option is exercised. AT1 capital instruments cannot have any features that hinder recapitalisation (provisions that require the IIFS to compensate investors if a new instrument is issued at a lower price during a specified time frame).	principal will be on a straight-line basis in the remaining five years before maturity. If the instrument is callable, the issuer is permitted to exercise a call option only after five years and subject to certain requirements.[71] Exercising a call is permitted unless it successfully exhibits that its capital position is above the regulatory capital requirement.
Distribution of profits	Under no circumstance is the distribution of profits (or payment of dividends) obligatory. Non-payment of dividends is not associated with default. Distributions can only be made after meeting all legal and contractual obligations and	The contract should provide that non-distribution of profits would not constitute a default event.	The distribution of profits to the holders of the instruments should not be linked to the credit rating of the IIFS, either wholly or in part. Future scheduled payments should not be accelerated at the option of investors except in the case of liquidation or bankruptcy.

[71] These "certain requirements" are that (i) there is prior supervisory approval; (ii) there is no call expectation created by the IIFS; and (iii) the issuer is able to replace the called instruments with the same or better quality of capital, either before or concurrently with the call.

	payments to more senior capital instruments.		
Equity in nature	The paid amount is recognised as equity capital in the IIFS balance sheet and is classified as equity under the applicable accounting standards	Not applicable	Not applicable
Unsecured in nature	The amount paid in at issuance is neither secured nor guaranteed by the IIFS or its related entity (parent/ subsidiary or sister of the company or Islamic window or another affiliate group). The contractual terms or arrangements in the issue of eligible instruments should not enhance the seniority of claims under the instruments in insolvency or liquidation.	The amount paid at issuance is neither secured nor guaranteed by the IIFS or any related entity.	The amount paid during issuance is neither secured nor guaranteed by the IIFS or any of its related entities. In addition, there should not be any arrangement that legally or economically increases the seniority of claim in the case of liquidation.
Disclosure requirement	Clearly stated and disclosed on the IIFS's balance sheet.	CET1 combined with AT1 capital is considered as "going concern" capital which absorbs losses while the IIFS is solvent.	T2 capital is considered as "gone concern" capital that absorbs losses at insolvency.

Source: IFSB-15 (2013).

Table A2: List of Capital Elements and Excluded Items

	Tier 1 Capital Instruments	Tier 2 Capital Instruments	Excluded Items from Tier 1 and Tier 2 in the *Takaful* Capital Adequacy Ratio (CAR)
	(a) issued and fully paid-up ordinary shares; (b) share premiums; (c) paid-up non-cumulative irredeemable preference shares; (d) capital reserves; (e) retained profits; and (f) the valuation surplus maintained in the *takaful* funds	(a) cumulative irredeemable preference shares; (b) mandatory capital loan stocks and other similar capital instruments; (c) irredeemable subordinated debts; (d) available-for-sale reserves; (e) revaluation reserves for self-occupied properties and other assets; (f) general reserves; (g) subordinated term debts; and (h) *qard* from shareholders' fund	For the purpose of calculating CAR, the following deductions shall be made by a licensed *takaful* operator from the aggregate of Tier 1 and Tier 2 capital to arrive at the Total Capital Available (TCA): (a) goodwill and other intangible assets (e.g. capitalised expenditure) of the licensed *takaful* operator; (b) deferred tax income or deferred tax expenses and deferred tax assets of the licensed *takaful* operator; (c) assets pledged to support credit facilities obtained by the licensed *takaful* operator or other specific purposes; (d) investment in the licensed *takaful* operator's subsidiaries; (e) *qard* to *takaful* fund (in respect of shareholders' fund); and (f) all credit facilities granted by the licensed *takaful* operator which are secured by its own shares.

Source: Bank Negara Malaysia, *Risk-Based Capital Framework for Takaful Operators* (2017).

Table A3: Summary of the Issues, Challenges and Recommendations

No.	Issue	Challenges	Recommendations
1.	Capital requirements regulation specific to the *takāful* sector	Capital requirements regulation specific to the *takāful* sector is absent in more than two-thirds of the jurisdictions covered in the survey.	That the capital requirements regulation specific to the *takāful* sector be provided principally, to maintain a fair, safe and stable takāful sector.
2.	Guidelines on the specific aspects of *takāful* principles (*wakālah* fee; profit-sharing ratio; *qard* repayment and impairments; and surplus distribution)	More than two-thirds of the jurisdictions covered in the survey have weak and unclear guidelines.	That guidelines be established on the specific aspects of *takāful* principles (*wakālah* fee; profit-sharing ratio; *qard* repayment and impairments; and surplus distribution) that ensure the independence and adequate protection of the PRF.
3.	Status of the PRF	High *wakālah* fees and high profit-sharing ratios in favour of the operator's fund create a perpetual deficit position of PRFs in more than 50% of the *takāful* operators covered in the survey.	That the *takāful* operator be mindful of the need to have enough funds in the PRF to meet the claims of the policyholders and to achieve a surplus (or at least to avoid a deficit) at the end of the financial year. This can be achieved by setting the *wakālah* fee and the *mudarib* share of profit at a level that would give the shareholders a competitive return on their equity.
4.	*Wakālah* fee and *mudarib* profit-sharing ratio	There is absence of appropriate guidelines that can moderate the excessive fees charged on the PRF and the high profit-sharing ratio, which favours the *takāful* operator's SHF.	That guidelines be established on methods of achieving appropriate *wakālah* fees, possibly by applying expense ratio analysis as suggested by RSAs. (Refer to page 37.)
5.	*Qard* repayment and impairment	Nonexistence of clear guidelines on *qard* repayment and impairments.	That a clear policy be set on *qard* deployment and recovery to include three important items: (i) conditions that will necessitate the draw-down of *qard*; (ii) the process, assessment and methodology for the draw-down of *qard*; and (iii) the recovery process, as well as circumstances under which it is no longer feasible for *qard* to be repaid.

6.	Surplus distribution to the policyholders	A significant number of *takāful* operators are distributing surplus while an existing *qard* from the SHF remains to be repaid.	From the administrative and financial viewpoints (not legal), the PRF belongs to the policyholders. Clear guidelines should be set for the appropriation of the surplus generated from *takāful* operations. Such a policy or guideline should give the reserve position of the PRF priority over surplus distribution.
7.	Presentation of assets and liabilities of the respective *takāful* funds in the financial statements	Forty per cent of the respondent *takāful* operators do not have a rule that requires them to separate the assets and liabilities of the PRF from the TO's SHF. In these jurisdictions, the existing requirements for the presentation of financial statements mirror the requirements for conventional insurance (i.e. a single set of "combined" financial statements are required for the *takāful* operator's SHF and the PRF).	*General Presentation and Disclosure in the Financial Statements of Islamic Insurance Companies* requires that: "Disclosure should be made on the face of the statement of financial position of the following assets, with separate disclosures in the notes to the financial statements, of assets jointly financed by the owners' equity and policyholders' equity, and those exclusively financed by each of them wherever possible." (See paragraphs 39 and 40 of AAOIFI FAS-12.) It is recommended that similar principles be adopted in jurisdictions that follow IFRS, with some modifications.
8.	Capital standard	Nonexistence of guidelines on capital instruments issued as capital (Sharīʿah-compliant financial instruments) that address all risk categories at different levels of a *takāful* undertaking's capital requirements assessment.	That criteria should be set for assessing the quality and suitability of capital resources for regulatory purposes – in particular, the ability of the capital resources to absorb losses at different financial stages, such as the run-off and wind-up phases.
9.	Winding-up and exit from the market	Regulations concerning the liabilities of *takāful* undertakings and policyholders' protection in the event of insolvency remain largely unclear in some jurisdictions.	That: (i) the supervisor take preventive and corrective measures that are timely and suitable, as the case may be, particularly when a *takāful* undertaking breaches the SCR capital level (130/150% of MCR); (ii) the supervisor establishes a procedure, embedded in the legislation, for dealing with the insolvency of a *takāful* undertaking; (iii) in the event of winding-up proceedings of a *takāful* undertaking, the legal framework gives priority to the protection of policyholders and aims to minimise disruption to the provision of benefits to policyholders; and

