Risk-Sharing Financing of Islamic Banks: Better Shielded Against Interest Rate Risk?

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RISK-SHARING FINANCING OF ISLAMIC BANKS: BETTER SHIELDED AGAINST INTEREST RATE RISK?

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Abstract

In theory, risk-sharing-based financing (RSF) is considered a corner stone of Islamic finance. It is argued to render Islamic banks more resilient to shocks. In practice, however, this feature of Islamic financial products is almost negligible. Instead, debt-based instruments, with conventional like features, have overwhelmed the nascent industry. In addition, the framework of present-day economic, regulatory and financial reality inevitably exposes Islamic banks in dual banking systems to problems of conventional banks. This includes, but is not limited to, interest rate risk. Empirical evidence has, thus far, confirmed such exposures, despite Islamic banks' interest-free operations. This study applies system GMM in modeling the determinants of RSF, and finds that RSF is insensitive to changes in interest rates. Hence, our results provide support to the "stability" view of risk-sharing-based financing. This suggests RSF as the way forward for risk management at Islamic banks, in the absence of widely acceptable Shariah compliant hedging instruments. Further support to the stability view is given by evidence of counter-cyclicality. Unlike debt-based lending that inflates artificial asset bubbles through credit expansion during the upswing of business cycles, RSF is negatively related to GDP growth. Our results also imply a significantly strong relationship between risk-sharing deposits and RSF. However, the pass-through of these deposits to RSF is economically low. Only about 40% of risk-sharing deposits are channeled to risk-sharing financing. This raises questions on the validity of the industry's claim that depositors accustomed to conventional banking shun away from risk sharing and signals potential for better balance sheet management at Islamic banks. Overall, our findings suggest that, on the one hand, Islamic banks can gain 'independence' from conventional banks and interest rates through risk-sharing products, the potential for which is enormous. On the other hand, RSF could enable policy makers to improve systemic stability and restrain excessive credit expansion through its countercyclical features.

Keywords: Islamic banks, risk-sharing, financing, interest rate, dynamic *system GMM*

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1. INTRODUCTION

While the Islamic banking industry holds less than 2% of the banking assets worldwide (NBR)[1], it has been growing at a compounded annual growth rate (CAGR) of 38.5% between 2004 and 2011 (IFSB, 2013). From 2009 to 2013 alone, the industry expanded by 17% (Ernst & Young, 2014-2015). With such remarkable growth, this nascent industry has been the driving force of Islamic finance globally. In 2013, Islamic finance assets were estimated at US$1.8 trillion. They are expected to surpass the US$2 trillion mark in 2014, while Islamic banking assets are expected to hit US$1.6 trillion (KFH Research Outlook 2014). Several arguments have been put forward to explain this rapid growth. Chong and Liu (2009), for example, attribute it to the Islamic resurgence worldwide rather than to the advantages of the risk-sharing paradigm itself, which is seen as the principal mode of Islamic banking (The Kuala Lumpur Declaration, 2012).

There are currently over 300 institutions in 80 countries carrying out 'interest-free'[2] banking (Ergec and Arslan, 2013). Only Sudan and Iran operate full Islamic financial systems. The rest of the countries operate a dual banking system. There are cross-country variations in the operation of this system, too. Whereas some countries allow Islamic windows of conventional banks, such as Indonesia, Bahrain and Yemen, others do not. Turkey and Kuwait serve as two examples (Ergec and Arslan, 2013). In most of the countries where Islamic banks operate parallel to conventional banks, the market share of Islamic banks is still very low. Except in Kuwait and Saudi Arabia, where Islamic banks hold about 60% and 35% respectively, Islamic banks hold less than 25% market share in all other countries (IFSB, 2013).

Based on 2:275 of the holy Qur'an "...but Allah has permitted trade and forbidden usury" (Ali 2006, pp. 100) and the legal maxims "loss commensurates with gain"[3] and "earning commensurates with liability"[4] (Rahman & Ismail, 2015, pp. 177 & 185), it has been argued

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[1] The National Bureau of Asian Research.
[2] Islamic banks claim to be interest-free. This is so by the fact that they do not apply interest in their financing businesses. However, various studies have shown that Islamic financial products in general and banking products in particular are exposed to the interest rate risk, as we will see later in our literature review section.
[3] "Al-ghurmu bi al-ghunmi."
[4] "Al-kharaju bi al-dhaman."

that the organizing principle of Islamic finance rests on two conditions: risk-sharing and no *riba*. The first constitutes the necessary and second sufficient conditions that render a financial system Islamic (Mirakhor, 2010; The Kuala Lumpur Declaration, 2012; Askari et al., 2012; Iqbal and Mirakhor, 2013, Alaabed et. al., 2015). Together, these conditions are theorized to bring the added advantages of financial inclusion, financial stability and shared prosperity (World Bank, 2015).

