Islamic Economic Studies
Vol. 25, No. 2, July, 2017 (35-55) DOI: 10.12816/0038221

Risk-Sharing Securities: Accelerating Finance for SMEs

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Abstract

Small and medium-sized enterprises (SMEs) play an essential role for job creation, employment, investment, innovation and economic growth. Despite its huge potential to support economic growth, SME lending continued to face constraints especially after the 2007 crisis. The present debt-based financial system hinders SMEs from fairer access due to the perceived high risk of the SMEs. Risk-sharing finance on the other hand promotes pro-active risk management through the sharing of risks in the economy according to the risk-bearing ability of the participants. In many ways, risk-sharing finance is naturally aligned with Islamic finance. The risk-sharing model operates on an asset-driven balance sheet management thereby ensuring that the financial sector grows in tandem with economic growth. It eliminates financial oppression/repression and predatory lending as compensations to investors are determined by the actual performance of the real economic activities. This ensures prosperity is shared equitably amongst those who share the risks of any economic venture. The rise of fintech has opened a new door of opportunity for the financial industry to push the present limits of debt-based finance. For Islamic financial institutions, the benefits of fintech go beyond as it could spur more risk-sharing financial activities that uphold the risk-reward principle. With creative rethinking, technology innovations can be the game-changer needed to propel the growth trajectory of Islamic finance to the next stage of development. The paper recommends for the introduction of retail low-denominated risk-sharing securities as a new investment instrument that are issued by SMEs and tradable via fintech-enabled platforms. Internet- and

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mobile-based platforms would reduce the cost for financing for SMEs and increase investment opportunity to the members of public.

Keywords: Risk sharing, Islamic finance, fintech, crowdfunding
JEL Classification: G00, G23
KAUJIE Classification: L44, K1

1. Introduction

Small and medium-sized enterprises (SMEs) play an essential role for job creation, employment, investment, innovation and economic growth. Globally, the SMEs contribute to about 90% of businesses and more than 50% of employment, and thus represent a crucial source of growth and prosperity for most countries. In view of their important role in the economy, therefore it would sensible for countries to provide an enabling environment that ensures viable SMEs have access to finance.[1]

Notwithstanding this, the OECD (2016) reported that SME access to finance remains a concern in some years to come. Although SME lending has improved, many continue to face credit constraints. SME loans in 2014 were still below the 2007 pre-crisis levels in 12 out of the 30 countries monitored by OECD suggesting that the financial crisis has had a lasting effect on SME lending. Especially for the micro-enterprises that have 10 or less employees, they typically face more constraints and tighter conditions when applying for financing. In terms of cost, the smaller SMEs generally face more costly financing due to the costlier financial instruments used such as overdrafts, factoring and collateralized loans. This leads to some micro-enterprises avoiding to seek bank financing for fear of being refused. Moreover, because their creditworthiness is underestimated they tend to be subject to additional guarantees than other more established businesses. In most countries, more than half of all SME loans are collateralized. Similar scenario is taking place in the equity financing space worldwide. SMEs are perceived as being high risk and therefore venture and growth capital investments in them continue to be very small compared to bank lending, asset-backed finance or trade finance. In most countries, it accounts for less than 0.4% of GDP (OECD, 2016).

Based on the above, this paper proposes for the introduction of risk-sharing securities as a new instrument to provide SMEs access to capital. It is further

[1] SME Finance Forum extracted on 30 August 2016. https://www.smefinanceforum.org/post/g20-action-plan-on-sme-financing-joint-action-plan-of-g20-gpfi-sme-finance-sub-group-and-iiwg

proposed that these risk-sharing securities be traded on fintech-enabled platforms as the marketplace to facilitate price discovery and reduce the barrier to participate through faster speed, lower cost and greater efficiency. To this end, the paper starts with a discussion of the concept of risk-sharing and its relevance to Islamic finance. It then discusses the risk-sharing financial intermediation model and its return of investment potential viz-a-viz the debt-based risk-transfer model.

2. Risk Sharing and Islamic Finance

Based on the Qur'an and Sunnah, the essence and strength of Islamic finance is its mission of facilitating the sharing of risk and prosperity in the society (Kuala Lumpur Declaration. 20 September, 2012; available from ISRA's internet site). The significant potential contribution of risk-sharing finance to increase prosperity has been a subject that Nobel Laureate Robert Shiller has been advocating since the early 1990s. The major difference between risk-sharing finance and Islamic finance is that the latter is embedded in a network of rules (institutional scaffolding) that allows efficient and just distribution of financial resources of the economy. These rules are prescribed in the Qur'an and in the Sunnah. They include, inter alia, sanctity of human dignity; sanctity of property; sanctity of contracts; trust; cooperation; rules governing consumption, saving, investment; rules of governance; and rules governing market behavior of participants.

