

Sharī‘ah Framework for Pricing Family *Takāful* Products

Younes Soualhi*

Fares Djafri**

Abstract: This research investigates the Sharī‘ah compliance of the pricing elements used in family *takāful* products. The reviewed literature has revealed a great deal of emphasis on the Sharī‘ah aspects of the *takāful* contract, distribution of surplus, models used, incorporating *waqf* in *takāful*, and the relationship among the parties. Other research has focused on the operational and technical aspects of *takāful* such as underwriting, pricing, reserving and risk management. None of these studies has addressed the Sharī‘ah compliance of the pricing elements of family *takāful* products. Through qualitative research using open-ended interviews as well as content analysis, this research analyses the conformity of family *takāful* pricing mechanism with the Sharī‘ah principles of price-setting (*tas‘īr*). The research findings indicate that the assumptions of mortality and morbidity are Sharī‘ah compliant based on the principles of *ibāḥah* (permissibility), *maṣlahah* (public interest), *istiqrā’* (induction) and *‘urf* (custom). However, the investment returns assumption is not quite fair to the shareholders should there be a loss in the investment. The research also indicates that the concept of time value of money is a Sharī‘ah-compliant element that can be used to price family *takāful* products. Further, the findings highlight that the pricing elements such as health condition are deemed unfair by some practitioners. Similarly, adding an extra loading to the contribution because of family medical history should not be taken for granted.

*Professor and Senior Researcher, International Sharī‘ah Research Academy for Islamic Finance (ISRA). Email: younes@isra.my

**Researcher, International Sharī‘ah Research Academy for Islamic Finance (ISRA). Email: fares@isra.my

Keywords: Pricing, Underwriting, Takāful, Assumptions, Shaṭī'ah.

Abstrak: Penyelidikan ini mengkaji kepatuhan Syariah terhadap elemen harga dalam produk takaful keluarga. Kajian bahan-bahan bertulis menunjukkan penekanan yang tinggi kepada aspek Syariah bagi kontrak takaful, pengagihan lebihan, model yang digunakan, menyepadukan wakaf dalam takaful dan hubungan antara pihak-pihak yang berkenaan. Penyelidikan lain pula menumpukan kepada aspek operasi dan teknikal takaful seperti pengunderaitan, penetapan harga, rizab dan pengurusan risiko. Tiada satu pun daripada kajian ini membahaskan kepatuhan Syariah terhadap elemen penetapan harga produk takaful keluarga. Melalui penyelidikan kualitatif dengan menggunakan wawancara terbuka dan juga analisis kandungan, penyelidikan ini menganalisis kesesuaian mekanisme penetapan harga takaful keluarga dengan penetapan harga (tas'ir) mengikut prinsip Syariah. Hasil penyelidikan menunjukkan bahawa andaian kematian dan morbiditi adalah patuh Syariah berdasarkan prinsip ibahah (kebenaran penggunaan), masalah (kepentingan umum), istiqla' (aruhan) dan 'uruf (adat kebiasaan). Walau bagaimanapun, andaian pulangan pelaburan ini tidak begitu adil bagi pemegang saham sekiranya pelaburan tersebut mengalami kerugian. Penyelidikan ini juga menunjukkan bahawa konsep nilai masa wang adalah elemen patuh Syariah yang boleh digunakan untuk menentukan harga produk keluarga. Selanjutnya, penemuan ini menunjukkan bahawa elemen penentuan harga seperti kesihatan dianggap tidak adil oleh sebilangan pengamal. Demikian juga andaian bahawa mengenakan bebanan tambahan kepada sumbangan kerana sejarah perubatan keluarga boleh dijadikan suatu kelaziman.

Kata kunci: Harga, Pengunderaitan, Takaful, Andaian, Syariah.

Introduction

Frenz and Soualhi (2010) stated that the concepts, objectives and pricing elements of life insurance products and *takāful* products are the same. From the conventional perspective, pricing in insurance refers to the mechanism of determining the cost and profit of an insurance product, i.e., the premium. The premium is basically the price that the insured must pay to the insurer in return for benefits defined in the policy. Mishra (2010) asserts that “the price of a life insurance product is based on the costs of providing the product, plus a margin for profit”. The pricing elements are also known as “assumptions” that underwriters and actuaries use to arrive at fair prices. These elements generally comprise four main blocks, namely: actual cost of losses (claims to be paid

out based on mortality rates in the population); expenses of operating and managing the insurance pool; allowance for unexpected loss; and earnings on investment of collected premiums (Dorfman 2008; Mishra 2010).

Similarly, the pricing elements of family *takāful* products is an integral part of product development, marketing and profitability for *takāful* operators. Having been developed in conventional insurance, the methods of pricing have become part and parcel of the main tasks of the actuary appointed by the *takāful* operator. In other words, *takāful* has adopted actuarial practices that use assumptions based on best estimate. All jurisdictions of insurance and *takāful* emphasize that pricing should be adequate, fair and responsive to the economic environment. However, the regulatory framework for pricing is still lagging in the *takāful* market.

The reviewed literature has revealed a great deal of emphasis on the Sharī'ah aspects of the *takāful* contract, distribution of surplus, models used, incorporating *waqf* in *takāful*, and the relationship among the parties. Other research has focused on the operational and technical aspects of *takāful* such as underwriting, pricing, reserving and risk management. None of these references has addressed the Sharī'ah compliance of the pricing elements of family *takāful* products. Therefore, this paper focuses on the Sharī'ah compliance of the pricing elements used in family *takāful* products, namely individual *takāful* (savings, education, annuity and investment-linked) and group *takāful* products. It also provides a Sharī'ah basis for certain elements deemed necessary to consider in the pricing process. Although each family product has certain specific features, the research will focus on the common features that necessitate the same pricing methods. Hence, the research will not discuss the pricing elements of each family product individually.

The remaining parts of this paper are organized as follows: the second section provides a review of literature on the pricing of family *takāful*. The third section discusses the research methodology adopted in carrying the following study. The fourth section focuses on the Sharī'ah compliance of selected pricing elements of family *takāful* products. The conclusion and recommendations of the study are presented in the fifth section.

Literature Review

Literature on *takāful* pricing is still scarce. The literature on the Sharī‘ah compliance of pricing elements—to the best knowledge of the authors—does not exist yet. The issue of pricing family *takāful* products is mainly discussed from the technical point of view. Most studies on *takāful* focus on the assumptions used in pricing *takāful* products. INCEIF’s textbook titled *Takaful: Realities and Challenges* (Alhabshi *et al.* 2012) is probably the most elaborate reference on *takāful* underwriting and pricing. The textbook highlights the main assumptions used in pricing family products, namely mortality/morbidity/claims distribution patterns, investment returns, expenses, withdrawal pattern, taxation, cost of capital, cost of *qard*, profit loading and *retakāful* expenses. Bhatti (2007) identified the major pricing elements such as mortality/morbidity and cost effectiveness. He added competitiveness as a market force leading to affordable prices and what is important is to continuously review the assumptions of existing business.