It may be worth digressing at this point to dispel any confusion between risk sharing and profit-and-loss sharing (PLS). PLS and risk sharing are not two different techniques of financing. Without risk sharing, there can be no PLS. Parties to a PLS contract (say a *Mudharabah* 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 ability to put at risk their financial or other resources. So, the ex-post profit and loss sharing is ex-ante risk sharing. *Mudharabah* and *Musharakah* are, therefore, two examples of Shari'ah compliant partnership contracts, which are based on the principle of risk sharing.

Contrary to this view, Shaikh (2010) argues that as per the current orthodox understanding and practice of Islamic finance, the often-cited preferable modes of financing like *Mudharabah* and *Musharakah* are incapable, even in a simple model economy with them as the only mode of financing. This is so, he argues, because Islamic values like justice, equality, truth, trust, kindness, honesty and responsibility are lacking in practice. Hence, these instruments remain rarely used. Abdul-Rahman et. al. (2014) argue that PLS is difficult to grow when Islamic banks operate as financial intermediaries. Their argument is based on principles of the New Institutional Economic Theory. They suggest that PLS contracts would best be positioned if Islamic banks play the role of genuine entrepreneurs instead of intermediaries as currently practiced.

Indeed, due to supervisory and competitive pressures in the market place, the current practices of Islamic banks have significantly diverged from the theoretical models initially

envisaged (Rosly, 1999; Mirakhor, 2010; Archer et al., 2010; Farook et al., 2012). The present formation of Islamic banking has grown out of conventional banking and uses many of its techniques and instruments (Alaabed et. al., 2015). Only a negligible portion of Islamic banks' financing is strictly based on risk sharing (Chong and Liu, 2009) and to-date it comprises less than 3% of total financing in Malaysia (Abdul-Rahman et al., 2014). Instead, financing of Islamic banks in Malaysia, for example, is dominated by debt-like financing instruments based on deferred payment sales (*Murabahah* and *BBA*) and leasing (*Ijarah*). Together, they constitute about 80 percent of the total financing of Islamic banks in Malaysia (Kader & Leong, 2009). Overall, Chong and Liu (2009) see Islamic banking in Malaysia not very different from conventional banking.

The current practices of Islamic banks were justified at the initial stages on the basis that customers were accustomed to conventional banking and its fixed-cost instruments (Bacha, 2004, 2008). They were deemed necessary for the industry to gain commercial significance and market share. The trajectory, however, has not been free of cost. Islamic banks in dual banking systems have, as a result, been exposed to problems of conventional banks. This includes, but is not limited to, interest rate risk (Ibrahim and Sufian, 2014). Indeed, if Islamic banks continue issuing more debt-like instruments, which are interest rate benchmarked and are substantially indifferent from conventional loans - except in forms, they run the risk of undermining their stability potential and amplifying their interest rate exposure (Haneef and Mirakhor, 2014; Bacha, 2004, 2008).

One way to evade such outcomes is to offer products that are essentially completely different from their conventional counterparts. Risk-sharing-based investment accounts (RSIA) on the liability side of Islamic banks may well fit this criterion. The accounts operate on a *Mudharabah* basis. On the asset side, *Mudharabah* and *Musharakah* could be used as the underlying contract in a variety of financing products. These will be used to finance real sector activities. The rate of return will be determined ex-post, depending on the outcome of financed activities. In addition, risk sharing can serve as the basis of other financial instruments offered by the government, monetary authority and banking institutions. With

growing operations and recognition beyond Muslim-dominated markets, is it not time to "unlock the full potential of Islamic finance" (Lagarde, 2015)?

As proposed means of unlocking this potential, it is important to gain better understanding of risk-sharing based instruments and substantiate their characteristics empirically. This paper constitutes a humble attempt towards this understanding. Our main objective is to determine whether the risk-sharing-based financing of Islamic banks is immune to interest rate risk. Also, we want to see how other bank-specific and country-specific factors affect these unique products. Lastly, we want to see how much of risk-sharing-based investment accounts are channeled into RSF.

A number of empirical studies have investigated the potential determinants of Islamic banks' assets or financings. Their methodology, however, calls for reconsideration. Assets or financings are often put together and treated as one even though they may be completely different, at least in the case of Islamic banking. It is for this reason that we want to make a humble attempt to take risk-sharing-based financings out and study them separately in order to find their determinants. And also compare them vis-à-vis the determinants of other Islamic financings/assets in total, which are dominated by debt-like instruments, as well as conventional loans.

The paper is organized as follows. The second section provides literature review. The third section will describe the data and methodology. In the fourth section, we shall analyze and discuss the empirical results. Finally, the fifth section concludes with suggested implications and recommendations for the industry's practitioners and policy makers.

2. LITERATURE REVIEW

Comparative literature is admittedly scarce, as risk-sharing-based financings are peculiar to Islamic banking. The short history of the Shari'ah compliant industry also contributes to the scarcity. The literature on the determinants of conventional lending, however, is more widely available and could perhaps be used as a point of reference. The determinants of conventional bank lending are divided, in general, into two main categories. The first is

microeconomic in nature. The second is macroeconomic. Microeconomic factors are those factors which are bank-specific, such as deposits, bank size, bank capitalization, collateral security, capital ratios, non-performing loans, type of ownership and liquidity, among others. Macroeconomic variables, on the other hand, include GDP, interest rate, inflation, stock prices, exchange rates, industrial indices and others.