			(iv) in the event of winding-up, the procedures for the winding-up and exit of a *takāful* undertaking from the market are clearly outlined in the law.
10.	Relevant infrastructure that supports a *takāful* undertaking's risk management framework and its reporting process required for solvency purposes, which includes accounting and auditing standards in line with international best practices	(i) There is inadequate disclosure of material and relevant information required for solvency requirements of a *takaful* undertaking that addresses all relevant and material risks. (ii) The divergence in operational accounting standards has implications for comparability of assets and liabilities, as well as, assessment of technical provisions and reserves.	That the supervisor requires a *takāful* undertaking to: (i) have effective internal control systems, including effective functions for risk management, compliance, actuarial matters and internal audit; and (ii) ensure reliability of financial and non-financial information, an adequate control of risks, a prudent approach to business, and compliance with laws and regulations, and internal policies and procedures.
11.	Appropriate legal authority for the supervisor	Some supervisors do not have adequate legal authority to actively use their powers.	That the regulatory framework be aligned with appropriate legal backing for the supervisors, particularly for actions arising out of acts done in good faith. The court system and other legal infrastructure should be developed and the independence of the judiciary respected.

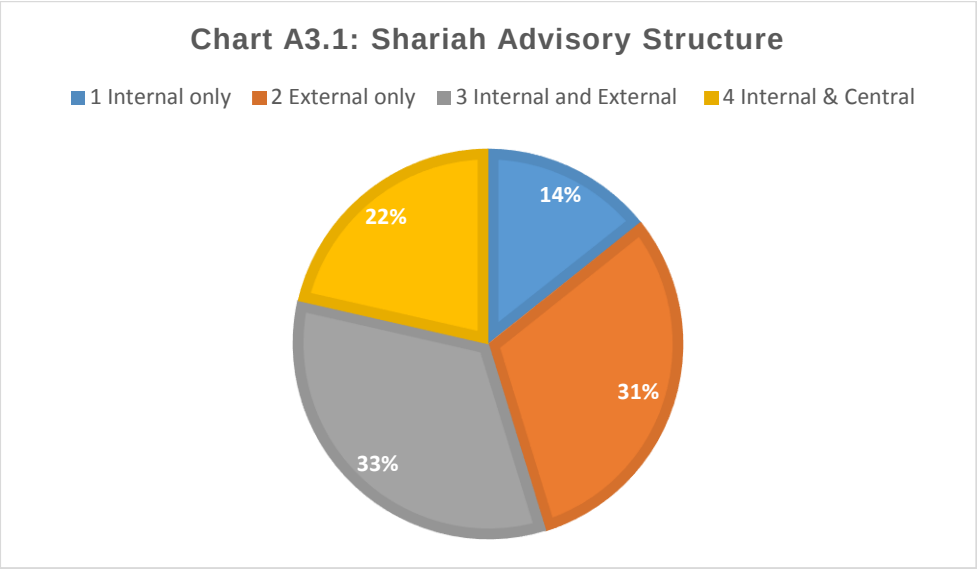
Table A4: Highlights of Some Important *Takaful* Guidelines in the Regulation of Four Selected Countries

Criterion	Malaysia	Bahrain	UAE	Pakistan
Takaful-Specific Regulation	Bank Negara Malaysia issued *Guidelines on Takaful Operational Framework* and *Risk-Based Capital Framework for Takaful Operators* in June 2013 and May 2017, respectively.	The Central Bank of Bahrain (CBB) published a *Rulebook on Insurance*, including some specific *takaful* modules. Last amended April 2014.	Insurance Authority of UAE issued *Financial Regulations for Takaful Insurance Companies* in 2014.	Securities and Exchange Commission of Pakistan published its *Takaful Rules* in 2012.
Determination and Distribution of Surplus	Paragraph 10.21, "*Takaful* operators are required to establish a written policy on the management of PRF surplus, which shall be approved, by the Sharī'ah Committee and the Board… The policy shall include the policy on utilisation of surplus including surplus distribution and the level of surplus to be retained in the fund to cushion future volatilities in experience of that PRF…" For additional detail, see paragraphs 10.20–10.23 and 12.01–12.10, *Management of Income from Takaful Business, Guidelines on Takaful Operational Framework*, BNM, 2012).	CBB Rulebook, CA-8.5: "Every *Takaful* firm must develop a policy for determining the surplus or deficit arising from *Takaful* operations, the basis of determining and allocating that surplus or deficit to the participants and the shareholders, and the method of transferring any surplus or deficit to the participants. The policy developed must consider all relevant AAOIFI standards including Financial Accounting Standard No. 13 'Disclosure of Bases for Determining and Allocating Surplus or Deficit in Islamic Insurance Companies'. The policy must be approved by the Shari'ah Supervisory Board as well as the board of directors of the *Takaful* firm."	Item 5, Section 7, Article 4, "Surplus/Deficit Allocation", page .86: "The Company must establish a policy for determining the surplus or deficit arising from its operations. The policy must determine the basis of distributing the surplus or deficit among the participants and the shareholders and the method of transferring between the participants and shareholders. The policy developed must consider the relevant International Islamic Standards connected to the AAOIFI (Accounting and Auditing of Islamic Financial Institutions) Board, including the accounting standard of 'Disclosure of Bases for Determining and Allocating Surplus or Deficit in Islamic Insurance Companies'."	Chapter III, "Conduct of *Takaful* Business", Section 12, "Establishment of Participant *Takaful* Fund": "An Operator shall, for each Participant *Takaful* Fund, formulate Participant *Takaful* Fund Policies defining: (1.d) the method and frequency of determining surpluses or deficits of the Participants' *Takaful* Fund, including a definition of how any reserves being set aside in determining surpluses or deficits are to be arrived at; [and] (1.e.) the method of disposing of any surplus. (2.) The method of determining surpluses or deficits shall follow international accounting