According to Engku Ali *et al.* (2008), the pricing mechanism follows a systematic process. It begins with the establishment of a technical committee consisting of relevant parties such as the actuarial/pricing department, the underwriting department, claims department, investment department, IT department and accounts department. Presenting models of a single contribution mortgage plan, Engku Ali *et al.* (2008) highlight that two types of assumptions are used in pricing, a best estimate assumption and a 95% confidence level assumption. The crux of their thesis is that pricing depends on the *takāful* model chosen, adequate risk-based capital (RBC) and solvency margin. The pricing assumptions used by actuaries were taken for granted in this reference as their Sharī‘ah compliance has not been questioned.

The *takāful* contribution draws its main components from the conventional insurance premium structure. The latter, according to Thanyan (2003), consists of a net rate that covers the cost of risk underwritten based on certain assumptions made by the insurance company, and a commercial rate that covers the net rate plus contingency reserve, expenses, taxes, commissions for agents and brokers, and profit loading for shareholders. While the above pricing elements have been widely acknowledged by all references, the core concept that the

insurance and *takāful* market adopted is that the amount of premium/contribution should be commensurate with the written risk and the sum covered. The higher the risk, the higher the gross contribution.

This correlation between price, risk and sum covered is emphasized by Quradāghī (2006) and Milhim (2002) as it is the norm in insurance and *takāful* undertakings. Since the price of *takāful* products is sensitive to various elements pertaining to mortality, morbidity and others, it is in principle not subject to the forces of demand and supply in the market. The price is based on statistical technics using the law of large numbers (Al-Wannis 2014). However, other factors such as the type of product can still influence the price. Investment-linked products have higher contributions/premiums due to a higher investment element and complex features, coupled with the trend of agents who tend to target large premium sizes and more affluent consumers (BNM 2017).

Mispricing is an issue that some *takāful* actuaries have raised. Kassim (2004) is concerned about scenarios whereby prices are either overly conservative or aggressive. In both cases, it is not clear who would pay for any deficit. The price also depends on how innovative a product is. Innovation enables prices to be more competitive, and *takāful* companies can gradually bridge the gap with conventional insurance. Recent *takāful* reports noted that “risk pricing will encourage *takāful* companies to innovate as they seek newer propositions to help them compete more effectively on price and product” (CIBAFI 2018, p.43). Using financial technology (fintech) such as the internet of things (IoT), big data analytics and blockchain may make underwriting more precise (CIBAFI 2018) and prices more competitive. From a regulatory perspective, prices of *takāful* products may be exempt from certain taxes to stimulate the market. In Saudi Arabia, for example, which introduced a 5% value added tax (VAT) in January 2018, “life insurance is similarly exempt from VAT” (ICD-Thomson Reuters 2017). With regards to the effects of mispricing on the insured, it could jeopardize the protection right of the *takāful* participant (IRTI & World Bank Group 2016).

None of the above literature has addressed the Sharī'ah compliance of the pricing elements. The only reference that has obliquely referred to the Sharī'ah compliance of underwriting and rating of risks is that of Nu Nu Htay *et al.* (2013), who conducted interviews with some Sharī'ah scholars in Malaysia. According to the findings, the majority of

interviewees agree that underwriting principles are Sharī'ah compliant, quoting public interest (*maslahah*) and custom ('urf) as Sharī'ah bases for them. The interviewees, however, expressed concern over some pricing elements such as the family medical history of the insured, occupation and income. The interview findings, however, were more on the perception of some Sharī'ah scholars on risk underwriting and rating. They fell short of linking underwriting to pricing and its technical aspects. The elements that scholars had reservations about were generally discussed from the point of view of fairness without providing an Islamic jurisprudential analysis. This finding concurs with Daud's view (2009) that the current underwriting practices do not conform with the spirit of *ta'āwun* (mutual cooperation). On whether cost of *qard* is factored into the price, Frenz and Soualhi (2010) have noted that theoretically the market does not allow it, but in reality many *takāful* companies do include cost of capital charges in their profit testing models. This is an issue that invites a Sharī'ah enquiry, which the authors of this paper will undertake. Based on the above literature review, the research gap stems from the lack of Sharī'ah characterization and analysis of the pricing elements of *takāful*, which—to the best of the authors' knowledge—no previous research has attempted.

Research Methodology

The research adopts a qualitative method of inquiry and utilises content analysis to analyse the conformity or disparity of family *takāful* pricing mechanism with the Sharī'ah principles of price-setting (*tas'īr*). The researchers conducted open-ended interviews with five actuaries and one CEO of a *retakāful* company in Malaysia and noted their opinions on the pricing of family *takāful* products. These individuals were selected based on their experience and engagement in various areas of pricing of family *takāful* products. The authors have tended to incorporate their views in formulating a Sharī'ah stand on the prevailing pricing elements. The interviews were conducted in English and ranged from approximately 30 minutes to an hour. Participants were informed that the interviews would be confidential and would be recorded to allow for transcription at a later time. The research also adopts the comparative method to discuss the views of the interviewees as well as those of classical scholars in order to assess the Sharī'ah compliance of the pricing elements used in *takāful*.

Results and Discussion

The discussion of findings is organized along with the study's research objectives, and themes that emerged throughout the participants' responses. This include: the Sharī'ah compliance of assumptions as the basis for pricing *takāful* products, the Sharī'ah compliance of elements based on future projections, the Sharī'ah compliance of assumptions based on current and past data of the participant, the Sharī'ah compliance of fees and charges as components of family *takāful* product prices and cost of Qard.

The Sharī'ah Compliance of Assumptions as the Basis for Pricing Takāful Products

Firstly, Islamic jurisprudence, in both classical and contemporary references, has addressed the legitimacy of the state setting the prices of goods in sale contracts. This is relevant for *takāful* products as the regulator sets the basis for those prices and establishes thresholds for certain lines of business. Without going into the details, scholars have had two major opinions on the issue. Generally, the four schools of Islamic jurisprudence prohibited the ruler from imposing specific prices on goods (Al-Mawsū'ah al-Fiqhiyyah al-Kuwaytiyyah 1427H). However, there are exceptions to this prohibition; the ruler or his agents can impose pricing when traders arbitrarily overprice goods to the detriment of customers, a situation most often associated with hoarding and monopolies. Another situation that would make pricing permissible is when people have a pressing need for certain goods; the ruler can force traders to sell those goods at fixed prices. The same would apply to people's pressing need for a particular service or profession. Another relevant situation would be when the right to sell certain goods is restricted only to some traders. If not controlled, the designated traders may take advantage of this privilege and start manipulating the market for their own interest (Al-Mawsū'ah al-Fiqhiyyah al-Kuwaytiyyah 1427H).

