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Risk-sharing deposits in islamic banks: do interest rates have any influence on them?

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Abstract

It has been proven time and again, that Islamic banking performance tends to imitate that of conventional banks, especially since Islamic banks seem to be vulnerable to the same type of risks, whether it is because of monetary policy actions leading to changes in interest rates or other macroeconomic variables. We would like to take a closer look at this verdict and see if it truly holds true if we separate risk-based instruments of financing in Islamic banks and analyze their performance specifically. Our focus is on analyzing the level of impact of interest rates on risk-based deposits in Islamic banks. We use dynamic panel techniques in the form of difference GMM to come to the conclusion that separating risk-based from relatively fixed-rate instruments of financing can provide us with very different results. Our findings suggest that interest rates do not play a significant role in determining the level of deposits that are risk-based in nature and do not depend on a given and guaranteed rate of return. Based on this finding, we see that risk-based deposits and financing can prove to be the antidote that not only Islamic banks but the whole financial industry can think of, to deal with the detrimental effects of an interest-based system.

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1. Introduction

Although the expectation when it comes to Islamic finance is that it should be more resilient to exogenous economic shocks and that it should have stronger links to the real economy due to the emphasis on risk-sharing and rejection of interest, this is not always the case. Islamic banks have time and again given more importance to contracts like Murabaha and Ijarah, which are considered to be debt-based, benchmarked on a profit rate similar to the interest rate, and which do not involve variable rates of returns.

A number of studies have been carried out to illustrate the relevance of interest-free banking in stabilizing the financial world (Kia and Darrat,2007; Khan and Mirakhor, 1989; Chapra, 1996). Of the merits of deviating from the conventional interest-based mechanism is the possibility of sharing not only profits but also losses between banks and their clients (Khan and Mirakhor, 1990). As a result, Islamic banks have the potential of becoming more resilient to risks of bankruptcy while also becoming more stable (Zarqa,1983).

This paper is meant to be an extension to the work done by Seho, Alaabed and Masih in 2015. These authors investigated the linkage between risk-based financing, such as Mudarabah and Musharakah financing, and interest rates. Specifically, the purpose of the paper was to evaluate the level of impact of changes in interest rates on risk-based Islamic banking transactions. Based on their empirical analysis using system GMM panel techniques, SeHo, Alaabed and Masih (2015) found that there was no significant linkage between interest rates and risk-based financing. They found this to go with their intuitive reasoning that such a linkage is not likely to be strong since risk-based financing is specifically meant to be catered to those who want an alternative to debt-based or conventional financing.

They also evaluated the impact of risk-based deposits; bank size; GDP growth; and inflation - on risk-based financing. Of the variables found significant were risk-based deposits, bank size, GDP growth and inflation. The link between risk-based financing and deposits was expected to be significant and the empirical results helped validate this expectation. This was despite the fact

that of the 132 Islamic banks taken into consideration, there was an average of 40% of risk-based deposits being used for purely risk-based financing. The positive significant relationship with bank size illustrated the higher capability of bigger Islamic banks to carry out this type of financing. Interestingly, the relationships between risk-based financing and both GDP growth and inflation were both inverse in nature, indicating that an increase in either would lead to less risk-based financing. This seems to be unexpected as the general theory is that investment is a function of interest rates. When it comes to periods of high GDP growth and inflation, this may indicate that interest rates are low during that period of time which is why variable-rate financing may be considered to be more costly than one which involves low fixed-rate payments. The authors suggest that it is this counter-cyclicality that can make risk-based financing a useful alternative, especially in times of low or deteriorating economic growth.