In analyzing bank-specific determinants of conventional bank lending, Chernykh & Theodossiou (2011) found that bank size, capitalization and provision for losses have positive impact over long-term business loans in Russia. Ownership type, on the other hand, was found to be insignificant. Constant and Ngomsi (2012) further reaffirmed the positive affect of bank size and capitalization in a cross-country study of six Central African Economic and Monetary Community (CEMAC) members. Moreover, they documented a similar positive effect of long-term liabilities. Non-performing loans were found to be statistically insignificant. On the contrary, Karim et al. (2014) studied 52 Islamic and 186 conventional banks in 14 OIC countries and found that bank size has negative impact on both conventional banks' lending and Islamic banks' financing, while Abdul Karim et. al (2011) found that bank size has no impact on Malaysian commercial banks' loan supply. In line with financial intermediation theory, Hossain et. al. (2013) found that deposits positively affect loans in a case study of RAKUB bank in Bangladesh.

In the context of Islamic banks and bank-specific determinants, Kader & Leong (2009) tested conventional lending rate and base lending rate as determinants of BBA property financing in Malaysia and found that they are both significantly positive. Rama and Kassim (2013) report contrary findings in the case of *Murabahah* financing of Indonesian Islamic banks. The authors found that Islamic financing rate, Islamic and conventional deposit rates and conventional lending rate are not significant determinants of *Murabahah* financing in the short-term.

Turning to macroeconomic determinants of bank lending or financing, interest rate was found to inversely impact conventional banks' lending in Japan (Kim and Moreno, 1994), Malaysia (Kader & Leong, 2009; Abdul Karim et. al, 2011) and Turkey (Ergec and Arslan, 2013). However, in his study of Malaysian banks, Ibrahim (2006) found the impact to be

positive. The empirical findings with respect to the impact of interest rate on Islamic financings are mixed, too. Kader & Leong (2009) and Ergec and Arslan (2013) document a positive effect. Contrary to that, Adebola et. al. (2011), Ibrahim and Sukmana (2011) and Ibrahim and Sufian (2014) in their studies on Malaysia found a negative effect.

Output, as a macroeconomic variable that captures economic cycle, was found to have a positive impact on lending in Malaysia (Ibrahim, 2006). The impact was further confirmed by Pruteanu-Podpiera (2007) for Czech Republic, by Du (2011) for China, by Constant and Ngomsi (2012) for CEMAC, and by Karim et. al. (2014) for OIC countries. However, Kim and Moreno (1994) found the impact to be negative for Japanese banks. In the context of Islamic banks, the findings are also mixed. While Ibrahim and Sukmana (2011) and Adebola et. al. (2011) determined that there is no significant impact at all, more recent studies done by Karim et. al. (2014) and Ibrahim and Sufian (2014) found output to solicit positive responses from Islamic financing.

The effects of inflation on conventional bank lending and Islamic bank financing are also very mixed across the literature. It was found to be negative for conventional banks (Kim and Moreno, 1994; Karim et. al., 2014), but positive for Islamic banks (Karim et. al., 2014; Ibrahim and Sufian, 2014). Furthermore, Du (2011) found it to have positive effects on conventional banks if it is less than 3.9% and negative if it is more than 3.9%. On the other hand, inflation was found to be insignificant in the case of conventional banks by Ibrahim (2006), Pruteanu-Podpiera (2007), Constant and Ngomsi (2012) and in the case of Islamic banks by Rama and Kassim (2013).

Other variables such as stock prices have been found to be significantly positive in determining conventional bank lending (Kim and Moreno, 1994; Ibrahim, 2006; and Adebola et. al., 2011), but exchange rate and producer price indices have been found to be mainly insignificant. See for example Ibrahim (2006), Ibrahim and Sukmana (2011), Adebola et. al. (2011), Rama and Kassim (2013).

3. MODEL, DATA AND METHODOLOGY

3.1. Model

To investigate the determinants of risk-sharing financing of Islamic banks, with particular focus on the effect of interest rate, we propose the following empirical model based on the relevant literature:

$$RSF_{i,t} = \beta_0 + \beta_1 RSF_{i,t-1} + \beta_2 RSD_{i,t} + \beta_3 BS_{i,t} + \beta_4 INTR_{i,t} + \beta_5 GDPGR_{i,t} + \beta_6 INFL_{i,t} + \varepsilon_{i,t}$$

Where:

'i' indicates the bank (i = 1,...,132),

't' indicates the annual time period (t = 2008,...,2013)

RSF – Risk-sharing financing (*Mudharabah*, *Musharakah* and *Musharakah Mutanaqisah* financings of real activities, not financial instruments) in US$
RSD – risk-sharing deposits or investment accounts (*Mudharabah* deposits) in US$
BS – Size of the bank defined as the natural logarithm of total assets
GDPGR – GDP growth rate
INTR – Real interest rate
INFL – Inflation

The effects of the selected variables on conventional banks' lending and/or Islamic banks' financing are summarized in Table 1.