The above pricing parameters apply to goods that already exist in the market. A question that arises at this juncture is whether these parameters apply to pricing *takāful* products. Answering this question would start by examining the similarities and differences between the subject matter of *takāful* products and those of more typical commercial transactions:

Table 1: Comparison between the Subject Matter in a Typical Financial Transaction and the Subject Matter in *Takāful*

Subject matter criteria	Islamic financial transaction (asset/usufruct)	<i>Takāful</i> (risk)
Existence	Yes	Uncertain
Deliverability	Yes	Uncertain
Unencumbered	Yes	Not applicable
Ownership by the seller	Yes	Not applicable
Assumptions (assuming future cash flow positions or situations)	Applicable only to deferred sales where the time value of money is considered.	Yes
Contract	Sale (spot/deferred)	<i>Tabarru'</i>

Source: Authors' own

Based on the above comparison, the subject matter of Islamic financial transactions differs from that of *takāful* products and therefore the pricing philosophy and techniques should differ. The two converge in one item only: when assumptions are made for deferred sales (*bay' bi thaman ājil*) in Islamic financial transactions. In deferred sales, the time value of money is used to determine the present value of the future cash flow. In *takāful*, the time value of money is used to determine the present value of the future liability of the *takāful* fund.

Despite the above differences, the authors will try to refer to the regulator's objectives of pricing sales contracts, namely the avoidance of excessive pricing, protection of customers, and ascertaining the value-for-money feature. These objectives tend to be the same when pricing *takāful* products.

Before we embark on investigating the Shari'ah compliance of the pricing elements of family *takāful* products, the authors have consulted primary¹ and secondary data and have come up with a list of elements depicted in Table 2.

¹ Primary Data for this study consist of a total of six (6) individual interviews. Out of six (6) interviews, four (4) participants were from Actuarial Partners Sdn. Bhd. and two (2) participants from Munich *Retakāful*. The identities of the respondents were kept confidential by assigning pseudonyms of P1 for participant 1, P2 for participant 2, and so forth.

Table 2: Pricing Elements in Family *Takāful* Products

Mortality/morbidity	Habits
Investment returns	Gender
Future expenses	Lifestyle
Cost of <i>qard</i>	Family health history
Buffers to absorb future fluctuations and uncertainties	Current health status
Family medical history	Occupation
Shareholder profit	Mode of policy payment
Withdrawal patterns	Obesity
Lapse rate	Tax
Contingency loading	Legislation
Risk management <i>wakālah</i> fee	Claims trends
Future interest rate	Austerity and recession
Future inflation	Fraudulent liability claims
Assumption about future demography of a population.	Increasing care cost
	Emerging claims/risks
	Misrepresentation risk

From the above comprehensive list of pricing elements, assumptions are made to reflect future projections of money value, health, conditions and other unexpected events that may affect the solvency of the *takāful* operators. The authors' Shari'ah analyses will be divided between future projections of the assumptions and the current assumptions, based on the existing situation of the participant.

The Shari'ah Compliance of Elements Based on Future Projections

This section adopts a selective approach, focusing on elements that need substantiation from the Shari'ah perspective. Thus, the discussion will centre on mortality/morbidity, investment returns, inflation and interest rates. The chosen elements relate to future factors that are embedded in the present contributions in *takāful*.

Mortality/Morbidity

The death probability of a *takāful* participant is referred to as the mortality rate while the injury probability is referred to as the morbidity

rate. “Actuaries have developed mathematical models of the rates and timing of these events to be used in pricing and reserving” (Alhabshi *et al.* 2012). The rates are assigned to specific ages and presented in tables called mortality and morbidity tables. Tables for males and females are developed separately as the mortality rate of females is less than that of males as indicated in table 3. The mortality and morbidity rates are responsive to many factors including the improvement of life expectancy brought about by modern health care and medicine.

Table 3: Mortality Rates for Males and Females

EXHIBIT 1: Expected Future Lifetime of a Healthy Employee						
Age in 2017	MALE			FEMALE		
	IRS 2017 Mortality Table	Adjusted RP-2014 Mortality Table with MP-2016		IRS 2017 Mortality Table	Adjusted RP-2014 Mortality Table with MP-2016	
			% Change			% Change
25	57.80	62.26	7.72%	59.68	64.88	8.72%
30	52.89	56.92	7.61%	54.72	59.50	8.73%
35	48.01	51.58	7.42%	49.79	54.13	8.71%
40	43.18	46.25	7.09%	44.88	48.78	8.69%
45	38.36	40.94	6.71%	39.99	43.45	8.67%
50	33.56	35.69	6.37%	35.13	38.18	8.68%
55	28.76	30.57	6.31%	30.34	32.99	8.72%
60	24.04	25.63	6.63%	25.69	27.89	8.57%
65	19.44	20.96	7.84%	21.16	22.90	8.25%
70	15.48	16.87	8.99%	17.23	18.55	7.67%
75	11.78	13.06	10.85%	13.61	14.50	6.54%

Source: <http://cammackretirement.com/index.php/knowledgecenter/insights/impact-of-the-proposed-irs-mortality-tables-and-strategies-to-reduce-its-effects>

The Sharī‘ah compliance of this particular assumption is viewed from various Sharī‘ah sources and categories of evidence. From the *ibāhah* (permissibility) perspective, there is obviously no Sharī‘ah text from the Qur’an or Sunnah on the permissibility of pricing a risk based on mortality and morbidity assumptions. Nor is there any *ijmā‘* (scholarly consensus) on the issue, nor do any classical books of Islamic jurisprudence discuss it. From an *usūlī* perspective, however, there is a presumption that acts done for worldly benefits are permissible unless they conflict with a clear Sharī‘ah text or *ijmā‘* or entail demonstrable harm that outweighs any attendant benefits. Ibn Imām al-Kāmilīyyah (2002) maintained that *istiṣhāb* (presumption of continuity) is a valid proof in the Sharī‘ah.

The *ḥadīths* of Abū Mūsā al-Ash‘arī and Jābir (may Allah be pleased with them) are usually quoted as the most explicit Sharī‘ah evidence for *takāful*. It may be noted that the contribution in the form of food which they mention was not determined in either quantity or quality.

It was fully left to the goodwill and discretion of the participants in the cooperative pool to contribute whatever they could provide. Abū Mūsā narrated that the Prophet (PBUH) said:

When the Ash‘arī Tribe face shortage of food in war or in Madinah, they collect whatever food they have; then place it on a cloth; then divide it equally in one container...” (Al-Bukhārī 1422H, vol. 3, p. 138, no. 2486)

Jābir ibn ‘Abdillāh narrated:

The Prophet (PBUH) dispatched a battalion along the coast, appointing Abū ‘Ubaydah ibn al-Jarrāḥ as their leader. They were three hundred including myself. When we reached a certain location, our food began to run out. Abū ‘Ubaydah ordered the provisions of the army to all be collected. He would feed us a little food every day until it finished, and then we started getting one date each. (Al-Bukhārī 1422H, vol. 3, p. 137, no. 2483)

The classical cooperative model presented in the two *ḥadīths* differs from contemporary *takāful* where the value of the gross contribution is determined by the *takāful* operators, using technical aspects pertaining to net rates and future assumptions that are sensitive to market movement, estimated future value of liabilities and expected investment returns and expenses. Though the difference between the two models exists, however it does not affect the initial ruling on the pricing of family *takāful* products, which is permissibility (*ibāḥah*).