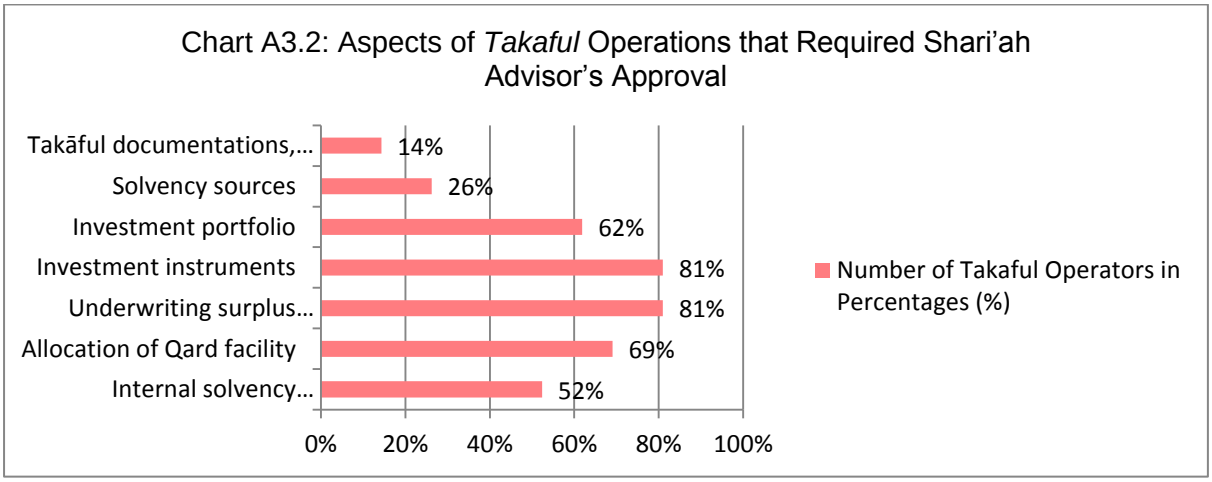
				and financial reporting standards as may be modified by the Accounting and Auditing Organization for Islamic Financial Institutions." (page 18). See section 12(3) for further detail. Section 20(2): "The surplus or deficit shall be determined by the appointed actuary for a Family Takaful operator and by the management of General Takaful operator in the case of General Takaful." See section 20 for further detail.
Wakālah fee	Paragraph 12.6, *Guidelines on Takaful Operational Framework*: "When ascertaining the upfront fee, *takaful* operators are required to appropriately determine the level of management expenses expected to be incurred by the shareholders' fund… This can be based on internal or industry's past experience, taking into consideration expected future experience with reasonable prudence."	CBB Rulebook, CA-8.2.2: "All *Takaful* firms licensed in Bahrain must organise and operate their business according to the *al Wakālah* model. Specifically, in exchange for the provision of management services to participants' fund(s), the shareholders of the *Takaful* firm must receive a specific consideration (*Wakālah* fee). For the insurance assets invested on behalf of participants' funds, the *Takaful* operator must use the *al Mudaraba* model, and must receive a set percentage of the profits generated from the investment portfolio. No	Item 3, Section 7, Article 3, page 84, "*Wakālah* and *mudarabah* fees": "*Takaful* operators shall charge fees either based on a model (*Wakālah* fees as a percentage of total subscriptions and *Mudaraba* fees as a percentage of investment income) or only a *Wakalah* model (fees charged as a percentage of surplus income from underwriting and investment *Takaful*)… *Wakālah* and *Mudaraba* fees are determined as a percentage not exceeding (35%) of gross written contributions and participants' investments revenues accrued during the financial year. The shareholders' account should bear all operational,	Section 9(q): "An operator shall set the fee structure and the profit sharing ratio for investment management in accordance with the provisions of these rules on the advice of the Sharī'ah Advisor and the appointed actuary."

		performance/incentive fees are allowed to be paid to the shareholders/*Takaful* operator of the *Takaful* firm; the only fees that can be paid are the *wakālah* fees and the set percentage of the profits generated from the investment portfolio."	administrative and general expenses for *Takaful* insurance business. The participants' account shouldn't bear any expenses other than the percentage mentioned in this paragraph…"	
Treatment of Deficiency and Loss in PRF	Paragraph 14.2, *Guidelines on Takaful Operational Framework*: "*Takaful* operators must have in place clear written policy on the mechanism to rectify deficit of the PRF approved by the Board. The policy should address the manner in which *qard* will be repaid… The policy must also address the issue of surplus distribution to participants during the period where *qard* has not been fully repaid by the PRF, for example, whether the distribution of surplus is continued, reduced, or put on hold."	CBB Rulebook, CA-8.4.16: "Where a *Qard Hassan* has been granted for solvency purposes under the rules in place at that time, the amount of *Qard Hassan* will be written off and/or repaid over a period not exceeding 5 years and disclosed as an off-balance sheet item (see paragraph PD-1.1.13A) and not included as part of available capital for solvency purposes." (See CBB Rulebook, CA-8.4.16–8.4.17 and CA-8.5 for further details.)	Items 2–4, Section 7, Article 4, "Surplus/Deficit", page 85: "There are a number of methods used to cover the insurance deficit. These include: a. To settle the deficit from the reserves of participants, if any. b. To borrow from the shareholders' funds *Qard Hassan* the amount of the deficit, which shall be paid back from future surplus. i. The entire equities of the shareholders shall be made available as *Qard Hassan* in case of a deficit in the participants' funds."	Section 9(p): "An operator shall determine the quantum of surplus or deficit in each Participants' *Takaful* Fund at least once in each accounting year in accordance with the provisions of these rules. Section 12(d): the method and frequency of determining surpluses or deficits of the Participants' *Takaful* Fund, including a definition of how any reserves being set aside in determining such surpluses or deficits are to be arrived at. Section 12(f): the method of extinguishing any deficit… Section 19. *Qard-e-hasna*: "If at any point in time assets in a Participants' *Takaful* Fund are not sufficient to cover liabilities, the deficit shall be funded

				by way of an interest-free loan (*qard-e-hasna*) from: (2) In the event of future surplus in a Participants' *Takaful* Fund to which a *Qard-e-Hasna* has been made the *Qard-e-hasna* shall be repaid prior to distribution of surplus to participants."
Assessment of Capital Adequacy Position	Paragraph 1.3, *Risk-Based Capital Framework for Takaful Operators*: "In determining the capital adequacy position for a licensed *takaful* operator, the Framework recognises the ownership and obligations of the various funds in the *takaful* operations, as well as the extent to which the funds are impacted by the different risks involved in the *takaful* operations."	CBB Rulebook, CA-8.4.9: "The solvency requirements only apply to the insurance activities of the participants' fund(s) and are calculated in accordance with the required solvency margin (see CA-2) for each of the participants' fund(s). The solvency required is the total of the solvency requirements for all participants' funds." (For additional detail, See-CA-8.4.9–CA-8.4.11.)	Item 1(d), Article 4, "Solvency Margin", Section 2, page 33: "The Solvency Capital Requirements for the TU are the solvency level of its Participants' Risk Funds and Shareholders' Funds. The solvency level for all Participants' Risk Funds shall be consistent with the overall risk profiles mentioned in subparagraph (c)." (For further detail, see Items 1–4, Article 4, "Solvency Margin", pages 32–35.)	Section 9(k): "A *takaful* operator shall ensure that there is a sufficient resource in each Participants' *Takaful* Fund, at all times, carry reserves in accordance with the provisions of these rules." Section 9(m): "A *takaful* operator shall manage the Participants' *Takaful* Fund and related risks in accordance with the provision of these rules."