In this paper, we aim to further this analysis by looking at the impact of interest rates on risk-based deposits in Islamic banks. By making risk-based deposits the dependent variable of focus, we hope to investigate how much of an impact interest rates have on it as do other variables mentioned above including risk-based financing; bank size; GDP growth and additionally, exchange rates. As deposits are the key variable, taking account of the effect of exchange rates as a control variable is very relevant to our study. Our main objective is to see if risk-based deposits have a similar relationship as financing does with interest rates and also if the model, now adjusted this way, shows significantly varied results for the other variables too. We have not seen a study that specifies and segregates risk-based from fixed-rate deposits and the impact of various variables on them. For this reason, we believe that this study could prove to be novel and insightful in terms of its scope and its specific focus on risk-based deposits in Islamic banks.

Intuitively, we believe that interest rates would have a significant impact on the performance of risk-based deposits since those who choose to place their savings in banks tend to look for the best returns and even though risk-based deposits are meant to be catered towards projects that are expected to have variable-rate returns, in the case where the economy is experiencing contractionary policy measures, higher interest rates at conventional banks may cause Islamic banks to lose a portion of their deposits to deposits that have guaranteed high-rate returns. It is based on this line of thinking that we believe that unlike risk-based financing which is specifically meant to be an alternative to interest-based financing, risk-based deposits are likely

to be considered substitutes to interest-based deposits. There are a number of studies that have proven the existence of this relationship between total deposits in Islamic banks and interest rates, specifically where fixed-rate deposits are also taken into account. Some say that in this respect, Islamic banks perform similarly to conventional banks (Bacha, 2004) while others insist that Islamic banks are inherently more stable (Kassim et. Al, 2009; Haron and Ahmad, 2000). As we have not come across a study showing the specific effects of the variables in question, we hope that by formulating a model that takes into account risk-based instruments as well as a number of bank-specific and macroeconomic factors of potential influence, we can prove empirically what we believe to be the case.

What makes this study different, as did the one conducted by SeHo et. al, (2015) is the focus on risk-based deposits only, rather than on the total value comprising of both fixed and variable-rate deposits. Based on our results, we aim to provide a more comprehensive picture of the true impact of interest rates on the specific aspect of Islamic banking that is expected to be completely devoid of any linkage with interest rates due to the absence of any need for benchmarking these returns with fixed-rate returns.

As will be elaborated on further below, we see that our results point to what we had hoped would be the case i.e. that risk-based deposits do not seem to be significantly correlated with interest rates but are rather, influenced by risk-based financing as well as their own previous performance. We use many of the findings presented in SeHo et.al.'s (2015) paper, including their model, in interpreting our results in order to provide a more congruent and comprehensive insight and explanation.

The following section provides a literature review of the studies that have focused on this and related subject matter thus far. This is then followed by section 3 of 'Methodology', where we elaborate on the data used in the analysis, the model used, and how we chose to analyze the data based on diagnostic results. This is then followed by our analysis of 'Empirical findings' in section 4 and our concluding remarks in section 5.

2. Literature review

Islamic banks all over the world have been amongst those that have emphasized the potential of interest-free banking. Although studies such as those of Haron and Shanmugam (1997) discuss the importance of Murabahah contracts in replacing interest-based contracts, today's Islamic banking products, especially those based on fixed-income generation for banks, seem to be replications of interest-based products. Although this is a contentious view, it is mostly supported by factors such as the emphasis on using interest rate benchmarks for arriving at profit-rate calculations and the perception of bank customers themselves, who tend to compare the costs of a Murabahah-based financing with that of a conventional loan, for example.

Although the religious factor is a crucial element for Muslims who believe that they must refrain from any form of interest in their financial dealings and decide on Islamic banking products over conventional ones (Hakan and Gulumser, 2011), the public at large is still likely to require Islamic banks to perform either at par or better than conventional banks in terms of risk/return value, in order for them to continue using Islamic banking products.

It has been observed (Sukmana and Kassim, 2010; Zainol and Kassim 2010) that when it comes to Islamic banks' deposits in Malaysia, they respond negatively to any shocks to interest rates. This avoidance of any linkage with interest rates has been and continues to be a challenge for Islamic banks, especially in dual-banking economies where much of the liquidity management and money market instruments involve its usage. Add to this the constant management of imbalances in Islamic banks' assets and liabilities that are brought about by changes in monetary policy measures, and we see that interest rates have the potential to 'destabilize' Islamic banks even more than their conventional counterparts (Kassim et. al.,2009).