From the perspective of *maṣlaḥah mursalah*, mortality/morbidity tables are deemed the most accurate instrument for predicting people’s injuries and deaths. *Maṣlaḥah mursalah* is defined as “benefit that is neither rejected by Sharī‘ah nor explicitly considered” (Ghazālī 1996, p. 173). Things accepted under *maṣlaḥah* are generally deemed to have conformed to the universal objectives of Sharī‘ah, namely religion, self, intellect, progeny and wealth (Shāṭibi 2003).

The researchers would consider actuary science permissible in principle and in line with the Sharī‘ah principles and objectives. Using mathematics, namely the law of probability that uses the law of large numbers, the actuaries calculate the present value of future liabilities, make accurate valuations of assets and liabilities and assign the most corresponding contribution rates to the risks accepted by the

underwriters. They also calculate the reserves and contingencies and determine fees and charges. In substantiating the importance of the actuary role and the legitimacy of his work, the AAOIFI (2015, p. 682) Standard on Islamic Insurance states:

The contribution may be determined according to the actuarial principles based on statistical techniques. In this regard, due consideration should be given to whether the risk involved is fixed or variable.

Using the law of probability to determine *takāful* prices has its legitimacy in using *ẓann* (speculation) or *ẓann ghālib* (pre-dominant speculation) in Islamic jurisprudence. Imam Suyūfī (n.d.) is of the opinion that *ẓann* entails “predominant belief”. Regarding the authenticity of *ẓann*, Ibn Amīr al-Ḥājj (1996) held that “every speculation (*ẓann*) the *mujtahid* has is definitely the ruling of God,” not ignoring the fact that “*fiqh* is mainly speculative,” as he says. Although the scope of application of *ẓann* in statistics and *fiqh* is different, the analogy that we are drawing serves to legitimize the use of *ẓann* or *ẓann ghālib* in issues that have Sharī‘ah effect, such as using statistics as a tool of pricing Sharī‘ah-compliant *takāful* products. Thus, mathematics used to calculate the gross contribution is an instrument (*wasīlah*) leading to the realization of the objectives of *takāful*, i.e., *ta‘āwun* via mutual guarantee. Imam al-Qarāfī (1973, Vol. 1, p. 449) said: “As the means for a prohibited thing is prohibited, similarly the means for an obligatory thing is obligatory”. Thus, it is in the interest (*maṣlahah*) of the *takāful* fund to use modern techniques to deal with the unique nature of *takāful* and its Sharī‘ah objectives.

The tables of mortality and morbidity, with the law of large numbers, can also find their Sharī‘ah legitimacy in the method of *istiqrā’* (induction). Induction is the process of tracing a number of incidents or events that would eventually help conceptualize a universal principle. Induction has been used in *ijtihād* in a number of issues, namely the corroborative number of witnesses in a civil or criminal case and the authenticity of *tawātur*, whether textual (*tawātur lafẓī*) or significant (*ma‘nawī*) (Hallaq 1995). In articulating the *usūlī* maxims and *maqāṣid al-Sharī‘ah*, Imām al-Shātibī (2003) traces a number of particular items of Sharī‘ah evidence to formulate universal principles. This is exactly the link between *istiqrā’* used to formulate universal maxims of Sharī‘ah and the law of large numbers used to design the mortality and morbidity

tables. From the perspective of *'urf* (custom), the tables of mortality and morbidity have become a customary practice in the insurance world, including *takāful*.

Investment Returns

The cash flow method of pricing *takāful*, as we highlighted earlier, necessitates that the pricing should be at loss at the beginning of the coverage in such a way that the future investment returns would offset the underwriting losses (if any). Theoretically, this method is supposed to be advantageous to the participants since they pay a lower rate. From the Sharī'ah perspective, and in the absence of textual evidence from Qur'an or Sunnah and in the absence of *ijmā'*, this is deemed Sharī'ah compliant based on *ibāhah*, *maṣlaḥah* and *'urf*. The issue arises when the actual future returns fall short of meeting the assumption made, especially when the current quality of assets is not suitable. According to *Global Takaful Report* (Milliman 2017, p. 36),

There is a limited availability of suitable long term Shariah compliant assets to match the liabilities in most jurisdictions. For countries with a RBC framework such as Malaysia and Indonesia, any mismatching or concentration risk will further increase capital requirements.

This could result at solvency of the risk fund, leading to its deficit. This is a *mafsadah* (harm), which the Sharī'ah tends to block (*sadd al-dharī'ah*). It will also trigger the *qard* injection that will affect the surplus distribution. In such a scenario, the *takāful* operator may opt for re-pricing, which could be disadvantageous to the participants. This unwelcome scenario is what the regulators are concerned about. On the adverse effects of inadequate assumptions, BNM's *Takaful Operational Framework* (2013, p. 15) has made it the fiduciary duty of the *takāful* company to design a business strategy considering all factors that could affect the solvency of the *takāful* fund.

The *takāful* operator acts as *wakīl* on investment whereby he is held accountable in case of negligence. The *takāful* operator should make outright transfers to the risk fund to offset the losses impacting the whole *takāful* operation. Such a transfer is in line with the Sharī'ah requirements of *wakālah* as stipulated by BNM's *Takaful Operational Framework* (2013, p. 28).

The shareholders could be harmed by not getting the expected returns should the *takāful* operator fail to design a sound business strategy. This would violate the Islamic legal maxim “Harm shall not be inflicted or reciprocated” (Ibn Nujaym 1999, p. 72). While BNM’s *Takaful Operational Framework* (2013) has regulated the compensation made by the *takāful* operator to the risk fund, no regulation is made to compensate the shareholders when the negligence of the *takāful* operator is proven. The authors would recommend an amendment to TOF to address this issue. Therefore, this type of arrangement is Sharī‘ah compliant only if the shareholders make *tanāzul* (waiver of right) on their share of the investment returns in case of losses due to the negligence of the *takāful* operator.

Inflation and Future Interest Rate

Inflation

In economics, inflation is defined as “a sustained increase in the general price level over a given period” (Gillespie 2007, p. 380). Pricing in *takāful* embeds inflation as one of its components. Sherif and Shaairi (2013, p. 32) maintain:

...inflation and its volatility [are] found to have a significant negative relationship with the insurance expenditure as life insurance products are mostly savings products that provide monetary benefits over the long-term.

Since pricing takes into account the future value of the *takāful* benefit, the objectives of *takāful* will be met if the sum covered is not eroded by inflation. From a Sharī‘ah point of view, this is permissible on the ground of three Sharī‘ah principles that attest to the fact that time erodes the value of money and future liability. It is important to note that the principles we are about to discuss have been widely articulated in Islamic jurisprudence in relation to exchange contracts. The authors find no evidence in Sharī‘ah prohibiting the usage of certain concepts laid down for exchange contracts in contracts of donation (*tabarru ‘āti*), namely the time value of money. Pricing is a technical exercise in which there is no effective difference between the present value of future cash flows or liabilities in contracts of exchange and contracts of donation such as *takāful*.