In the context of finance, risk sharing is recognized as one of the strategies to manage risk. Kenneth Arrow (1964) asserted that risks in the economy should be shared according to the risk-bearing ability of the participants. His proposition led to the foundational theory for pricing assets and derivatives through the notion of primitive theory known as Arrow-Debreu securities. Risk sharing provides 'skin-in-the-game' (Taleb, 2013) where all participants are entitled to returns that are contingent on the outcome. Under this arrangement, the upside potential (profit) and the downside risk (loss) are shared ex-post. No risk is to be shifted or transferred, and any liability must always be tagged to the right to profit (Mirakhor, 2014). In a broader context, risk sharing involves a "contractual or societal arrangement whereby the outcome of a random event is borne collectively by a group of individuals or entities involved in a contract, or by individuals or entities in a community" (Askari et al., 2011, p. 70-71). One important inference of the risk-sharing concept is that it can become a powerful tool to reduce the uncertainty of future ventures, yet without reducing the undertaking of risk itself. This is in line with the Islamic virtue "*AlGhunum bi AlGhurum*" (*"(Entitlement to) gain is accompanied with liability (for associated expenses and possible loss)"* **الغنم بالغرم**). In Islam, risk-taking investment is a virtuous act though risk taking is not quite the

same as risk-loving. The former is purely human nature hence highly encouraged whilst the latter is about excessiveness hence discouraged (Rosly, 2005 p.57). Risk avoidance when risk taking was necessary or shifting your risks to others, is considered an immoral act and thus is abhorred in Islam as it entails 'extracting and eating wealth with wrongful means'. In modern Islamic banking however the acts of risk avoidance is rampant by way of transferring and shifting of the risk exposures to others.

However, as the level of understanding on risk sharing has been limited, this has inadvertently caused confusion and misconception of the concept. To some extent, this has led to a negative perception on its potential as a powerful financial and investment intermediation tool. The following paragraphs aim to provide further explanation and clearer distinctions between risk sharing and other risk related terminologies.

a) Risk Sharing versus Profit and Loss Sharing

In the Islamic finance sphere, the notion of risk-sharing was articulated by Uzair (2000) in mid 1950s. He opined that rewards to capital providers in value-creating economic activities are justifiable both from the conventional and Islamic perspectives. However, instead of receiving interest (*ribā)* as payment to moneys lent in the case of interest-based system, Islamic finance is premised on pro-active participation of capital by investors in the process of production in the form of investment and business ventures on risk-sharing basis. In his book 'Interest-free Banking', Uzair (2000, p.114) enumerated four conditions of risk-sharing finance: (1) The capital (provider) participates as…joint sponsor of business or production (2) It shares the risk and responsibility as...justification for reward (3) It will have to accept the risk of sharing profit or loss and share some agreed proportion of the reward of the enterprise and (4) The amount of profit and loss will be 'uncertain' depending on outcome. Following that Siddiqi in 1969 proposed an interest-free banking model based on a two-tier *Muḍārabah* that operates on profit and loss sharing (Siddiqi, 2003).

The risk sharing and 'profit and loss sharing' (PLS) terminologies are frequently mistaken to carry similar meanings hence often used interchangeably. However, both are related concepts, as without risk sharing there can be no PLS. The difference is that risk sharing precedes PLS since the proportion of reward or share parameter is determined at the beginning of a project during contract negotiation (ex-ante) aiming towards reducing information asymmetry.

As an illustration, in Islamic equity system (*Muḍārabah* and *Mushārakah* contracts) parties to the contract have to decide on a share parameter at the outset, before any production or sale of product takes place. The future is unknown at the time of the negotiations for the share parameter. The decision is, therefore, subject to risk and uncertainty. Hence, ex-ante, the partners decide on a share parameter according to their abilities to put at risk their financial or other resources. Subsequently, the profit or loss is shared after the project is completed (ex-post) based on the share parameter established (ex-ante) before the contract goes into effect. Thus, the ex-post profit and loss sharing is ex-ante risk sharing.

b) Risk Sharing versus Risk Taking

Another common misconception is to equate risk sharing and risk taking. The former refers to a means through which one can pro-actively reduce his/her exposure to a situation by sharing risk. Meanwhile the latter refers to an inherent or given situation whenever someone engages in any activity. Without risk taking, there is no justification for one to claim for any remuneration or reward. An example of risk taking is driving a car: one is inherently exposed to the risk of colliding when driving. In this scenario, sharing of risk is achieved when every road user assumes the responsibility to take all the precautions and compassion to avert any collision.

c) Risk Sharing versus Risk Transfer

Risk sharing is permissible and highly encouraged in Islam. Unlike risk transfer, risk sharing requires the contracting parties to mutually share the risk and the reward of a contract and that all parties do not violate the Islamic property rights principles. Property rights would be violated, for example, when the claim on a property is attained without commensurate work or compensation. Such is the case in acquiring asset by dishonesty, theft, bribery, interest and gambling.

While risk sharing as a concept has become a buzzword in today's Islamic finance, how it should be operationalized has not been well discussed until recently. Bacha and Mirakhor (2015) have proposed a framework of a risk-sharing model that can help to reform present business model of Islamic financial institutions. The main idea of the proposed model is to securitize their assets through the issuance of low-denominated tradable investment securities. These securities which are offered to investors would have the same underlying contract and average "duration" as customer financing. This feature minimizes funding gap issues by ensuring that the risk profiles of the assets perfectly match the risk appetite of the investors. Assets with smaller values would be pooled into tranches of similar maturity periods and

then securitized. Assets with larger values could have securities issued tagged directly against them without the need for bunching (Bacha and Mirakhor, 2015 p.2).