Table 1. Effects of selected variables on conventional banks' lending (C) and Islamic banks'
financing (I)

Papers	Deposits	Size	Real Output	Interest rate	Inflation
Kim and Moreno (1994) (C)			- (***)	-	-
Ibrahim (2006) (C)			+ (*)	+	x
Pruteanu-Podpiera (2007) (C)			+ (**)		x
Abdul Karim et. al (2011) (C)		x		-	
Chernykh and Theodossiou (2011) (C)		+			
Du (2011) (C)			+ (**)		+ if<3.9% - if>3.9%
Constant and Ngomsi (2012) (C)		+	+ (**)		x
Hossain et. al. (2013) (C)	+				
Adebola et.al. (2011) (I)			x (***)	-	
Ibrahim and Sukmana (2011) (I)			x (***)	-	
Rama and Kassim (2013) (I)					x
Ibrahim and Sufian (2014) (I)			+ (***)	-	+ (lagged)
Kader and Leong (2009) (C&I)				-/+	
Ergec and Arslan (2013) (C&I)				-/+	
Karim et.al. (2014) (C&I)		-/-	+/+ (*)		-/+

Note:
* GDP
** GDP growth
*** Industrial production
The signs in the table indicate the impact of selected variables on lending or financing, where '-' implies negative, '+' implies positive, and 'x' implies no significant impact.

3.2. Data

The data used in our study is annual data for 2008-2013. It covers 132 full-fledged Islamic banks from 28 different countries (The list of studied banks and countries is given in Appendix). The data for bank specific variables was obtained from Islamic Banking Intelligence database,[5] while the data for macroeconomic variables was obtained from the World Bank.[6] Risk-sharing financing and risk-sharing deposits data will be used in their absolute values form (US$), while the size is computed by using the natural logarithm of total assets. The macroeconomic variables are all in percentage points. Table 2 provides the summary of descriptive statistics for the selected variables. Table 3 provides the matrix of correlation coefficients that indicates a mixed correlation among the variables.

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[5] www.islamicbankingintelligence.com
[6] www.data.worldbank.org

Table 2: Summary of descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
RSF	428	1.03E+09	2.49E+09	1620	1.58E+10
RSD	499	3.29E+09	5.65E+09	52254.77	3.61E+10
BS	686	20.86308	2.296893	13.17178	24.99047
INTR	641	2.140296	8.844543	-19.9269	47.05332
GDPGR	790	3.262196	4.286876	-15.08839	17.66303
INFL	791	10.22298	10.14223	-4.863278	39.26636

Note: RSF – Risk-sharing financing; RSD – Risk-sharing deposits; BS – bank size; INTR – Interest rate; GDPGR – GDP growth rate; INFL – Inflation

Table 3: Correlations

	RSF	RSD	BS	INTR	GDPGR	INFL
RSF	1					
RSD	0.827	1				
BS	0.5651	0.7089	1			
INTR	-0.28	-0.2095	-0.1831	1		
GDPGR	-0.2268	-0.1353	-0.0972	0.2075	1	
INFL	0.4778	0.3046	0.2468	-0.4648	-0.6452	1

Note: RSF – Risk-sharing financing; RSD – Risk-sharing deposits; BS – bank size; INTR – Interest rate; GDPGR – GDP growth rate; INFL – Inflation

3.3. Methodology

For our set of data, which is panel data with very low number of T's and quite a high number of N's, the most appropriate model to use is dynamic panel data. Dynamic panel data regressions are characterized by two sources of persistence over time, namely, autocorrelation due to the presence of a lagged dependent variable among the regressors and individual effects characterizing the heterogeneity among the individuals. The endogeneity problem associated with dynamic models is dealt with in this paper using the generalized method of moments (GMM) procedure proposed by Arellano and Bond (1991) which is more efficient than the instrumental variable (IV) estimation procedure suggested by Anderson and Hsiao (1981). Arellano and Bond (1991) demonstrate additional instruments can be obtained in a dynamic panel data model if one utilizes the orthogonality

conditions that exist between lagged values of the dependent variable and the disturbances. Using these moment conditions, Arellano and Bond (1991) propose a two-step difference GMM estimator. Blundell and Bond (1998) demonstrate however that the instruments used in the difference GMM estimator become less informative in two important cases. Firstly, as the autoregressive parameter increases towards unity; and second as the variance of the parameter effect increases relative to the variance of the transitory shocks. Arellano and Bover (1995) and Blundell and Bond (1998) propose that an additional mild stationarity restriction on the initial conditions process allows for the use of an extended system GMM estimator. The system GMM estimation is found to be more appropriate in the presence of variables that are close to a random walk (Bond, 2002; Roodman, 2009). The difference GMM estimation under these conditions is found to suffer from a weak instrument problem (Sarafidis et al., 2009). The difference GMM approach also magnifies gaps in unbalanced panels (Roodman, 2009), which is the case in our panel. In view of the above, we run both the two-step difference and system GMM estimations for our panel data set (see the tables in Appendix). We follow up with post estimation specification tests, namely the Sargan (1976) and Hansen tests for over-identifying restrictions and the Arellano and Bond (1991) test for no autocorrelation in the first-differenced errors.