- *Time value of money*

The most plausible reason in the authors' opinion is that time will erode the purchasing power of the future liability, which is the result of inflation. The time value of money is a manifestation of inflation; hence the importance of discussing the stand of Sharī'ah on the time value of money vis-a-vis *takāful* pricing. Scholars generally accepted the time value of money in Islamic finance to determine prices upfront. "Muslim jurists have held that time has a share in the price" (Al-Miṣrī 1999). Accordingly, they have allowed the deferred price to be higher than the spot price. The vast majority of jurists are of the view that the deferred price can be higher than the spot price (Al-Uthmānī 2011).

Imām al-Nafrāwī (1995, Vol. 2, p. 99) from the Mālikī School stated:

The evidence that the deferment of payment [in a sale] is permissible is the saying of the Prophet (PBUH): "Whoever defers the asset in *salam*, the weight or volume and the deferment period of the asset must be known." This commandment entails obligation. The deferment period is stipulated to avoid selling what a person does not own, which is prohibited. [The Prophet] (PBUH) also stipulated that the asset be known in order to know the time of delivery, and deferment has a share in the price.

- *Sale by installment (bay' al-taqṣīt)*

The majority of schools of Islamic jurisprudence (Mālikīs, Ḥanafīs, Shāfi'īs and Ḥanbalīs) allowed installment sales (al-Uthmānī 2011; Ghayth 2010). The International Islamic Fiqh Academy of the Organization of Islamic Cooperation (IIFA-OIC) allowed it in its Resolution No. 51 (2/6):

First: it is permissible to increase the deferred price in contrast to the spot price. It is also permissible to mention the spot price of the asset and the price that will be paid by installment for known periods. The sale is only valid when the contracting parties decide whether they opt for spot or deferred payment.

Some scholars, however, rejected this kind of sale; for example, Abū Zahrah. The prevailing view is that of the majority of Muslim

scholars. That would lead us to adopt the same for the price of a *takāful* product based on the future value of the *takāful* benefit.

- *Two sales in one sale (bay‘atayn fī bay‘ah):*

In *takāful* the value of the future sum covered is higher than the present one. In both sale and *takāful*, the price quoted takes into account the value of the future liability. The *ḥadīth* of two sales in one sale is another evidence on the issue at hand. The *ḥadīth* reads:

The Prophet (PBUH) prohibited two sales to be concluded in one sale (Tirmidhī, in al-Mubārakfūrī 1353H).

The interpretations given to the *ḥadīth* focus on having two prices, spot and deferred, with the deferred price being higher than the spot price. Ashhāb narrates that a trader asked Imām Mālik about the way he used to sell oil. Imām Mālik asked him: How do you sell it? The trader replied that he would sell it for 25 on deferment and 24 on spot. Imām Mālik replied that this is not permissible (al-Siqqillī, 2013). Imam al-Shawkānī (1993) reported a similar interpretation of two sales in one sale from Imām Shāfi‘ī.

After examining the authenticity and interpretation of the *ḥadīth* of ‘two sales in one sale’ by classical scholars, al-Quradāghī (2013) asserts that the *ḥadīth* lays the ground for the permissibility to price an asset with two prices, with the condition of choosing between either the deferred price or the spot one, by the contracting parties before they get separated.

Interest Rate

The relationship between interest rate and *takāful* contribution is undeniable. *Takāful* is similar as far as the effect of the interest rate is concerned. Investment portfolios of *takāful* operators, whether ordinary investment participant funds (PIF) or unitized investment funds, follow KLIBOR or SIBOR or any interest rate benchmark for pricing the securities. Therefore, an increase or decrease in the interest rate would affect the profitability of the *takāful* operator. Thus, it can be concluded based on the previous discussion that there is evidence in the Sharī‘ah to use future projections to price existing assets or services. Despite the difference between sale and *tabarru‘*, there is no Sharī‘ah objection to using conventional benchmarks

or benefiting from the mathematical assumptions developed in conventional insurance.

The Sharī'ah Compliance of Assumptions Based on Current and Past Data of the Participant

This section will discuss the Sharī'ah compliance of the pricing elements that are readily available to the *takāful* company. These elements are handled first by the underwriter who reviews applications for insurance and decides whether to accept or reject them (Dorfman 2008). In this section, selective approach is used rather than exhaustive exercise.

• *The participant's health condition*

A rule of thumb in insurance and *takāful* practices is that healthier people bring less risk to the risk pool; thus, the underwriter would classify them as standard risks. The elderly and people with chronic illnesses or dangerous occupations are either rejected or accepted with higher premiums/contributions. Underwriters classify them as sub-standard.

A Sharī'ah issue may arise as to the fairness of such a classification. It may be hypothetically argued that providing insurance and *takāful* for the healthier people and rejecting those with certain illnesses and charging them higher is unfair. It can be argued that the cooperative aspect of *takāful* may fade away if healthier people with standard risks are charged lower contributions and those with sub-standard risks are charged higher. Some *takāful* experts have implied that there are elements of unfairness in underwriting family *takāful* products. Daud (2009) puts it thus:

The underwriting process, especially those involving medical underwriting with rigorous tests and detailed analysis of the health condition of a person, does not conform to the spirit of *ta'āwun* or mutual cooperation. *Takāful* operators should not decline any person from wanting to *tabarru'* to the fund to help other people but instead should provide a control in the amount of coverage in the initial years of the coverage.

This argument can be bolstered by the two *ḥadīths* quoted earlier in which the health condition of the participants was not a factor in

accepting the food contributed and distributed equally. Nevertheless, this argument can be countered by noting that fairness necessitates that the underwriter should differentiate between standard risks, which bring ordinary risks to the pool, and substandard risks that may deplete the risk fund if the risks happen at an early stage of the cover. It is simply a correlative relationship between the amount of contribution and the sum covered that should be paid as and when the risk happens during the *takāful* policy. A literal comparison between the cooperative schemes highlighted in the two *ḥadīths* quoted earlier and contemporary *takāful* pricing techniques is not sufficient to judge modern underwriting and actuarial practices unfair. *Maṣlahah* and ‘urf would suffice to attest to the Sharī‘ah compliance of considering the physical build of the participant in pricing family *takāful* products.

● ***Family medical history***

According to Nu Nu Htay *et al.* (2013), the underwriter may give a higher risk rating if the both parents have died before age 50, or if the family discloses two cases of diabetes or heart disease before age 60. The underwriters are more likely to give a better rating if both parents reach age 70. (p. 284). This assumption is not unanimously accepted by Sharī‘ah scholars. The scholars interviewed by Nu Nu Htay *et al.* (2013, p. 284) “agree that risks based on family history are speculative and that in Shari’ah pricing should be done on a subject matter which exists or is very likely to exist”. Although this assumption may not be speculative *per se*, given the very nature of *takāful* risks and the probability of their occurrence, the current application may raise a question as to whether it is Sharī‘ah compliant for a person to be burdened for the health condition of another, i.e. his/her family members.