3. Risk Sharing Financial Intermediation Model

The proposed Risk Sharing Financial Intermediation (RSFI) model adopts the modus operandi of mutual funds which upholds risk-sharing principle. In this set-up, the investors' funds under management are directly tagged to a specific portfolio, creating a pass-through profit and loss mechanism. Investors bear the risk of losing their investments as its return is solely determined by the performance of the portfolio. In the event of loss, the fund manager bears the risk of losing his job. The fund management company however is unaffected and continues its usual operation as the losses are fully absorbed by the investors. For the services rendered, the investors pay a management fee to the fund manager. An interesting element of the mutual funds model is that unlike banks, it is less fragile, hence offering stability to the financial system. The fund management company is not affected by losses because the risk and reward are passed through to the investors. What makes it less fragile is the fact that the assets and liabilities of mutual funds are directly linked (Bacha and Mirakhor, 2015 p.7, Khan M. S. (1986), Sayyid Tahir (2006b)).

To appreciate the new model, it is worthwhile reiterating Mirakhor's (2014) articulation on the four characteristics of a risk-sharing financial system. It must (1) forge close (one-to-one) relationship with real assets; (2) facilitate financial inclusion by providing all members of the society the opportunity to share in prosperity and to hold financial instruments to hedge their idiosyncratic (personal and particular) risks; (3) result in a stable financial system that is highly resilient to shocks; and (4) empower all stakeholders to have effective voice and vote in the governance of the financial sector.

The fundamental difference from the debt-based model is that this model requires the assets and liabilities to be matched where the fund providers (liability side) fully share the investment risks (asset side). Furthermore, instead of having depositors as the supplier of funds, the risk-sharing model would have a multitude of security holders who co-own the assets.

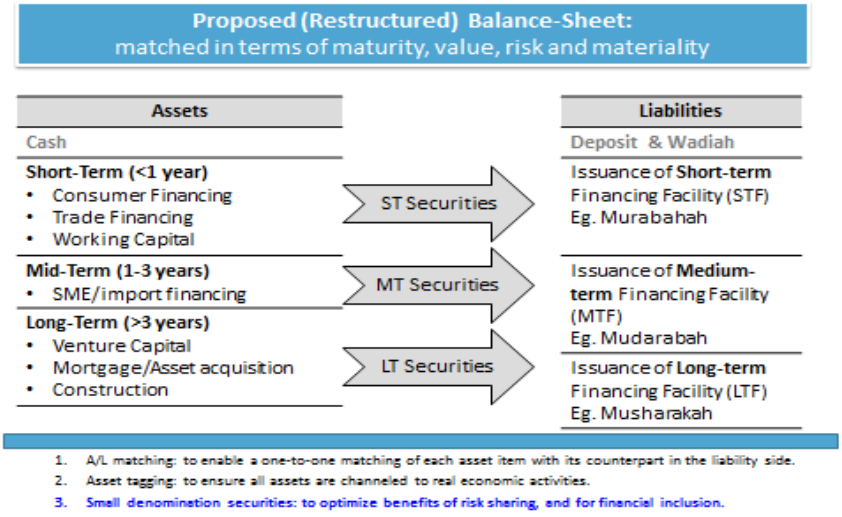
Vis-à-vis the conventional finance that operates on creditor-debtor relationship, the risk-sharing model demands the following two conditions to be met. First, there must be a one-to-one match of the assets and liabilities in terms of maturity, value and risk and each asset-liability match has to be effected via an appropriate Sharīʿah contract. Second, the returns for the investment must be determined ex-post i.e. the

actual returns would be calculated ex-post but based on the proportional sharing agreement made ex-ante. There are several benefits of having this arrangement. It resolves the fragility issue emanating from the mismatched balance sheet. It creates a pass-through profit and loss mechanism, and enables the depositors/investors to enjoy the upside potential. RSFI entities are freed from having to put aside capital allocation on the assets at risk. Overall, it requires less complex regulation.

The main challenge to operationalise risk-sharing finance is to create the appropriate investment platform which is accessible to SMEs and attractive to retail investors. In this regard, the authors proposed for RSFIs to securitize their assets to investors through the issuance of securitized papers. The asset securitization would dissipate the risk from concentrating at the RSFI level and enable the investors to participate in the investment opportunities.

As illustrated in the figure below, once an asset allocation strategy has been decided, the RSFI entity would issue a range of security papers, all of which are structured according to the profile of the assets requiring funding. For example, short-term securities are issued to raise funding on short-term assets. Within these, there will be securities which have different values and risk characteristics to match the profile of the asset and risk appetite of the investors.