Having pointed out the strengths and weaknesses of each model and having run both models, we choose system GMM as more appropriate for our type of data and variables. This is because the estimated coefficient of the lagged dependent variable for the two-step system estimator increases significantly on average relative to the two-step differenced estimator (it increases from 0.04 to 0.29), which is a lot more than the required 50% by Windmeijer (2005) in order to correct the downward bias of standard errors[7]. However, we should bear in mind that high persistence in the series is a necessary condition for expectations of asymptotic efficiency gains using system GMM (Blundell and Bond, 1998; Roodman, 2009).

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[7] The autoregressive parameter is still lower than the standard rule of thumb of 0.8 (Roodman, 2009).

We apply the Windmeijer (2005) finite-sample correction to the reported standard errors in the two-step estimation, without which estimations of the standard errors tend to be severely downward biased. Specifying Windmeijer corrected (WC-robust) standard errors also produces variance–covariance estimates that are robust to heteroskedasticity. With regards to the instrument proliferation problem, we do not follow the Roodman (2009) rule of thumb that suggests collapsing the instrument matrix. It is however relevant to note given the time series dimension in this study, the number of instruments does not outnumber the individual units (number of groups). This suggests potential problems of instrument proliferation are not existent. Issues associated with instrument proliferation are particularly suspected in system GMM estimations as a large instrument collection over fits endogenous variables even as it weakens the Hansen test[8] of the instruments' joint validity (Roodman, 2009).

4. EMPIRICAL FINDINGS

We begin our analysis by determining the variables that are relevant in explaining the variation in RSF for our sample. The basic results from the two-step system GMM WC robust regression are reported in Table 4. Other reports are available in Appendix.

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[8] Hansen test is used here instead of Sargan given the use of Windmeijer (2005) finite-sample correction

Table 4: Two-step system GMM WC-Robust[9]

RSF	Coef.	WC-Robust Std. Err.	Z	P>z	[95% Conf. Interval]	
RSF L1.	0.2956922	0.0287696	10.28	0.000	0.2393049	0.3520796
RSD	0.397399	0.0230105	17.27	0.000	0.3522993	0.4424987
BS	6.40E+08	2.05E+08	3.12	0.002	2.37E+08	1.04E+09
GDPGR	-7.92E+07	2.08E+07	-3.81	0.000	-1.20E+08	-3.84E+07
INTR	-4649784	6263446	-0.74	0.458	-1.69E+07	7626345
INFL	-5.48E+07	1.13E+07	-4.86	0.000	-7.69E+07	-3.27E+07
_cons	-1.29E+10	4.54E+09	-2.85	0.004	-2.18E+10	-4.04E+09
No. of observations	192	Wald chi2(6)	3187.22			
No. of groups	58	Prob > chi2	0.0000			
No. of instruments	20					
AR(1) Prob > z	0.5298					
AR(2) Prob > z	0.9572					

Instruments for differenced equation
  GMM-type: L(2/.).rsf
  Standard: D.rsd D.bs D.gdpgr D.intr D.infl
Instruments for level equation
  GMM-type: LD.rsf
  Standard: _cons

Note: RSF – Risk-sharing financing; RSD – Risk-sharing deposits; BS – bank size; INTR – Interest rate; GDPGR – GDP growth rate; INFL – Inflation

As per expectations, the significance of RSD implies that it explains variation in RSF. However, the size of the estimated coefficient is well below unity. The pass-through or the amount of each RSD unit that is channeled towards RSF appears to be quite low. On average, only about 0.4 or 40% of each dollar deposited into RSD goes into RSF. This ratio is considered very low if we take into account that risk-sharing financings generally offer higher potential returns. Also, Islamic capital and money markets in general are still relatively undeveloped. Capital and money market instruments based on risk sharing are even more so. For that reason, we would expect RSD to be channeled towards risk-sharing financing of real activities, as that seems to be the most feasible solution. Aside from signaling mismatches in the risk-return profiles of bank's assets and liabilities, this finding questions practitioners' claims regarding depositors' demand for and acceptance of risk

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[9] The command used for this two-step system GMM estimation is **xtdpdsys** with **vce(robust)** for Windmeijer (2005) WC-robust estimator

sharing. Customers are placing more deposits on the basis of risk sharing than Islamic banks have extended in financing. The finding is broadly in line with the evidence of religiosity and loyalty of Islamic banks depositors found by Zaheer and Farooq (2015). The authors found that Islamic bank depositors were less likely to withdraw funds as compared to conventional depositors during the recent global financial crisis in Pakistan. On the contrary, some even placed deposits during the crisis period. Similar attitudes were demonstrated in a recent survey in Pakistan[10]. 55 per cent of respondents (Islamic bank depositors) said they would not withdraw funds in case of bank loss. Malaysian depositors had voiced the same stance before (Gerrard and Cunningham, 1997).