We argue that adding an extra loading to the contribution because of family medical history should not be taken for granted or unquestionably accepted by Sharī‘ah authorities as this may burden people with duties they are not responsible for. This may defeat the Sharī‘ah principle of personal responsibility and the financial liability attached to it. This may open the door for some *takāful* operators to be too strict to add loadings that only burden the participants. In evaluating some jurisdictions that gave *takāful* operators a wide discretion to design their risk management

and rating strategy, al-Ṣaboore (2016, p. 16) warned: "Pricing actuaries need to have professional flexibility, but too much leaves the door opens for abuse."

The researchers would consider this assumption unregulated and subject to abuse. Hence the Sharī'ah compliance of such assumption is still questionable. A more cooperative approach is needed in *takāful*. Discounts can still be provided by ways approved by the actuary. These include cross subsidies among the funds, exploring new asset classes to enhance the investment portfolios, and adjusting retention levels to cede more risks to *retakāful* companies at a competitive price. Surplus could be used to subsidize prices for participants with sub-standard risks. This suggestion may be feasible on the ground that as long as the *takāful* contribution can fill the gap between generations continuously entering and exiting the pool (the intergenerational process), the underwriting surplus could serve the same purpose. *Waqf* could also be used to subsidize rates for sub-standard risks, and *zakāh* could also be used for micro-*takāful* schemes with the full adherence to the Sharī'ah rulings of *waqf* and *zakāh*. The articulation of these concepts within the context of *takāful* is beyond the scope of this research.

The Sharī'ah Compliance of Fees and Charges as Components of Family *Takāful* Product Prices

All *takāful* regulations acknowledge the right of the *takāful* companies to be remunerated via fees and charges. Since the participant pays those fees and charges together with the *tabarru'*, they form part of the gross contribution that he has to pay, be it a single contribution or periodic (BNM, 2013).

Takāful companies charge some fees and charges relevant to the *takāful* policy. There are some charges that are not embedded in the price such as reinstatement fees, stamp duty and surrender charges. For investment-linked products, charges may include initial charge, investment management charges, risk charges, switching charges, top-up charges and partial withdrawal charges (BNM 2014). However, it may be worth looking at one charge that did not garner consensus on its Sharī'ah compliance. This is the *wakālah* risk management fee (WRMC) charged to the *tabarru'* fund. BNM's *Takāful Operational Framework* (2013, p. 23) reads:

Where takaful operators impose a fee on *tabarru'*, the takaful operators shall ensure that the following requirements are observed:

The fee shall be allocated to and maintained in the PRF until it can be distributed as income to takaful operators, subject to the PRF being in surplus position as described in paragraph 10.22(d) (i) to (iii). The distribution as income shall only take place when there is surplus in the PRF.

The clause does not explain why such a fee can be imposed by *takāful* operators in addition to the *wakālah* fee. This fee on the *tabarru'* fund can only be recognized as income to the *takāful* operator if surplus is realized. By linking this fee to the surplus, there is a possibility that the very nature of this fee may create confusion or lack of clarity as to its Shari'ah compliance. It has the feature of a *wakālah* fee since the main utilization of the upfront *wakālah* fee is to manage the risk fund, including administrative expenses. The fee on the *tabarru'* fund, in the researchers' view, may be seen as a surplus taken upfront since it depends on the realization of the underwriting surplus distributed at the end of the financial year. This is to say that for the *takāful* operator to recognize this fee as income, he shall exercise due diligence. This entails adequate underwriting, pricing, claims management, accurate reserving based on risk-based capital (RBC), risk management and marketing in the same way as when planning to share in the underwriting surplus.

On the other hand, this fee could be perceived as a double *wakālah* fee on the risk fund since it is taken to manage the risk fund, which is why the upfront *wakālah* fee is taken upfront. It is also not clear from the sparse data available whether the fee on the *tabarru'* fund includes any profit element similar to the upfront *wakālah* fee. A margin can be loaded into the upfront *wakālah* fee to remunerate the *takāful* operator. This is referred to by BNM's *Takaful Operational Framework* (2013, p.21): "Takaful operators shall ensure that any margin included to compensate shareholders for effort taken in managing takaful operations is appropriate and reasonable."

The authors are of the opinion that the fee on *tabarru'* must find a proper Shari'ah justification and be further regulated in terms of structure. If this fee were to cover management expenses, then the operator is bound to disclose the difference between the management

expenses embedded in the upfront *wakālah* fee and the management expenses embedded in the fee on *tabarru'*. If well justified by the *takāful* operator, this fee could be added to the main *wakālah* fee so that no impression is created that the *takāful* operator is charging a double *wakālah* fee.

From another perspective, the *wakālah* fee and fee on *tabarru'* are charged to serve two different objectives. The *wakālah* fee is charged at a lower rate to allocate more to the investment fund. This will provide the participants with higher returns on investment, making the plan fairer and more attractive. The fee on *tabarru'* would relate to the risk fund expenses such as management, actuary services and audit costs. This justification seems reasonable and justifiable from the technical point of view.

Cost of Qard

This section focuses on the practice of the shareholders providing an interest-free loan (*qard*) to the risk fund. It investigates further whether such embedding cost in the pricing is Sharī'ah compliant. It should be noted that this issue is one of the most unaddressed issues in the *takāful* industry. References addressing this issue are so scarce that the researchers have had to rely on interviews to understand the real practice by *takāful* operators on the issue at hand.

Qard in Islamic jurisprudence is the “transfer of ownership in fungible wealth to a person on whom it is binding to return wealth similar to it” (AAOIFI 2015, p.518). *Qard* has been regulated in the *takāful* industry and permitted by Sharī'ah authorities. It is allowed for a *takāful* operator to provide *qard* when the risk fund runs into deficit. According to the *Standard on Solvency Requirements for Takāful Undertakings* published by IFSB (2010) “*Qard* is frequently identified as a mechanism for providing capital to a PRF [Participant Risk Fund] of a *takāful* operation”. In Malaysia, the provision of such a *qard* is mandatory pursuant to IFSA 2013. However, the Islamic Fiqh Academy of Jeddah considers such an obligation as Sharī'ah non-compliant (Islamic Fiqh Academy-OIC, 2015).

The cost of *qard* that we intend to examine in this section has two components: the first is the expense required for the provision of the *qard*, the offering of the *qard*, and its recovery from future surpluses.

The second is the cost of not being able to recover the *qard* from future surplus. This would attract a Sharī‘ah concern related to the permissibility of pricing the probability of not recovering the *qard* and the expenses relevant to its provision and recovery from future surplus.

Two views exist in the market as to whether the cost of *qard* is embedded in the price of family *takāful* products. The first view is that the cost of *qard* is embedded in the price. This view was held by one participant (P1), an actuary from Actuarial Partners, and was also advanced by INCEIF’s textbook *Takaful: Realities and Challenges*. Lending some credit to this view, Frenz and Soualhi (2010) noted that “many [*takāful*] companies do include cost of capital charges in their profit testing models”. Since the provision of *qard* and not being able to recover it may affect shareholder profits, those companies would consider it in their capital structure, paving the way for charging the participants the cost of *qard*.