Figure 1
Risk-sharing Securities catering to the needs of SMEs



In terms of determining the appropriate Sharīʿah contracts to be used, the following rule-of-thumb could be applied. For low risk and short-tenured assets such as short-term consumer financing, trade financing and working capital, it is proposed *Murābaḥah* to be the structure of the short-term investment papers due to its low risk nature. For medium-term financing such as leasing, SME/import financing and hire purchase, *Ijārah* and *Muḍārabah* contracts are better suited. *Muḍārabah* and *Mushārakah* on the other hand are appropriate for long-tenured and higher risk type of financing. All these contracts are risk sharing in nature as long as they are not attached with additional credit enhancers which would enable one party of the contract to transfer his risks to the counterparty.

To attain optimal risk-sharing benefits, these papers should be sold to depositors and members of the public, hence providing them the opportunity to participate in project financing. This would dissipate the risk from concentrating within the bank's own assets. At the point of issuance, the papers will be priced based on the expected rate of return of the underlying project. The actual returns on investment will however depend on the final outcome of projects.

With regards to the securities issuance, the modus operandi is very similar to that of mutual funds companies. The difference is in the underlying product offer. Mutual funds offer the opportunity for long-term investment in a portfolio of companies. RSFI entities offer investment in finite projects and business ventures. To raise funding, the bank will announce each issuance size prior to opening the application. Information on the projects including the risk-reward profiles will be made transparent. Tahir S. (2006a) alluded that "Islamic finance industry is likely to be divided into (1) normal banking institutions, (2) development finance institutions, (3) microfinance institutions, (4) mutual funds and (5) life insurance companies and their other equivalents". The mutual fund model will cater to "return-conscious depositors who want maximum flexibility in investment and withdrawal of funds". This should prompt the Islamic banks to consider creating secondary markets for the investors, "such as Islamic stock market (for Islamic shares) and Islamic money market (for divisible and tradable Sharīʿah-compliant financial instruments)". Internet-based technology such as private or bank-sponsored crowd-funding platforms could be used as the information delivery channel and secondary market trading of the securities. If the securities are oversubscribed for the month, the bank will allocate the securities to all applicants in increasing multiples of say RM100, until the individual gets the full amount applied for, or when all available securities have been allocated, whichever comes first.

The securitization can be done at pre-determined intervals, such as monthly or quarterly. Actual issuance of the securities can thus be done at a fixed date on a monthly basis. In determining the total face value of issuance, provisions for potential bad debt and prepayments would also have to be factored in. There is also a need for a one-to-one correspondence mechanism to align the changes of value in the asset and liability. Thereafter, the papers are tradable in the secondary markets at the prevailing price as determined by its demand and supply.

Meanwhile the risk sharing securities should have the following key attributes. One, the face value of the securities must be in small denominations as to optimize financial inclusion amongst all levels of the society. Two, the total papers that are issued cannot be more than the value of the assets. Three, there should not be any multiple claims on an asset or a given portion of an asset. As such, a mechanism that keeps track of the ownership of assets during its entire life is necessary. Three, transaction cost needs to be kept minimal to ensure optimal secondary trading. Four, there should not be any deposit insurance and implicit guarantees as these will increase the cost of operation and induce moral hazard. Five, there needs to be the 'skin-in-the-game' rule requiring the bank to co-own the assets. It is proposed that a 10% ownership of each asset category to be imposed on the RSFI and these portions are funded directly from RSFI shareholder funds. Six, the asset financed by investors will have its own buffer to manage any liquidity risk on the portion owned by investors. The buffer will be sourced from the investment account, not from the bank.

4. Fintech: Game-Changer for Islamic Finance?

The next main challenge in operationalizing the model is to create a well-functioning secondary trading market for the securitized papers. Information asymmetries and difficulties in assessing the risk of financing small businesses at reasonable costs constitute a longstanding stumbling block to SME financing. An active secondary market serves to (1) dissipate risks broadly so as to minimize systemic risk and (2) lead price discovery for determination of cost of funds or required rates of return for the asset class. The rapid advent of financial technology or fintech in recent years saw the birth of peer-to-peer lending and crowdfunding platforms that offer products at faster speed, lower cost and great efficiency.

By combining technology and innovation, RSFIs could increase SME access to capital funding through a wider range of platforms and financial instruments, including peer to peer and marketplace lending, merchant finance, invoice finance, supply chain finance and trade finance. At the same time, fintech solutions could enhance SMEs' critical back-end processes such as the adoption of invoice financing

to manage receivables, supply chain financing for inventory management, trade finance and P2P lending for liability management, as well as equity crowdfunding for equity management.

In the Islamic finance sphere, eight fintech start-ups came together to form a consortium called the Islamic Fintech Alliance (IFT)[2] in March 2016 to help boost the adoption of financial technology using Islamic finance. The alliance intends to bring together technologies and financial innovations to "better synergise and harmonise" efforts. The proponents include EthisCrowd (Singapore – real estate crowdfunding), which launched several successful real estate crowdfunding including affordable homes in Indonesia, funds for Pahang flood relief victims and development of *waqf* land in Putrajaya. It also recently launched the *Waqf*World.org, providing an online aggregator service of *waqf* campaigns using crowdfunding technology[3]. Another Islamic fintech is Kapital boost which employs *murābaḥah* and *muḍārabah* contracts to provide financing for SMEs in Indonesia, Singapore and Malaysia. Others in the IFT include Narwi (Qatar – *Waqf* crowdfunding), Blossom (USA, Indonesia – equity micro-finance crowdfunding), Easi-up (France, Luxemburg – community building crowdfunding), Funding Lab (Scotland, Palestine – reward-based crowdfunding), Launch Good (USA – crowdfunding for creative and entrepreneurial endeavours), Skola Fund (Malaysia – crowdfunding for underprivileged undergraduates) and Ata-plus (Malaysia – equity crowdfunding platform).