In fairness, however, financings depend on investment opportunities (Ibrahim, 2016) and demand for financing too, which is beyond the scope of our study. Thus, we cannot claim that there is enough investment opportunities and demand to absorb all the RSD or more than the current 40%. But, as we pointed out earlier, our findings question practitioners' claims that depositors are not keen on risk sharing. Hence, the low pass-through ratio of RSD could be in part caused by the state of Islamic capital markets. Islamic capital markets in general are under-developed, even more when it comes to risk-sharing-based instruments. Furthermore, regulatory restrictions and burdens on RSF may be playing a role as well. In calculation of capital adequacy requirements, the RSF is considered as very risky and as such the risk weight assigned can go up to 400%. Last but not least, risk-sharing financing requires entrepreneurial skills. Islamic banks still do not have such, arguably.

Bank size is found to positively impact risk-sharing financing. In other words, bigger banks practice more RSF than small banks. This relationship can be explained intuitively. Bigger banks are better capitalized and can benefit from both scale economies and diversification. Therefore, they may afford more risk-sharing assets in their portfolio and may also be better equipped for such endeavors. This result is in line with the findings of Chernykh and Theodossiou (2011) and Constant and Ngomsi (2012) for conventional banks.

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[10] From Farooq and Zaheer (2015) - DFID-SBP: Knowledge, Attitudes, and Practices of Islamic Banking in Pakistan, 2014. Available online at http://www.sbp.org.pk/publications/KAPStudy.pdf, (accessed 07-Oct-2014)

More importantly, our test shows that there is no relationship between RSF and interest rate even at the 10% significance level. This is in contrast to all the papers reviewed, which infer a significant relationship between loans/financings and interest rates. The relationship is mainly negative in the case of conventional bank lending (Kim and Moreno, 1994; Kader & Leong, 2009; Abdul Karim et. al., 2011; Ergec and Arslan, 2013) and mixed when it comes to aggregate Islamic bank financing (Positive: Kader & Leong, 2009; Ergec and Arslan, 2013; Negative: Adebola et. al., 2011; Ibrahim and Sukmana, 2011; Ibrahim and Sufian, 2014). However, it is important to note that most of the studies conducted thus far have used aggregate financings, assuming them all as one (Kader & Leong, 2009; Ergec and Arslan, 2013; Adebola et.al., 2011; Ibrahim and Sukmana, 2011; Ibrahim and Sufian, 2011). This runs the risk of missing important information regarding the heterogeneity of different financing products. Islamic banking currently is predominantly involved in debt-like financing, whereby the profit rates are benchmarked to the interest rates. Risk-sharing financing, on the other hand, are equity-like[11], but which have not been studied separately so far, to the best of our knowledge. Therefore, the result is not surprising at all after recognizing and segregating the difference of both financings. Our results support the stabilizing view of risk-sharing-based financing. In the absence of widely-acceptable Shari'ah compliant hedging instruments, the finding suggests that Islamic bank may mitigate the prevalent interest rate risk in the dual banking environments by issuing risk-sharing-based financing (Bacha, 2004, 2008).

Another interesting and unexpected result is the one on real output growth. It implies very significant negative correlation between real output growth and risk-sharing financing. In other words, risk-sharing financing is countercyclical. It increases when economic activities slow down, and vice versa. Indeed, a close tie to real economy is expected given the asset-linked nature of risk-sharing financings. However, the evidence contradicts the common cyclicality of bank lending or financing behavior. The majority of the literature reviewed suggest positive relationship between real output and loans or financings (Ibrahim 2006; Pruteanu-Podpiera 2007; Du 2011; Constant and Ngomsi 2012; Karim et.al. 2014, Ibrahim and Sufian 2014). However, as pointed out earlier, all of these studies used aggregate

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[11] The returns are determined ex-post.

financings, in which risk-sharing financing with its completely different features accounts only for a small portion. Aggregating may have concealed important cross-sectional differences. Anyway, it is this pro-cyclicality that attributes destabilization to banking credit (Minsky, 1984). Hence, our evidence of counter-cyclicality provides further support to the stabilizing merit of risk-sharing-based financing. It also lends credence to similar findings by Ibrahim (2016). The author finds the financing decisions of Malaysian Islamic banks in general and the full-fledged Islamic banks in particular to be counter-cyclical.