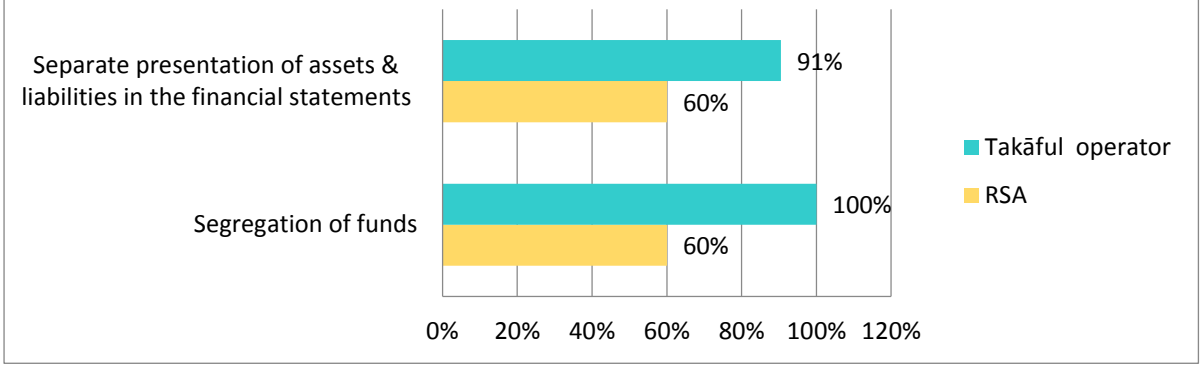


Source: IFSB survey, 2016



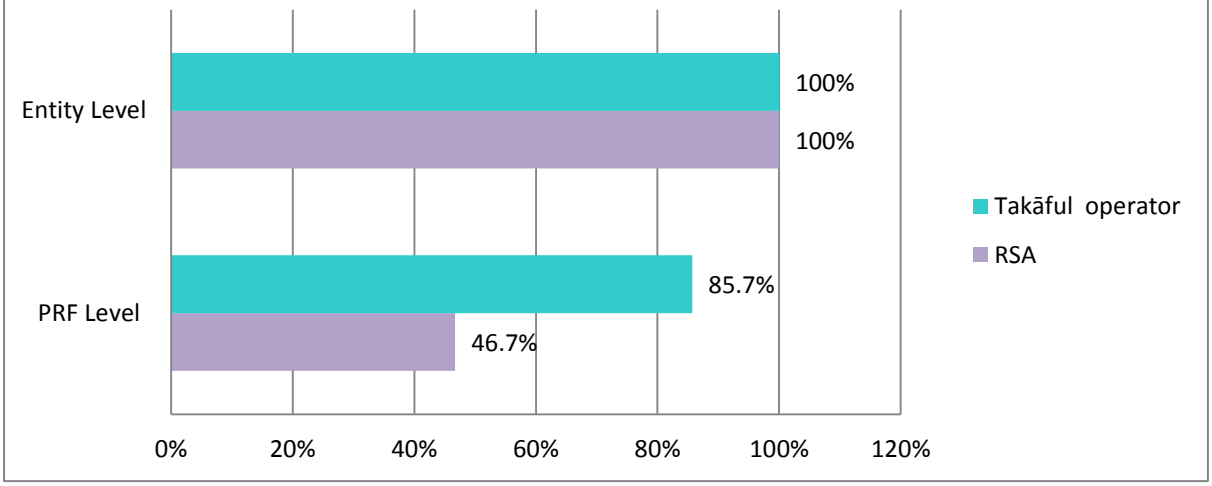
Source: IFSB survey, 2016

Chart A3.3: Percentages of Responses on the Segregation of Funds and Separate Presentation of Assets and Liabilities in the Financial Statements

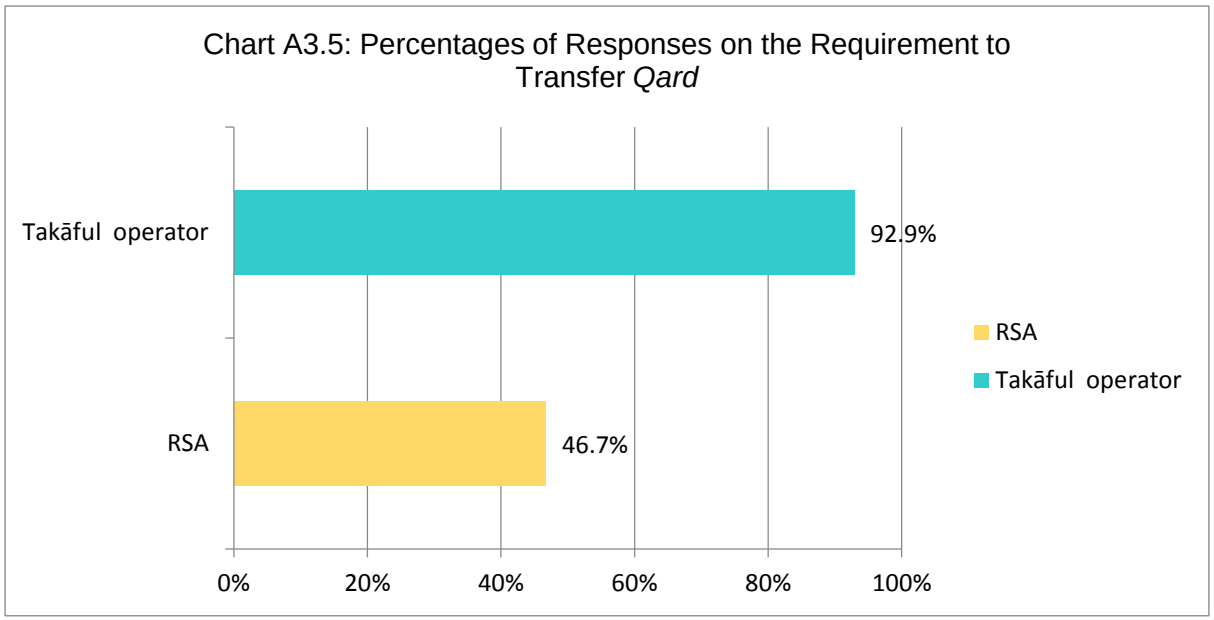


Source: IFSB survey, 2016

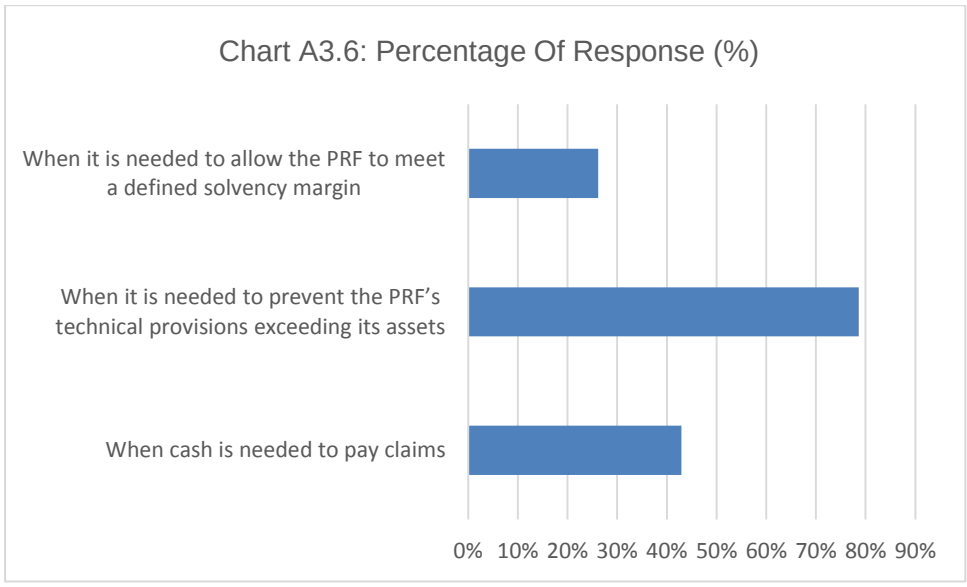
Chart A3.4: Percentage Of Response On The Level Of Fund For Solvency Test