Some of the techniques used by fintech to gauge creditworthiness is to use data captured by wholesale suppliers and online merchants, payment history on usage of utilities (water, electricity, gas etc.) prepaid mobile history, phone usage, psychometric testing to measure knowledge, abilities, attitudes and personality traits, social media usage and other online activity. By deploying state-of-the-art financial solutions, RSFIs could develop business models that are in tune with the expectations or demands of the future generation. At the same time, technological innovations provide the opportunity for the Islamic finance industry to realise its true potential in supporting the real sector. For these reasons, fintech can be a game changer for the Islamic finance industry to leapfrog to the digital age. The adoption of the risk-sharing model could serve as the main differentiating factor for Islamic financial institutions as they could completely move away from risk-transfer model. The risk-sharing model equipped with technologies like distributed ledger technology, smart

[2] http://www.crowdfundinsider.com/2016/04/83978-islamic-fintech-alliance-launched/

[3] Global Islamic Economy Gateway. 4 August 2016. http://www.salaamgateway.com/en/digital/story/new_waqf_crowdfunding_platform_to_address_misconceptions_about_islamic_endowments-salaam04082016135725/ extracted on 22 August 2016

contracts and fame game could potentially create a new value creating asset class for Islamic finance and investors through real sector-linked investment intermediation. It may also offer greater stability and resilience than the risk-transfer model. In this regard, the following section discusses a simulation on the RSFI model.

5. Simulation Methodology

This simulation exercise involves a three-step process. Step 1 estimates the rate of return of the real sector. Step 2 simulates the potential profit generated under RSFI model and compares it with the existing risk transfer model.

5.1 Step One

The objective is to derive the rate of return (ROR) of the risk-sharing securities to visualize the prospect on investors' return. However, because there is presently no such market and instrument, a proxy (ROR of the real sector) is derived as follows.

- Obtaining all equities from Bursa Malaysia (Source: Thomson Reuters IEKON)
- Selecting only Sharī'ah compliant companies with positive performances
- Extracting the ROR for selected companies and compute portfolio ROR
- Applying portfolio ROR to risk-sharing Balance Sheet

The outcome of this exercise is the ROR of the securities. The ROR estimation involved a 10-step procedure summarized in the following diagram.

5.2 Step Two

The objective is to estimate the return on investment based on RSFI model compare it with the existing risk transfer model. For this purpose, the Special Investment Account and General Investment Account of 16 Islamic banks in Malaysia were used as proxy for potential source of investment (source: BNM Quarterly Bulletin).

Figure 2
Process for Estimating ROR

Source: Author's own

6. Simulation Result

6.1 Deriving Rate of Return (ROR) for Risk-sharing Securities

The following step is to derive the price of the securities. However as such a market price is not yet in existence, we have used a simplistic proxy based on the performance of actual companies listed in Bursa Malaysia represented by their rate of return (ROR). Since information on companies' ROR is not readily available, we manually estimated the ROR using the return on long-term assets (ROLA) of the Sharī'ah compliant companies publicly listed at Bursa Malaysia selected as the proxy. ROLA is calculated as Net Income Before Tax (NIBT) divided by Long Term Assets. Prior to calculating the ROR, we first selected the companies.

A total of 896 companies representing all the 10 economic sectors in Malaysia were screened involving a two-layer filtering: (i) omitting companies with negative and greater than 100% ROLA for the whole 15 years, and (ii) omitting companies with negative and greater than 100% ROLA for the last five years. After two rounds of filtering, 424 companies were finally selected. The objective of the two-layer filtering was to eliminate the outliers.

We consider ROLA a fair proxy on the basis that they are typically the earning assets of companies. The estimated ROR based on ROLA was 20.98%. After adjusting to portfolio risk of 0.98%, the risk adjusted ROR was 20.77%. In order to check the reasonableness of the derived ROR, other estimations based on the return on total assets (ROA) and the pre-tax return on equity (ROE) were also made. The returns based on ROA and ROE were 12.48% and 19.50% respectively. In addition to these proxies, we also referred to other estimates of the real sector returns from secondary sources. The Morningstar reported that the average returns of the top 100 companies in the world are in the range of 15% (for 3-year average) and 14% (5-year average).[4] Studies had proposed that the equity premium in Malaysia is in the range of 8 to 11% (Mirakhor, 2015). Meanwhile, AIBIM[5] in 2015 reported that the potential return of real sector estimated by the banking fraternity is in the range of 11 to 18%.