Inflation, too, is found to have a significant negative relationship with risk-sharing financing. Inflation causes distortion and uncertainty in economy. From the demand for funds point of view (businesses and entrepreneurs), inflation reduces consumer confidence and spending. It also makes consumers uncertain of what the future will be like, so they hold on to their cash for possible rainy days. As a consequence, aggregate demand reduces. Inflation also increases costs and lowers competitiveness, which also can lead to falling demand. All of this undermines business confidence and postpones capital investment, and thus dampens the demand for risk-sharing financing. Similarly, on the supply side of funds, investment account holders would not want their funds to get exposed to unnecessary adverse price movements, and therefore would reduce their supply of investment funds. Banks being cautious as they are, and having a reduced supply of funds, wouldn't want to take this risky endeavor either. Having said that, this negative impact of inflation on financing in general and risk-sharing financing in particular, for it is mainly long-term, is very much expected. Our result confirms the previous studies done by Kim and Moreno (1994) and Karim et.al. (2014), who also found that the relationship between conventional loans and inflation is negative.

5. CONCLUSION

This study uses previously established theories and models to investigate the interrelations between risk-sharing financing and other bank-specific and country-specific variables in the context of Islamic banks. Risk sharing is considered a unique feature of Islamic banking and is the objective of Islamic finance (Mirakhor, 2009; Kuala Lumpur Declaration, 2012).

By its nature, this type of financing should not have anything to do with interest. In conformity with this hypothesis, risk-sharing financing of Islamic banks seems to be immune to interest rate risk. If Islamic banking wants to ever gain its 'independence' from conventional banking, then this is the right way.

The study has also found that risk-sharing financing has the added advantage of stabilizing credit expansion during the upswing of business cycles, which would otherwise inflate artificial asset bubbles that eventually burst triggering crises and economic recessions. Similarly, we found that bank size matters in risk-sharing financing and that inflation is detrimental to the same.

We also found potential for better balance sheet management in Islamic banks. There exists a strong relationship between RSF and RSD, but the latter is channeled inadequately into RSF. Some of the possible reasons are: (i) debt-geared regulatory framework, which constrains RSF through imposition of high-risk weight in capital adequacy computation, (ii) the intermediary nature of Islamic banks, which is not conducive for RSF. Interestingly, this finding questions practitioners' worn-out claims that depositors are not keen on risk sharing.

Overall, the findings of this study contradict earlier findings (Adebola et.al., 2011, Kader & Leong, 2009, Chong and Liu 2009) that Islamic banks financing is complementary, and not a substitute to conventional banks' lending. Risk-sharing financing of Islamic banks has proven to be unique and immune to interest rate. Hence, for the development of resilient Islamic banking and Islamic finance, it is recommended that Islamic banks should engage in more risk-sharing financing. Regulators may also wish to revise the high-risk weight assigned for risk-sharing financing in light of these findings. Else it will be burdensome for Islamic banks and will impede their aspirations to operationalize the essence of Islamic finance.

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8. APPENDIX

Table 1A: Arellano-Bond dynamic panel-data estimation, two-step WC-robust (difference GMM)

RSF	WC-Robust Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
RSF L1.	0.0403512	0.0542956	0.74	0.457	-0.0660662	0.1467687
RSD	2.56E-01	3.86E-02	6.65	0.000	1.81E-01	3.32E-01
BS	1.58E+08	1.53E+08	1.03	0.302	-1.42E+08	4.57E+08
GDPGR	-7.34E+07	1.99E+07	-3.69	0.000	-1.12E+08	-3.44E+07
INTR	-3.60E+07	9.54E+06	-3.77	0.000	-5.47E+07	-1.73E+07
INFL	-3.00E+07	1.51E+07	-1.99	0.046	-5.96E+07	-4.80E+05
_cons	-2.36E+09	3.12E+09	-0.76	0.449	-8.47E+09	3.75E+09
No. of observations	133					
No. of groups	46					
No. of instruments	16					
AR(1) Prob > z	0.243					
AR(2) Prob > z	0.056					
Sargan Prob > chi2	NA					

Table 2A: List of studied banks:

No.	Country+Bank	No.	Country+Bank
1	Albania United Bank of Albania	67	Jordan Jordan Islamic Bank
2	Bahrain ABC Islamic Bank	68	Kazakhstan Al Hilal Bank
3	Bahrain Al Baraka Islamic Bank	69	Kenya Gulf African Bank Limited
4	Bahrain Al Salam Bank Bahrain	70	Kuwait Ahli United Bank
5	Bahrain Bahrain Islamic Bank	71	Kuwait Boubyan Bank
6	Bahrain Capinnova Investment Bank	72	Kuwait Kuwait Finance House
7	Bahrain Elaf Bank	73	Lebanon Blom Development Bank SAL
8	Bahrain Family Bank	74	Malaysia Affin Islamic Bank
9	Bahrain First Energy Bank	75	Malaysia Al Rajhi Bank
10	Bahrain Gulf Finance House	76	Malaysia Alliance Islamic Bank
11	Bahrain Ibdar Bank B.S.C. (c)	77	Malaysia AmIslamic Bank
12	Bahrain International Investment Bank	78	Malaysia Asian Finance Bank
13	Bahrain Investors Bank	79	Malaysia Bank Islam Malaysia
14	Bahrain Ithmaar Bank	80	Malaysia Bank Muamalat Malaysia
15	Bahrain Khaleeji Commercial Bank	81	Malaysia Bank Rakyat
16	Bahrain Kuwait Finance House	82	Malaysia CIMB Islamic Bank
17	Bangladesh Al-Arafah Islami Bank	83	Malaysia Hong Leong Islamic Bank
18	Bangladesh EXIM Bank	84	Malaysia HSBC Amanah Malaysia
19	Bangladesh First Security Islami Bank	85	Malaysia Kuwait Finance House (Malaysia)
20	Bangladesh ICB Islamic Bank	86	Malaysia Maybank Islamic
21	Bangladesh Islami Bank Bangladesh	87	Malaysia OCBC Al-Amin
22	Bangladesh Shahjalal Islami Bank	88	Malaysia Public Islamic Bank
23	Bangladesh Social Islami Bank	89	Malaysia RHB Islamic Bank
24	Bangladesh Union Bank Limited	90	Malaysia Standard Chartered Saadiq
25	Bosnia and Herzegovina Bosna Bank International	91	Maldives Maldives Islamic Bank
26	Brunei Darussalam Bank Islam Brunei Darussalam	92	Oman Bank Nizwa SAOG
27	Egypt Al Baraka Bank Egypt	93	Pakistan Al Baraka Bank
28	Egypt Faisal Islamic Bank of Egypt	94	Pakistan BankIslami
29	Indonesia Panin Bank Syariah	95	Pakistan Burj Bank
30	Indonesia PT Bank BRI Syariah	96	Pakistan Dubai Islamic Bank Pakistan
31	Indonesia PT Bank Jabar Banten Syariah	97	Pakistan Meezan Bank
32	Indonesia PT Bank Maybank Syariah Indonesia	98	Philippines Amanah Islamic Bank
33	Indonesia PT Bank Muamalat Indonesia	99	Qatar Barwa Bank
34	Indonesia PT Bank Syariah Bukopin	100	Qatar Masraf al Rayan
35	Indonesia PT Bank Syariah Mandiri	101	Qatar Qatar International Islamic Bank
36	Indonesia PT Bank Syariah Mega Indonesia	102	Qatar Qatar Islamic Bank
37	Indonesia PT BNI Syariah	103	Saudi Arabia Bank Albilad
38	Iran Ansar Bank	104	South Africa Albaraka Bank
39	Iran Bank Day	105	Sudan Al Jazeera Sudanese Jordanian Bank
40	Iran Bank Hekmat Iranian	106	Sudan Al-Shamal Islamic Bank
41	Iran Bank Keshavarzi (Agriculture Bank)	107	Sudan Albaraka Bank Sudan
42	Iran Bank Khavarmianeh (Middle East Bank)	108	Sudan AlSalam Bank Sudan
43	Iran Bank Maskan	109	Sudan Bank of Khartoum
44	Iran Bank Melli Iran	110	Sudan Blue Nile Mashreg Bank
45	Iran Bank of Industry and Mine	111	Sudan Byblos Bank of Africa
46	Iran Bank Pasargad	112	Sudan Faisal Islamic Bank
47	Iran Bank Sepah	113	Sudan Farmer's Commercial Bank
48	Iran Bank Shahr	114	Sudan Savings and Social Development Bank
49	Iran EN Bank	115	Sudan Sudanese Egyptian Bank
50	Iran Export Development Bank of Iran	116	Sudan Sudanese French Bank
51	Iran Ghavamin Bank	117	Sudan United Capital Bank
52	Iran Iran Zamin Bank	118	Syria Syria International Islamic Bank
53	Iran Karafarin Bank (PJSC)	119	Turkey Albaraka Turk
54	Iran Mellat Bank	120	Turkey Bank Asya
55	Iran Parsian Bank	121	Turkey Kuveyt Turk
56	Iran Post Bank	122	Turkey Turkiye Finans Katilim Bankasi
57	Iran Refah K. Bank	123	United Arab Emirates Abu Dhabi Islamic Bank
58	Iran Saderat Bank	124	United Arab Emirates Ajman Bank
59	Iran Saman Bank	125	United Arab Emirates Dubai Islamic Bank
60	Iran Sarmayeh Bank	126	United Arab Emirates Emirates Islamic Bank
61	Iran Sina Bank	127	United Arab Emirates Noor Islamic Bank
62	Iran Tejarat Bank	128	United Kingdom Bank of London and The Middle East
63	Iran Tose'e Ta'avon Bank	129	United Kingdom European Islamic Investment Bank
64	Iraq Cihan Bank	130	United Kingdom Islamic Bank of Britain
65	Iraq Elaf Islamic Bank	131	Yemen Shamil Bank of Yemen & Bahrain
66	Jordan Islamic International Arab Bank	132	Yemen Tadhamon International Islamic Bank