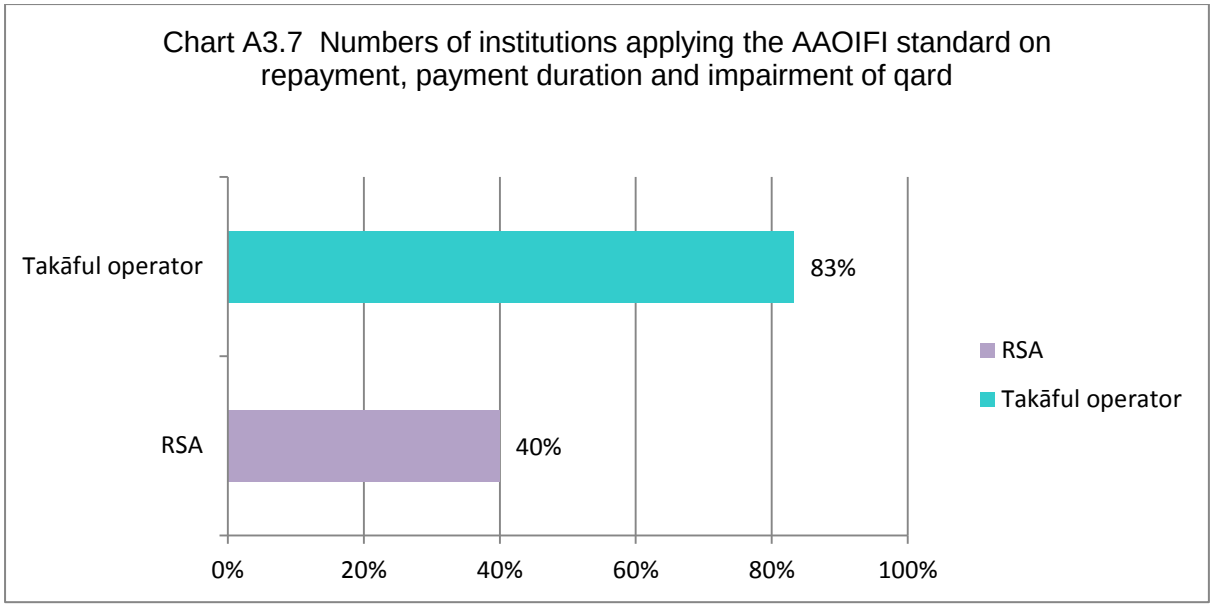
Source: IFSB survey, 2016



Source: IFSB survey, 2016

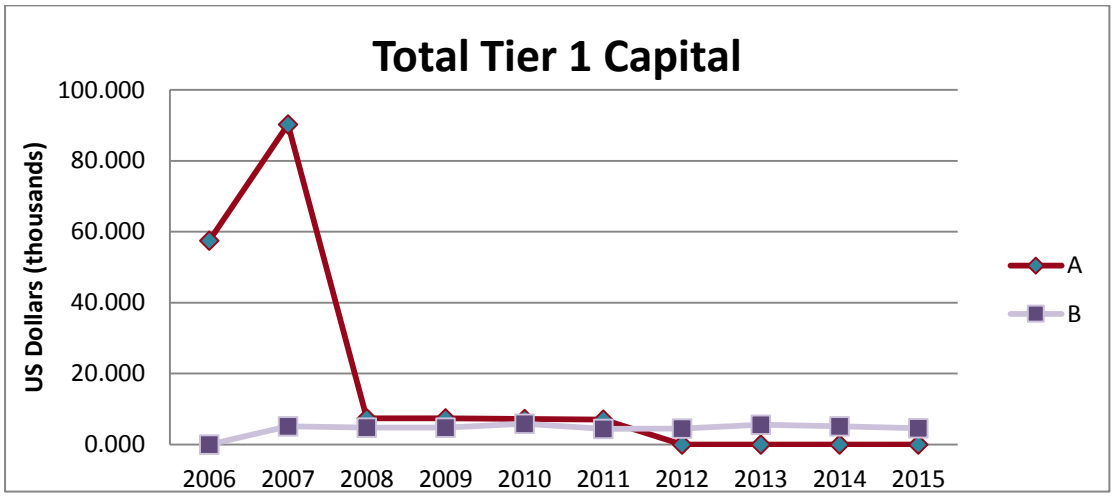


Source: IFSB survey, 2016



Source: IFSB survey, 2016

Chart A3.8: Trend in the Total Tier 1 Capital of Two *Takāful* Firms, 2006–2015



Source: Authors/IFSB workings, 2017

LIST OF *TAKĀFUL* OPERATORS AND REGULATORY AND SUPERVISORY AUTHORITIES PARTICIPATING IN THE SURVEY

TAKAFUL OPERATORS	REGULATORY AND SUPERVISORY AUTHORITIES
1. Adamjee Insurance Co. Ltd, Pakistan (window) 2. AIA PUBLIC Takaful Bhd 3. Al Madina Insurance, Oman 4. Alahlitakaful Co. 5. Alfalah Insurance Co. Ltd, Pakistan (window) 6. Aljazira Takaful Taawuni 7. Allianz Saudi Fransi Cooperative Insurance Co. 8. Am MetLife Takaful Bhd 9. Asia Insurance Co. Ltd, Pakistan(window) 10. Askari Insurance Ltd (window) 11. Association of Participation Insurance, Turkey 12. Atlas Insurance Ltd, Pakistan (window) 13. Damaan Islamic Insurance Co. Beema, Qatar 14. Dawood Family Takaful, Pakistan 15. EFU General Insurance Ltd, Pakistan (window) 16. EFU Life Insurance Ltd, Pakistan (window) 17. General Takaful Co. W.L.L., Qatar 18. Great Eastern Takaful Bhd 19. Hong Leong MSIG Takaful Bhd 20. HSBC Amanah Takaful 21. IGI Life Insurance Ltd, Pakistan (window) 22. Islamic Insurance Co. Ltd, Sudan 23. Jubilee General Insurance Co. Ltd, Pakistan	1. Bank Negara Malaysia 2. Bank of England 3. Central Bank of Bahrain 4. Central Bank of Kazakhstan (regulator) 5. Commissariat aux Assurances, Luxembourg 6. Dubai Financial Services Authority 7. Insurance Authority Sudan 8. Insurance Authority UAE 9. Ministry of Commerce & Industry, Kuwait 10. Ministry of Economy and Finances, Senegal 11. National Insurance Commission, Nigeria 12. Qatar Central Bank 13. Saudi Arabian Monetary Agency 14. Securities and Exchange Commission of Pakistan 15. Turkish Treasury

24. Jubilee Life Insurance Co. Ltd, Pakistan 25. MAA Takaful Bhd 26. Pak Qatar General Takaful Ltd, Pakistan 27. Pak-Kuwait Takaful Co. Ltd, Pakistan 28. Pak-Qatar Family Takaful Ltd, Pakistan 29. Premier Insurance Ltd, Pakistan 30. Prudential BSN 31. Qatar Islamic Insurance Co., Qatar 32. Reliance Insurance Co. Ltd, Pakistan 33. SPI Insurance Co. Ltd, Pakistan (window) 34. Syarikat Takaful Malaysia Bhd 35. Takaful Ikhlas Bhd 36. Takaful Oman Insurance, Oman 37. Takaful Pakistan Ltd, Pakistan 38. TPL Direct Insurance Ltd, Pakistan (window) 39. UBL Insurers Ltd, Pakistan 40. United Insurance Co. of Pakistan Ltd, Pakistan (window)	

BIBLIOGRAPHY

AAOIFI (2015). Accounting Auditing and Governance Standards, Accounting and Auditing Organization for Islamic Financial Institutions: aaoifi.com/standard/accounting-standards

AIG Corporate (2008). www.aigcorporate.com/aboutaig/index.html

Al-Amri, K., J. D. Cummins and M. Weiss (2014). "Economies of Scope, Organisational Form, and Insolvency Risk: Evidence from the Takaful Insurance Industry", Working Paper, Sultan Qaboos University, Oman.