Table-1
Estimated Rates of Return of Real Sector

Proxy	ROR Estimation
Return on Long-term Assets (ROLA)	20.98%
Return on Total Assets (ROA)	12.48%
Return on Pre-tax Equity (ROE)	19.50%
Average Return of Top 100 Global Companies*	13% - 15%
Equity Premium in Malaysia	8 - 11%
Return of Real Sector**	11 - 18%

Sources: * Morningstar, ** AIBIM

Based on the estimations of the ROR of the real sector by the above-mentioned proxies, it can be concluded that the real sector indeed offer higher return than what the present deposit rate and financing rates are offering (3-4% and 6-7% respectively in Malaysia as of June 2015). This conclusion therefore implies that should the financial institutions mobilize investment accounts to finance real sector activities

[4] Bacha & Mirakhor (2015)
[5] AIBIM is the Association of Islamic Banking Institutions Malaysia

through risk sharing, their returns would naturally be contingent on profits and thus at higher rates than the prevailing interest rate environment, leaving both depositors and banks better off. As mentioned above in the limitations, this is a simplistic approximation and adjustments would need to be made to incorporate differing risk/return profiles of the risk-sharing instruments especially given that they would have a differing tenure/duration to listed corporate returns.

6.2 Profit Comparison between Existing Model and Illustrative Risk-sharing Model

Table-2
Depositor's Return and Bank's Margin: Current Model

Model	**Current Model (Risk Transfer)**		
Risk[6] (%)	1.76	3.52	5.28
Risk Adjusted Financing Rate (%)	5.29	5.19	5.10
	Baseline	**Adverse**	**Extreme**
Depositor's Return (RM)	83,118,891	583,118,891	583,118,891
Change in RM		-	-
Change in %		-	-
Bank's Margin (RM)	378,777,437	361,544,766	344,312,096
Change in RM		(17,232,670)	(34,465,341)
Change in %		**(4.5%)**	**(9.1%)**

Deposit rates are fixed under each scenario. There are two reasons for this treatment: (i) to reflect the risk-transfer principle in the present model where risk and reward are not directly linked and the management of liabilities (Special Investment Account (SIA) and General Investment Account (GIA)) is separated from the management of assets (financing), and (ii) the pre-IFSA practice of Islamic co-mingling investment accounts with other types of savings where Islamic banks often limited the exposure of depositors to rate changes to remain competitive to conventional banks, a form of displaced commercial risk, hence Islamic banks in Malaysia utilized profit equalization reserve (PER) mechanisms. Table 2 above illustrates the stress test result on depositor and bank's revenues under risk-transfer model.

[6] Represents the OPR volatility stress-tested at 2 and 3 standard deviation.

The stress test on the risk-transfer model shows that the bank's margin could decline by 5% or RM17 million when the volatility is doubled and a decline of 9% or RM34 million when the volatility is tripled. Indeed this can be translated into a significant risk to Islamic banks operating in a low financing rate environment. For instance, banks' margins could be negatively impacted (and ultimately earnings) if the central bank decides to cut the Overnight Policy Rate[7] (OPR) as financing rates will be re-priced downward more than deposit rate.

Under the risk-transfer operating model, Basel capital requirements are necessary to ensure Islamic banks have sufficient buffers to absorb any sudden volatility. In such debt-based system, studies argue that the greater proportion of debt tends to make banks more vulnerable to losses, given that debt capital has lower loss absorbency capacity than equity.[8] Such eventuality could be avoided if Islamic banks fully employ a risk-sharing banking model that offers straight pass-through and in-built loss absorbing and profit accreting mechanism.

The following paragraphs discuss the micro stress test conducted on the balance sheet of risk-sharing model. To this end, the earlier estimated ROR of 20.98% was treated as the baseline and was shocked at 2 and 3 standard deviations. As the bank is operating under risk-sharing principle, investment account holders would be exposed to any adverse impact of volatility. Since the investment account is a pass-through risk-bearing instrument, depositors fully absorb the impact of ROR declines and benefit from upsides as well. Compared with the current model where the bank absorbs the impact of volatility, the risk-sharing model spreads the impact amongst the investors thus upholding the risk-reward principle.

In both the adverse and extreme scenarios, the test results suggested that bank profitability is less sensitive to shocks than in the risk-sharing model with greater resilience. At 2 standard deviation the risk-sharing bank's profit declined by only 0.6% whereas the current model declined by 5%. At 3 standard deviation the profit margin declined by 1.3% compared to the current model which was far more exposed to a 9% decline. In short, the above micro stress tests suggested that in the event of adverse situations, risk-sharing model is more stable than risk-transfer model.

Based on the above micro stress testing, the risk-sharing model offers advantages over the present risk-transfer model with a balance sheet that is less fragile owing to the matched assets and liabilities structure and the one-to-one tagging of the assets

[7] It is the interest rate at which a depository institution lends immediately available funds (balances within the central bank) to another depository institution overnight.
[8] IMF FSAP 2014 Stress Test on Malaysia, p. 15

to the real economic project/activities. It saves the banks in terms of capital allocation on assets that are at risk, which the bank would otherwise have to provide under the present model. In terms of fragility, the stress test illustrates that the risk-transfer model is more fragile as it performs worse than risk-sharing in adverse situation. The finding concurs with Calomiris and Haber (2014) that the present banking system is indeed fragile by design.