P1 is of the view that the probability of not recovering the *qard* is priced in the *takāful* market as this practice is what the shareholders want when they place paid-up capital to establish the company. According to him, when the shareholders place RM100 million to establish a *takāful* company as per the requirement of the regulator in Malaysia, they make a projection of a certain percent return, say ten percent. If the actual return is six percent, the shortfall of the expected return—i.e. four percent—will be factored into the price which the participant has to pay as the contribution. From a business perspective, according to P1, the shareholders will risk losing capital if they do not adopt this pricing strategy. Alternatively, mutuals are the most viable alternatives to *takāful* as they do not require capital by shareholders. The first view may be indirectly supported by regulations that may put the *takāful* operator in an uneasy situation when it considers the repayment of *qard* after a specified period irrecoverable. BNM’s *Takaful Operational Framework* (2013, p. 27) states: “*Takaful* operators shall specify the time period over which the *qard* shall be repaid. Beyond this period, the *qard* shall be deemed irrecoverable.”

On the other hand, the second view was held by the other interviewees, who averred that the cost of *qard* is not embedded in *takāful* products. The second view is represented by P3, P4 and P5. They maintain that

the cost of *qarḍ* is not priced. They did not provide any reason for their view either from an actuarial or a Sharī'ah point of view.

The Sharī'ah issue that the researchers foresee is that factoring the cost of *qarḍ* in the price would amount to *ribā*. The latter is featured by the fact that if x amount of *qarḍ* is given; this *qarḍ* would have four possibilities presented in Table 4.

Table 4: Possibilities of Factoring the Cost of Qarḍ in Pricing Family Takaful Products.

Possibility	Description
Possibility 1	The cost of <i>qarḍ</i> is factored into the price and the <i>qarḍ</i> is recovered from future surplus.
Possibility 2	The cost of <i>qarḍ</i> is factored into the price but <i>qarḍ</i> is not recovered from future surplus.
Possibility 3	The cost of <i>qarḍ</i> is not factored into the price but the <i>qarḍ</i> is recovered from the surplus.
Possibility 4	The cost of <i>qarḍ</i> is not factored into the price and the <i>qarḍ</i> is not recovered from the surplus.

Source: Authors' own

While possibilities 2, 3 and 4 do not trigger Sharī'ah issues, the first possibility does attract the issue of *ribā* as the factored amount is deemed above the *qarḍ* amount. The cost is a fixed amount charged upfront but does not reflect the actual cost of providing *qarḍ*. There is no disagreement among Muslim scholars that any benefit that accrues above the *qarḍ* is outright *ribā*. However, the applicability of this established Sharī'ah ruling might not be agreeable to all scholars.

Conclusions and Recommendations

After examining the pricing elements of family *takāful* products both from Sharī'ah and operational perspectives, the authors have arrived into a number of contributions. In general, this research found that there are plenty of elements that can be used to price an insurance/*takāful* product. Mortality/morbidity, investment returns, expenses, taxes, cost of capital, lapse pattern, and withdrawal pattern are prominent pricing factors. Mortality/morbidity tables are Sharī'ah compliant based on *ibāḥah*, *maṣlahah*, induction and 'urf. With regard to investment return factored into the price, the study has proven its compliance with Sharī'ah based on *ibāḥah*, *maṣlahah* and 'urf. Also, the investment returns

assumption is not quite fair to the shareholders should there be a loss in the investment. This type of arrangement is only Sharī'ah compliant if the shareholders make *tanāzul* on their share of the investment return. Moreover, the time value of money is a Sharī'ah-compliant element that can be used to price family *takāful* products. This study also found that the permissibility of sale by installment (*bay' al-taqṣīṭ*) can be used as a Sharī'ah basis for *takāful* pricing for technical reasons. Likewise, the two sales in one (*bay' atayn fī bay' ah*), after the two parties have settled on either the spot price or the deferred price is deemed permissible. Since the deferred price is higher than the spot price, this could be used as a Sharī'ah basis for calculating the present value of the future sum covered.

On the other hand, some of the pricing elements such as health condition are deemed unfair by some practitioners. Strictness in underwriting individual or group *takāful* is not always deemed fair. Similarly, adding an extra loading to the contribution because of family medical history should not be taken for granted or unquestionably accepted by Sharī'ah authorities, as any loan or debt whose interest rate is charged upfront and does not reflect the actual cost of *qard* is prohibited as it is *ribā*. Lastly, there is obscurity as to why the fee on the *tabarru'* fund is imposed by the *takāful* operator since the *wakalah* fee is supposed to cover the administrative expenses of the risk fund. The linkage of this fee to the performance of the fund (surplus) as in the Malaysian context would make it behave like an 'upfront surplus'.

In view of the above, the authors persuade regulators to ensure price fairness, and to further regulate certain family *takāful* products that are prone to either aggressive or conservative modes of pricing. In addition, to control the pricing of external factors such as family medical history, the regulators should direct the *takāful* industry to avoid burdening the participants with things they are not responsible for. Regulation on the cost of *qard* should be enhanced so that *takāful* operators cannot embed it into the price under different names.

Overall, the study has shown that there is a need to conduct further Sharī'ah research on the technical aspects of *takāful*, namely the Sharī'ah parameters of pricing various *takāful* products. Further research is also still needed to better disclose the components of pricing and the Sharī'ah compliance of excessive and unjustified loadings in

family *takāful* products. Finally, this study has shown that research is needed to explore regulatory reforms with regards to the fairness and justifications of loadings, pricing, the relationship between pricing and *qard*, and the validity of fees and charges.