Al-Darwish, A., M. Hafeman, G. Impavido, M. Kemp and P. O'Malley (2011). *Possible Unintended Consequences of Basel III and Solvency II*, International Monetary Fund Working Paper WP/11/187: Washington, D.C., United States.

Aldrich, J. H. and F. D. Nelson (1984). "Linear Probability, Logit, and Probit Models". *Sage University Paper No. 45*.

Alexander, D. and S. Archer (2016). *2017 International Accounting/Financial Reporting Standards Guide*, Riverwoods, IL: CCH.

A.M Best (2013). *A.M. Best's Takaful Review*: www.ambest.com/resources/takaful_review.pdf

A.M. Best (2016). *The International Takaful Summit*: www.takafulsummit.com/2016/sponsors/am-best/

Asian-Oceanian Standard-Setters Group (AOSSG) (2018). *Islamic Finance Working Group Reporting Islamic Financial Transactions under IFRS: An update to Financial Reporting Issues relating to Islamic Finance 2010*: www.aossg.org/index.php

Archer, S., R. A. A. Karim and V. Nienhaus (2009). "Business Models in Takaful and Regulatory Implications", in S. Archer, R. A. A Karim and V. Nienhaus (eds), *Takaful Islamic Insurance: Concepts and Regulatory Issues*, Singapore: John Wiley and Sons (Asia) Pte Ltd.

Artzner, P., F. Delbaen, J. Eber and D. Heath (1999). "Coherent measures of risk", *Mathematical Finance*, Vol. 9, No. 3, pp. 203–228.

Ashurst (2015). *Insurance Briefing: Solvency II – An Introduction to Ancillary Own Funds:* www.ashurst.com.

Bachman, J. E. (1978). *Capitalization Requirements for Multiple Line Property-Liability Insurance Companies*, Homewood, Ill: SS Huebner Foundation for Insurance Education, Wharton School, University of Pennsylvania, distributed by R. D. Irwin.

Baltensperger, E. (2008). "Regulation and intervention in the insurance industry – fundamental issues", *Geneva Report Risk and Insurance Research,* No.1

Bank of England (2015). Prudential Regulatory Authority's Supervisory Statement SS/15, *Solvency II: Own Funds*.

Barniv, R. and J. B. McDonald (1999). "Review of categorical models for classification issues in accounting and finance", *Review of Quantitative Finance and Accounting*, Vol. 13, No. 1, pp. 39–62.

Barth, M. M. (2000). “A comparison of risk-based capital standards under the expected policyholder deficit and the probability of ruin approaches”, *Journal of Risk and Insurance*, pp. 397–413.

Beard, R. E., T. Pentikäinen and E. Pesonen (1984). *Risk Theory: The Stochastic Basis of Insurance*, 3rd edition, London, New York: Chapman and Hall.

Buckham, D., J. Wahl and S. Rose (2010). *Executive’s Guide to Solvency II*, London: John Wiley & Sons.

Butsic, R. (1994). “Solvency measurement for property-liability risk-based capital application”, *Journal of Risk and Insurance*, Vol. 61, No. 4, pp. 764–775.

Campagne, C. (1961). “Standard minimum de solvabilité applicable aux entreprises d’assurances”, *Report of the OECE*, March, 11. Reprinted in Het Verzekerrings-Archief deel XLVIII, 1971–1974.

Carmicheal, J. A. (2002). *The Development and Regulation of Non-bank Financial Institutions*, Washington, DC: International Bank for Reconstruction and Development, World Bank Group.

CEA (2010). *Insurance: A Unique Sector. Why Insurers Differ from Banks*: www.cea.eu/uploads/Modules/Publications/1277383780_cea-report-insurancea-unique-sector.pdf

Cheng, J. and M. A. Weiss (2011). “The Regulatory Effect of Risk-based Capital in Property-Liability Insurance”, Working Paper, Networks Financial Institute.

Chiet, N. S., S. H. Jaaman, N. Ismail and S. M. Shamsuddin (2009). “Insolvency Prediction Model Using Artificial Neural Network for Malaysian General Insurers”, in *Nature & Biologically Inspired Computing* (pp. 584–589), World Congress on IEEE.

Cihak, M. A. (2008). “Quality of Financial Sector Regulation and Supervision around the World”, IMF Working Paper WP/08/190: www.imf.org

Cummins, J. D. (1988). “Risk-based premiums for insurance guaranty funds”, *Journal of Finance*, Vol. 43, No. 4, pp. 823–839.

Cummins, J. D. (2000). “Allocation of capital in the insurance industry”, *Risk Management and Insurance Review*, Vol. 3, No. 1, pp. 7–27.

Cummins, J. D., M. F. Grace and R. D. Phillips (1999). “Regulatory solvency prediction in property-liability insurance: Risk-based capital, audit ratios, and cash flow simulation”, *Journal of Risk and Insurance*, Vol. 66, No. 3, pp. 417–458.

Cummins, J. D., S. Harrington and G. Niehaus (1993). “An economic overview of risk-based capital requirements for the property-liability insurance industry”, *Journal of Insurance Regulation*, Vol. 11, No. 9, p. 427-447. Kansas City.

Cummins, J. D., S. E. Harrington and R. Klein (1995). “Insolvency experience, risk-based capital, and prompt corrective action in property-liability insurance”, *Journal of Banking & Finance*, Vol. 19, No. 3, pp. 511–527.

Cummins, J. D. and J. Lamm-Tennant (1994). “Capital structure and the cost of equity capital in the property-liability insurance industry”, *Insurance: Mathematics and Economics*, Vol. 15, No. 2–3, pp. 187–201.

Cummins, J. D. and D. J. Nye (1980). “The stochastic characteristics of property-liability insurance company underwriting profits”, *Journal of Risk and Insurance*, Vol. 49, No. 1, pp. 61–77.

Cummins, J. D. and R. D. Phillips (2009). “Capital adequacy and insurance risk-based capital systems”, *Journal of Insurance Regulation*, Vol. 28, No. 1, pp. 25–72.

Curtis, R. (2011). “Solvency as a Focal Point of Prudential Regulation: Supervisory Lessons and Challenges”, in P. M. Monkiewicz (ed.), *The Future of Insurance Regulation and Supervision: A Global Perspective* pp. 87–Eastbourne, Great Britain: Palgrave Macmillan.

Daykin, C. D. and G. B. Hey (1988). “The Management of Uncertainty in a General Insurance Company”, Report presented at the GISG Working Party on Solvency Seminar, Harrogate, 20–21 October 1988.