Table-3
Depositor's Return and Bank's Margin of Risk-Sharing Model

Model	**Risk-Sharing Model (ROR 20.98%)**		
Risk (%)	1.00	2.00	3.00
Risk Adjusted ROR (%)	20.77	20.56	20.35
	Baseline	**Adverse**	**Extreme**
Depositor's Profit (RM)	3,736,064,424	3,698,326,399	3,660,588,375
Change in RM		(37,738,024)	(75,476,049)
Change in %		**(1.0%)**	**(2.0%)**
Bank's Profit (RM)	1,490,334,217	1,480,899,711	1,471,465,204
Change in RM		(9,434,506)	(18,869,012)
Change in %		**(0.6%)**	**(1.3%)**

Note: Depositor's profit is derived from 80% contribution of total financing. Bank's profit is derived from 20% own contribution and 3% *Wakalah* fee

From the government's perspective, the risk-sharing model has a more far-reaching agenda in inducing financial inclusion and creating incentive for asset building for low- and middle-income groups in the society. Furthermore, it requires no deposit insurance and lender-of-last-resort facility. These safety net mechanisms create unintended moral hazard for banks to over-leverage and lose rigor in selecting high quality funding opportunities. The risk-sharing model also addresses the adverse selection and moral hazard issues, through the 'skin-in-the-game' requirement proposed by industry participants where banks need to co-own a percentage of securities issued for investment projects. In this study, the RSFI entities are proposed to fund and retain 20% of the total value of each project financed.

The model however is an illustrative first step undertaken under certain time and resource constraints and as such suffers from some major limitations including, inter alia:

i. the unavailability of data for the ROR of the real sector;
ii. no estimate or adjustment was made for any leverage-based effects on the illustrative estimated ROR;

iii. no estimate or adjustment was made for differing risk and maturity profiles that would be present under the different asset tranches;
iv. no estimate or adjustment was made for any differential in "default" and recovery rates between the two models; and, importantly,
v. no estimate or adjustment was made for any costs differentials in terms of transition to and subsequent operation of a risk-sharing banking model, in terms of costs to banks (up-skilling bank officers, cost savings from Fintech), bank customers (in terms of greater alignment between funding and real activity) and externalities costs and savings.

7. Conclusion

Small and medium-sized enterprises (SMEs) play an essential role in economic growth through job creation, employment, investment and innovation. Therefore SMEs' access to capital should not be limited and constrained. Presently the debt-based financial system hinders SMEs from fairer access due to the perceived high risk. Risk-sharing finance on the other hand promotes pro-active risk management through the sharing of risks in the economy according to the risk-bearing ability of the participants. In many ways, risk-sharing finance is naturally aligned with Islamic finance. The risk-sharing business model of real estate, asset and equity crowdfunding or peer-to-peer platform bears close resemblance with the *muḍārabah* and *mushārakah* contracts in Islamic finance. The risk-sharing model operates on an asset-driven balance sheet management thereby ensuring that the financial sector grows in tandem with the economy, not creating bubbles (as it did in pre the Global Financial Crisis (GFC)) or hold back growth (as it has in the post GFC). It eliminates financial oppression/repression and predatory lending as compensations to investors are determined by the actual performance of the real economic activities. This ensures prosperity is shared equitably amongst those who share the risks of any economic venture.

The rise of fintech has opened a new door of opportunity for the financial industry to push the present limits of traditional finance. Fintech contributes towards efficient and cost effective processes, improvements in customer experience and greater access to financial services. For Islamic financial institutions, the benefits of fintech go beyond as it could spur more risk-sharing financial activities that uphold the risk-reward principle. With the emergence of new technology, new set of competencies also need to be quickly developed given the rise of new risks. For jurisdictions aspiring to be fintech-savvy Islamic financial centres, public and private investment on R&D and well-coordinated win-win strategic collaboration amongst fintech start-ups, incumbents, regulators and Shariah scholars should also be intensified. With

creative rethinking, technology innovations can be the game-changer needed to propel the growth trajectory of Islamic finance to the next stage of development. Further research to explore the role of Fintech in furthering the advancement of Islamic finance is necessary to ensure the risks and transaction costs of market participants could be kept minimal. Fintech could potentially create value to the Islamic financial system such as in establishing trusted investor-entrepreneur matching platform, seamless financing/investment selection and funding processes, low-cost and efficient secondary markets for the trading of the risk-sharing securities, and transparent real-time project monitoring mechanism.

References

Askari, H., Iqbal, Z., Krichene, N. & Mirakhor, A. (2012). *Risk Sharing in Finance: The Islamic Finance Alternative*. Singapore: John Wiley & Sons.

Bacha, O. I. & Mirakhor, A. (2015). A Risk Sharing Banking Model.

Bank Negara Malaysia, Quarterly Statistical Bulletin

Bank Negara Malaysia (2007). Guideline on Stress Testing.