References

- Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) (2015), *Shari'ah standards for Islamic financial institutions (English version)*, AAOIFI.
- Abū Zahrah, M (n.d). *Buhuth fi al-Riba*. Dar al-Fikr al-‘Arabi. 37.
- Alhabshi, S.O., Sharif, K., Shaikh Abdul Razak, S.H. & Ismail, E. (2012), *Takaful: Realities and challenges*, Pearson Malaysia.
- Al-Bukhārī, M.I. (1422H), *Ṣaḥīḥ al-Bukhārī*. Dār Ṭawq al-Najāh.
- Al-Ghazālī, M.M. (1996), *Al-Mustaṣfā fi ‘Ilm al-Uṣūl*. Dār al-Kutub al-‘Ilmiyyah
- Al-Mawsū‘ah al-Fiqhiyyah al-Kuwaytiyyah (1404-1427H), *Al-Mawsū‘ah al-Fiqhiyyah al-Kuwaytiyyah*. Ministry of Awqaf and Islamic Affairs.
- Al-Miṣrī, R.Y. (1999), *Uṣūl al-Iqtisād al-Islāmī*, Dār al-Qalam.
- Al-Mubārakfūrī, M.‘A. (1353H), *Tuhfat al-Aḥwadhī*, Dār al-Kutub al-‘Ilmiyyah.
- Al-Nafrāwī, A.G. (1995), *Al-Fawākiḥ al-Dawānī ‘alā Risālat Ibn Abī Zayd al-Qayrawānī*, Dār al-Fikr, n.p.
- Al-Qarāfī, A.I. (1973), *Sharḥ Tanqīḥ al-Fuṣūl*, Sharikat al-Tibā‘ah al-Fanniyyah al-Muttaḥidah, n.p.
- Al-Shāṭibī, I.M. (2003), *Al-Muwāfaqāt*, Dār Ibn Qayyim, n.p.
- Al-Shawkānī, M.‘A. (1993), *Nayl al-Awṭār*. Dār al-Ḥadīth.
- Al-Suyūṭī, ‘A.R. (n.d.), *Al-Itqān fi ‘Ulūm al-Qur’ān*, Al-Maktabah al-Thaqafiyyah.
- Al-Uthmānī, M.T. (2011), *Buhuth fi Qaḍāyā Fiqhiyyah Mu‘āṣirah*, Dār al-Qalam.
- Al-Wannis, A.H. (2014), *Al-Aḥkām al-Ṭaba‘iyyah li ‘Uqūd al-Ta‘mīn*, Dār Kunūz Ishbiyā.
- Bhatty. A (2007). Retailing Takaful products’, in Jaffer S. (Ed.), *Islamic Insurance: Trends, opportunities and the future of Takaful*. Euromoney Institutional Investor Plc.

- Bank Negara Malaysia (BNM). (2017). *Financial stability and payment systems report 2016*. BNM. http://www.bnm.gov.my/files/publication/fspd/en/2016/fs2016_book.pdf
- Bank Negara Malaysia. (2010). Guidelines on introduction of new products by insurers and takaful operators. BNM. http://www.bnm.gov.my/guidelines_old/02_insurance_takaful/03_prudential_stds/18_guidelines_newproducts.pdf
- Bank Negara Malaysia. (2014). *Introduction of new products by Insurers and Takaful operators*. Bank Negara Malaysia. http://www.bnm.gov.my/guidelines/02_insurance_takaful/03_prudential_stds/CP_INP.pdf
- Bank Negara Malaysia. (2007). *Shari'ah resolutions in Islamic finance*. Bank Negara Malaysia.
- Bank Negara Malaysia. (2013). *Takaful operational framework*. Bank Negara Malaysia.
- Daud, R. (2009). Underwriting family takaful schemes. <http://www.iefpedia.com/english/wp-content/uploads/2010/06/Underwriting-Family-Takaful-Schemes-by-Roslinah-Daud.pdf>
- Dorfman, M.S. (2008). *Introduction to risk management and Insurance*. Pearson Prentice Hall.
- Engku Ali, R.A., Scott, H. & Ismail, A. (2008). *Essential guide to Takāful*. CERT.
- Frenz, T. & Soualhi, Y. (2010). *Takaful and Retakaful: Advanced principles and practices*. IBFIM.
- General Council for Islamic Banks and Financial Institutions (CIBAFI). (2018). CIBAFI global takaful survey: risk perception, growth drivers and the impact of technology. <http://cibafi.org/ControlPanel/Documents/Library/Pdf/GTSReportfinal-online-1.pdf>
- Ghayth, M. 'A. (2010). *Nazariyyat al-Ḥasm al-Zamanī fī al-Iqtisād al-Islāmī*. The International Institute of Islamic Thought (IIIT).
- Gillespie, A. (2007). *Foundations of economics*. Oxford University Press.
- Hallaq, W.B. (1995). On inductive corroboration, probability and certainty in Sunni legal thought. In Hallaq, W.B. (Ed.). *Law and Legal theory in classical and medieval Islam*. Ashgate Publishing Co.
- Ibn 'Abd al-Barr, Y. 'A. (1994), *Jāmi' Bayān al-'Ilm wa Faḍlih*. Dār Ibn Juzayy.
- Ibn Amīr al-Ḥājj, M.M. (1996), *Kitāb al-Taqrīr wa al-Taḥbīr*. Dār al-Fikr.
- Ibn Imām al-Kāmiliyyah, M.M. (2002), *Taysīr al-Wuṣul ilā Minhāj al-Uṣūl min al-Manqūl wa al-Ma'qūl*. Dār al-Fārūq al-Ḥadīthah li al-Ṭibā'ah wa al-Nashr.
- Ibn Nujaym, Z. (1999), *Al-Ashbāh wa al-Nazā'ir*. Dār al-Kutub al-'Ilmiyyah.

- ICD-Thomson Reuters. (2017). Islamic finance development report 2017. <https://www.zawya.com/mena/en/ifg-publications/231017094152F/>
- Islamic Financial Services Board (IFSB) (2010), *Standard on Solvency Requirements for Takāful (Islamic Insurance) Undertakings*, IFSB, Kuala Lumpur.
- IRTI & World Bank Group, Global Report on Islamic Finance, 2016.
- Kassim, Z. (2004), "Application of actuarial methods in takaful insurance", available at: <http://www.actuarialpartners.com/wp-content/uploads/2011/12/2004-Takaful-Application-of-Actuarial-Methods-in-Takaful-Insurance-Zainal.pdf> (accessed 12 March 2018).
- Laws of Malaysia (2013). *Islamic financial services act 2013*. Attorney General's Chambers of Malaysia.
- Middle East Global Advisors. (2016). World Takaful report 2016: Connecting the dots, forging the future. http://www.takafulprimer.com/main/downloads/ms_5860.pdf
- Milhim, A.S. (2002), *Al-Ta'mīn wa Mumārasatuhu fī Sharikat al-Ta'mīn al-Islāmiyyah*. Dār al-I'lām.
- Milliman Research Report, Global Takaful Report, Market Trends in Family and General Takaful <http://www.assaif.org/index.php/Sectors/Tak%C4%81ful-Insurance/MILLIMAN-Global-Takaful-Report-2017>. (2017), 36.
- Mishra, K. (2010). *Fundamentals of life insurance: Theories and applications*. PHI Learning Private Limited.
- Nu Nu Htay, S., Jawahir, M.K. & Salman, S.A. (2013). "Sharī'ah scholars' view point on the practice of underwriting and risk rating for family takaful model". *Asian Social Science*, 9 (9).
- Quradāghī, 'A.M. (2013), *Al-Ta'mīn al-Takāfulī al-Islāmī*. Dār al-Bashā'ir al-Islāmiyyah.
- Sherif, M. & Shaairi, N. (2013). Determinants of demand on family takaful in Malaysia. *Journal of Islamic Accounting and Business Research*. 4 (1), 26-50.
- Thanyan, S.I. (2003). *Al-Ta'mīn wa Ahkāmuh*. Dār ibn Ḥazm.
- Yusof, M.F., Wan Ismail, W.Z. & Mohd Naaim, A.K. (2011). *Fundamentals of Takaful*. IBFIM.