Daykin, C. D., T. Pentikainen and M. Pesonen (1993). *Practical Risk Theory for Actuaries*, London, CRC Press.

De Haan, L. and J. Kakes (2010). “Are non-risk based capital requirements for insurance companies binding?”, *Journal of Banking & Finance*, Vol. 34, No. 7, pp 1618-1627.

Denters, E. (2011). “Global Financial Architecture and the Insurance Sector”, in P. M. Monkiewicz (ed.), *The Future of Insurance Regulation and Supervision: A Global Perspective*, Eastbourne, Great Britain: Palgrave Macmillan.

Dewatripont, M. and J. Tirole (1994). “A theory of debt and equity: Diversity of securities and manager–shareholder congruence”, *The Quarterly Journal of Economics*, Vol. 109, No. 4, pp. 1027–1054.

Doff, R. (2008). “A critical analysis of the Solvency II proposals”, *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 33, No. 2, pp. 193–206.

Duverne, D. and J. Le Douit (2007). “IFRS for insurance: CFO forum proposals”, *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 32, No. 1, pp. 62–74.

Kwon, W. (2011).”The economic rationale for insurance regulation, in P. L. Monkiewicz (ed.), *The Future of Insurance Regulation and Supervision: A Global Perspective,* Eastbourne, Great Britain : Palgrave Macmillan.

EIOPA (2010). *EIOPA Report on the Fifth Quantitative Impact Study (QIS5) for Solvency II*:

https://eiopa.europa.eu/fileadmin/tx_dam/files/publications/reports/QIS5_Report_Fin

al.pdf

Eling, M. and I. Holzmüller (2008). “An overview and comparison of risk-based capital standards”, *Journal of Insurance Regulation*, Vol. 26, No. 4, p. 31.

Eling, M., H. Schmeiser and J. T. Schmit (2007). “The Solvency II process: Overview and critical analysis”, *Risk Management and Insurance Review*, Vol. 10, No. 1, pp. 69–85.

Etiqa Takaful Berhad. (2014). *indicative principal terms and conditions of the proposal.* Retrieved from issuance.sc.com.my: http://issuance.sc.com.my/MemberAccessIssuance/documents/view-file/4395

European Commission (2009). Directive 2009/138/ec of the European Parliament and of the Council of 25 November 2009 on the Taking-up and Pursuit of the Business of Insurance and Reinsurance (Solvency II): http://ec.europa.eu/internal_market/insurance/solvency/index_en.htm#oj

European Commission (2014). "Insurance stress test: European Commission emphasises need for full and rapid implementation of the 'Solvency II' insurance regulatory regime", European Commission Statement, Brussels, December.

Fawzi, P., K. Rashid, A. Sharkawi, S. Hasan, S. Aripin and M. Arifin (2016). "Takaful: A review on performance, issues and challenges in Malaysia", *Journal of Scientific Research and Development*, Vol. 3, No. 4, pp. 71-76.

Feldblum, S. (1996). "NAIC Property/Casualty Insurance Company Risk-based Capital Requirements", in *Proceedings of the Casualty Actuarial Society*, Vol. 83, pp. 297–435.

Flamee, M. (2008). "IFRS and Solvency II: Global exposure and interaction – The work of the IAIS", *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 33, No. 1, pp. 54–59.

Geneva Association (2010). *Systemic Risk in Insurance: An Analysis of Insurance and*

Financial Stability. A Special Report of the Geneva Association Systemic Risk

Working Group: www.genevaassociation.org/PDF/BookandMonographs/Geneva_Association_Systemic_Risk_in_Insurance_Report_March2010.pdf

Geneva Association (2016). *The Nature and Role of Capital in Insurance*: https://www.genevaassociation.org/.../the-nature-and-role-of-capital-in-insurance.pdf

Gonulai, S. (2013). *Takaful and Mutual Insurance: Alternative Approach to Managing Risk*, Washington, DC World Bank.

Grace, M. (2010). "The Insurance Industry and Systemic Risk: Evidence and Discussion", Policy Brief (2010-PB-02), Network Financial Institute.

Grace, M. F., S. E. Harrington and R. W. Klein (1998). "Risk-based capital and solvency screening in property-liability insurance: Hypotheses and empirical tests", *Journal of Risk and Insurance*, Vol. 65, No. 2, pp. 213–243.

Hammond, J.D., Shapiro, A. and Shilling, N., 1978. *The regulation of insurer solidity through capital and surplus requirements*. Pennsylvania State University.

Harrington, S. (2009). "The financial crisis, systemic risk and the future of insurance regulation", *Journal of Risk and Insurance*, Vol. 76, No. 4, pp. 785–819.

Holzmüller, I. (2009). "The United States RBC standards, Solvency II and the Swiss Solvency test: A comparative assessment", *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 34, No. 1, pp. 56–77.

Höring, D., 2013. Will Solvency II market risk requirements bite? The impact of Solvency II on insurers' asset allocation. *The Geneva Papers on Risk and Insurance-Issues and Practice*, *38*(2), pp.250-273.

Ibragimov, R., D. Jaffee and J. Walden (2010). “Pricing and capital allocation for multiline insurance firms”, *Journal of Risk and Insurance*, Vol. 77, No. 3, pp. 551–578.

IFSB (2010). *Standard on Solvency for Islamic Insurance Companies (Takaful)*: www.fsb.org/standard/IFSB-11%20M%20Standard%20on%20Solvency%20Requirements%20for%20Takaful%20(Islamic%20Insurance)%20Undertakings.pdf

IAIS (2003). *Insurance Core Principles and Methodology*: www.iaisweb.org

Insurance Authority United Arab Emirates (IAUAE). (2014). *Financial Regulations for Insurance Companies.* Retrieved from Insurance Authority Web site: https://ia.gov.ae/en/Documents/Financial%20Regulations%20for%20Insurance%20Companies.pdf

Ismail, M. (2013). “Determinants of financial performance: The case of general *takaful* and insurance companies in Malaysia”, *International Review of Business Research Papers*, Vol. 9, No. 6, pp. 111 – 130.

Kahane, Y., 1979. Solidity, leverage and the regulation of insurance companies. *The Geneva Papers on Risk and Insurance*, *4*, pp.3-19.

Kessler, D., 2008. Insurance market mechanisms and government interventions. *Journal of Banking & Finance*, *32*(1), pp.4-14.

Khan, M. H. (2010). “Compliance in the Insurance Industry. Ethical Boardroom”: doi:http://ethicalboardroom.com/ethics/compliance-best-pratice/compliance-in-the-insurance-industry/

Kim, D. and A. M. Santomero (1988). “Risk in banking and capital regulation”, *Journal of Finance*, Vol. 43, No. 5, pp. 1219–1233.

Koziol, C. and J. Lawrenz (2009). “What makes a bank risky? Insights from the optimal capital structure of banks”, *Journal of Banking & Finance*, Vol. 33, No. 5, pp. 861–873.

KPMG (2015). https://home.kpmg.com/xx/en/home/insights/2015/11/opening-the-black-box-fs.html

Lackman, C. L. (1986). “The impact of capital adequacy constraints on bank portfolios”, *Journal of Business*, *Finance & Accounting*, Vol. 13, No. 4, pp. 587–596.

Liebwein, P. (2006). “Risk models for capital adequacy: Applications in the context of Solvency II and beyond”, *The Geneva Papers on Risk and Insurance Issues and Practice*, Vol. 31, No. 3, pp. 528–550.