Bank Negara Malaysia (2015). Macro Stress Testing: The Approach in Malaysia.

Calomiris and Haber (2014) *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*, Princeton, N.J.: Princeton University Press

Citi GPS (2016). Digital Disruption: How Fintechs are Forcing Banks to a Tipping Point

Halid, N. & Abdul Latiff, R. (2012). Developing Reference Rate of Return Based on Real Sector Economy: A Case for Malaysia. *African Journal of Business Management*, Vol. 6 (8) pp. 2871-2877, 29 February 2012.

Jones, M., Hilbers, P. & Slack, G. (2004). Stress Testing Financial Systems: What To Do When the Governors Calls. IMF Working Paper WP/04/127.

Khan M. S. (1986) Islamic Interest-Free Banking: A Theoretical Analysis. *IMF Staff Papers*

March 1986, Volume 33, Issue 1, pp 1–2.

Mian, Atif & Sufi, A. (2014). *House of Debt*. Chicago: The University of Chicago Press.

Mirakhor, A. (2010). Whither Islamic Finance? Risk Sharing in an Age of Crises. Paper presented at the Inaugural Securities Commission Malaysia (SC) – Oxford

Centre of Islamic Studies (OCIS) Roundtable "Developing a Scientific Methodology on Shariah Governance for Positioning Islamic Finance Globally", March 15, 2010, Kuala Lumpur.

Mirakhor, A. (2012). Sharī'ah Compliant Macroeconomic Policy, 2nd ISRA Colloquium.

Mirakhor, A. (2014). Regulatory Framework for Islamic Finance. *Islamic Banker Asia* Issue 11.

Mohammed, N, Ismail, A. G., Muhammad J., Abdul Jalil S., Mohd Noor, Z. (2015). Market Concentration of Malaysia's Islamic Banking Industry. *Jurnal Ekonomi Malaysia* 49(1) 2015 pp.3-14. URL: http://dx.doi.org/10.17576/JEM-2015-4901-01

Omar, M.A., Md Noor, A. & Mydin Meera A. K. (2010). Islamic Pricing Benchmark. ISRA Research Paper (No. 16 /2010)

PwC (March 2016). Blurred Lines: How Fintech is Shaping Financial Services

Rosly, S. A. (2005). Critical Issues on Islamic Banking and Financial Markets: Islamic Economics, Banking & Finance, Investments, Takaful and Financial Planning. Dinamas Publishing.

Tahir S. (2006a). "Future of Islamic Banking". Downloaded from http://islamicfinanceandbanking.blogspot.my/2006/10/future-of-islamic-banking-sayyid-tahir.html

Tahir S. (2006b). "Unresolved Issues in Islamic Banking and Finance: Deposit Mobilization" in Salman Syed Ali and Ausaf Ahmad (editors) *Islamic Banking and Finance: Fundamentals and Contemporary Issues*, Jeddah:IRTI.

WEF (2015). The Future of Fintech: A Paradigm Shift in Small Business Finance

APPENDIX

Kuala Lumpur Declaration

The Second Strategic Roundtable Discussion, jointly organized by the International Sharīʿah Research Academy for Islamic Finance (ISRA), the Islamic Research and Training Institute (IRTI) and Durham University, met on 20th September 2012 in Lanai Kijang, Kuala Lumpur.

After lengthy deliberations on the issue of risk sharing, the participants acknowledged that the financial crisis which started in 2008 highlighted the fact that the most salient feature of the dominant conventional financial system is the transfer of risks away from financial institutions onto customers, governments and the public at large. Islamic finance is in a unique position to offer an alternative to the present interest-based debt financing regime that has brought the whole world to the edge of collapse.

Bearing this in mind, the second annual ISRA-IRTI-Durham Strategic Roundtable Discussion (2012) agreed on the following:

- The Sharīʿah emphasizes risk sharing as a salient characteristic of Islamic financial transactions. This is not only exemplified in equity-based contracts, like *mushārakah* and *muḍārabah*, but even in exchange contracts, such as sales and leasing, whereby risk is shared by virtue of possession.
- Risk transfer and risk shifting in exchange contracts violate the Sharīʿah principle that liability is inseparable from the right to profit.
- Sales must be genuine transactions in open markets.
- Although the Sharīʿah recognizes the permissibility of debt, it is acknowledged that excessive debt has detrimental effects on society.

The recommendations of the Roundtable Discussion are as follows:

1. Governments should endeavour to move away from interest-based systems towards enhancing risk-sharing systems by levelling the playing field between equity and debt.
2. Accordingly, governments should increase their use of fiscal and monetary policies based on risk sharing.

3. Governments could issue macro-market instruments that would provide their treasuries with a significant source of non-interest-rate-based financing while promoting risk sharing, provided that these securities meet three conditions: (i) they are of low denomination; (ii) are sold on the retail market; and (iii) come with strong governance oversight.
4. There is a need to broaden the organizational structures beyond traditional banking models to formats such as venture capital and *waqf*s to fulfil the social goals and risk-sharing features of Islam finance.

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