Liedtke, P. and J. Monkiewicz (2011). *The Future of Insurance Regulation and Supervision: A Global Perspective*, Eastbourne Great Britain. Geneva Association of Risk and Insurance Economics.

Lin, W., Y. Lai and M. R. Powers (2014). “The relationship between regulatory pressure and insurer risk taking”, *Journal of Risk and Insurance*, Vol. 81, No. 2, pp. 271–301.

Linder, U. and V. Ronkainen (2004). “Solvency II – towards a new insurance supervisory system in the EU”, *Scandinavian Actuarial Journal*, Vol. 2004, No. 6, pp. 462–474.

Llewellyn, D. (1999). *The Economic Rationale for Financial Regulation*, London: Financial Services Authority.

Loubergé, H. (2013). “Developments in Risk and Insurance Economics: The Past 40 Years”, in *Handbook of Insurance* (pp. 1–40), New York: Springer.

Lundberg, F. (1909). On the Mathematical Theory of Risk, New York: Springer.

Mankiw, N. G. (2007). *Principles of Microeconomi*cs, New York: Southwestern.

Marovic, B. and V. Njegomir (2010). *The Implications of the Financial Crisis for the Insurance Industry: Global and Regional Perspectives*. London (City of publication?): Routledge Taylor & Francis Group: doi:www.tandfonline.com/actionjournalinformation

Merton, R. C. (1977). “On the pricing of contingent claims and the Modigliani-Miller theorem”, *Journal of Financial Economics*, Vol. 5, No. 2, pp. 241–249.

Michaelson, J. B. and R. C. Goshay (1967). “Portfolio selection in financial intermediaries”, *Journal of Financial and Quantitative Analysis*, Vol. 2, No. 2, pp. 166–199.

Middle East Insurance Review . (2013, January 2013). *Southeast Asian waters a black spot for shipping-Allianz.* Retrieved from Middle East Insurance Review Web site: http://www.meinsurancereview.com/News/View-NewsLetter-Article/id/26789/Type/eDaily/Region-Southeast-Asian-waters-a-black-spot-for-shipping-Allianz.

Mokhtar, Hamim S. A., I. Abdul Aziz and N. Hilal (2015). “Surplus sharing practices of *takāful* operators in Malaysia”, *ISRA International Journal of Islamic Finance*, Vol. 7, No 1, pp. 99-126.

Munch, P. and D. Smallwood (1981). “Theory of Solvency Regulation in the Property and Casualty Insurance Industry”, in *Studies in Public Regulation* (pp. 119–180), Cambridge, MA: The MIT Press.

National Association of Insurance Commissioners (NAIC). (1994): www.naic.org

Pentikäinen, T. (1967). *On the Solvency of Insurance Companies*, Cambridge University Press: https://doi.org/https://doi.org/10.1017/S0515036100009028

Pentikaïnen, T. and J. Rantala (1982). *Solvency of Insurers and Equalisation Reserves*, Helsinki: Original from the University of Michigan.

Petroni, K. R. and D. A. Shackelford (1996). *The Effect of Risk-Based Capital on Life Insurers’ Investment Portfolios*, Wharton Financial Institutions Centre, Wharton School of the University of Pennsylvania.

Pottier, S. W. & D. W. Sommer (2002). “The effectiveness of public and private sector summary risk measures in predicting insurer insolvencies”, *Journal of Financial Services Research*, Vol. 21, No. 1, pp. 101–116.

Masciandaro, D. and M. Quintyn (2011). “Architecture of Insurance Supervision Before and After the Financial Crisis”, in P. Liedtke and J. Monkiewicz (eds), *The Future of Insurance Regulation and Supervision: A Global Perspective*. Eastbourne, Great Britain: Geneva Association of Risks and Insurance Economics.

Rees, R. and E. Kessner (1999). “Regulation and efficiency in European insurance markets”, *Economic Policy*, Vol. 14, No. 29, pp. 364–397.

Rossum, V. (2005). “Regulation and insurance economics”, *The Geneva Papers on Risk and Insurance: Issues and Practices*, Vol. 30, No. 1, pp. 156-177.

Rudschuck, N., T. Basse, A. Kapeller and T. Windels (2010). “Solvency II and the investment policy of life insures: Some homework to do for the sales and marketing departments”, *Interdisciplinary Studies Journal*, Vol. 1, No. 1, p. 57.

Sandström, A. (2005). *Solvency, Models, Assessment and Regulation*, London: Chapman & Hall.

Saporta, V. (2016). “Macroprudential Policy for Insurers”, Association of British Insurers Annual Conference: www.bankofengland.co.uk/publication/pages/speeches/default.aspx

Schiro, J.J., 2006. External forces impacting the insurance industry: Threats from regulation. *The Geneva Papers on Risk and Insurance-Issues and Practice*, *31*(1), pp.25-30.

Sharma, P. (2002). *Report: Prudential Supervision of Insurance Undertakings*, Conference of Insurance Supervisory Services of the Member States of the European Union.

Shim, J. (2010). “Capital-based regulation, portfolio risk and capital determination: Empirical evidence from property-liability insurers”, *Journal of Banking and Finance*, Vol. 34, No. 10, pp. 2450–2561.

Sijben, J. J. (2002). “Regulation versus market discipline in banking supervision: An overview – Part 2”, *Journal of International Banking Regulations*, Vol. 4, No. 1, pp. 55–71.

Skipper, H.D., 2008. *Risk management and insurance: perspectives in a global economy*. John Wiley & Sons.

Smith, J. (2009). “Solvency and Capital Adequacy in Takaful”, in S. Archer, R. A. A. Karim and V. Niehaus (eds), *Takaful Islamic Insurance* (pp. 193–216), Singapore: John Wiley & Sons Pte Ltd

Staking, K. B. and D. F. Babbel (1995). “The relation between capital structure, interest rate sensitivity, and market value in the property-liability insurance industry”, *Journal of Risk and Insurance*, Vol 62, No. 4 pp. 690–718.

Swiss Re (2010). *World Insurance in 2009*.

Takaful Re Limited (2015). *World Islamic Insurance Directory 2015*, Dubai: Middle East Insurance Review.

Tolefat, A. (2011). Investment Portfolios of Takaful Undertakings. *Takaful Islamic Insurance: Concepts and Regulatory Issues*, 217-238.

Van Bragt, D., H. Steehouwer and B. Waalwijk (2010). “Market consistent ALM for life insurers – Steps toward Solvency II”, *The Geneva Papers on Risk and Insurance: Issues and Practice*, Vol. 35, No. 1, pp. 92–109.

Van Rossum, A. (2005). “Regulation and insurance economics”, *The Geneva Papers on Risk and Insurance: Issues and Practice*, Vol. 30, No. 1, pp. 43–46.

Wakker, P., R. Thaler and A. Tversky (1997). “Probabilistic insurance”, *Journal of Risk and Uncertainty*, Vol. 15, No. 1, pp. 7–28.

Willis Towers Watson (2017). “Complex reporting caused by Solvency II risks putting investors off insurance sector”, *Solvency II News*, 25 April,

World Bank and IMF (2005). *Financial Sector Assessment: A Handbook*.

Yakob, R., Yusop, Z., Radam, A. and Ismail, N., 2012. Solvency determinants of conventional life insurers and Takaful operators. Asia-Pacific Journal of Risk and Insurance, 6(2).