Rosly (1999) highlights how the over-dependency on fixed-rate financing has meant that Islamic banks have always been sensitive to interest rate changes on the liabilities side of their balance sheets. In the event that interest rates rise, there is a possibility of a shift of deposits from Islamic banks with variable-rate returns to conventional banks with higher returns. Even if interest rates are low, this is likely to cause a shift of demand from Islamic bank financing to conventional lending. Although this may not be the case for all Muslims, many of the non-Muslim clients of Islamic banks may react this way to changes in interest rates. This causes a negative funds gap and displaced commercial risk, while also affecting the profitability of Islamic banks.

In their more recent study of Islamic and conventional banks spanning from 1999-2011, Abedifar et. al (2016) note that Islamic banks are more inclined to invest in the real economy while also being more risk-averse. They also found that Islamic banks, specifically medium-sized ones, tend to help improve credit provision and are negatively linked with income inequality. They note however, that this is the case in predominantly Muslim countries and that in dual-banking economies, Islamic banks tend to mirror the performance of conventional banks, specifically when it comes to the efficiency with which they help increase access to finance and financial deepening. Our intuition therefore leads us to believe that in a study such as this one which focuses specifically on risk-based deposits and financing, the impact shown on GDP growth should be even more evident as this is the sole purpose of this sector of Islamic banks. In SeHo et al.'s (2015) study, GDP growth was found to be negatively but significantly correlated with risk-based financing and this was interpreted as being a further affirmation of the benefits of risk-based financing which is counter-cyclical and therefore, a potential alternative to interest-based lending, especially in times of recession.

Furthermore, if Islamic banks focus more on linking their services and their own performance with the real economy, they could also insulate themselves against the exogenous shocks from international financial markets (Zarqa, 1983; Al-Jarhi, 2009). By refraining from speculative activities and focusing on real sector growth, such banks can ensure the stability of their own business model, and risk-based deposits and financing would play the lead role in this case. This would also help protect them from any volatilities caused in exchange rates due to short-term financial flows, especially in the case of unsterilized interventions by governments.

Finally, perhaps the greatest advantage of focusing on this risk-based system is the potential it offers to not only those who are utilizing these services but to Islamic banks and their future stability as well. By using profit and loss-sharing (PLS) modes of financing, Islamic banks have the opportunity to share both profits and losses with their depositors, and this allows them to mitigate a number of risks, including bankruptcy risk, default risk, interest-rate risk and a number of macroeconomic risks (Errico and Farahbaksh, 1998; Khan and Mirakhor, 1990; Zuberi 1992). PLS modes of deposits and financing offer Islamic banks to make their business models more resilient, given that they maintain an efficient risk management framework in place.

3. Methodology

The model that we are taking into account is one that has been inspired mainly by that formulated by SeHo et. al. (2015), with the exclusion of inflation since our interest rate values have been adjusted for inflation i.e. real interest rates. We also added the variable of exchange rates at the risk of this affecting our results, as a number of countries are being considered in different regions of the world and this could potentially cause high fluctuations in results too, despite each currency being considered in US Dollar terms.

The model therefore is as follows:

$$\mathbf{RSD}_{i,t} = \beta_0 + \beta_1 \mathbf{RSD}_{i,t-1} + \beta_2 \mathbf{RSF}_{i,t} + \beta_3 \mathbf{Size}_{i,t} + \beta_4 \mathbf{INT}_{i,t} + \beta_5 \mathbf{GDPGR}_{i,t} + \beta_6 \mathbf{EXR}_{i,t} + \epsilon_{i,t}$$

Where ‘RSD’ refers to ‘risk-sharing deposits’; ‘RSF’ refers to ‘risk-sharing financing’; ‘Size’ refers to ‘bank size’; ‘INT’ refers to ‘interest rates’; ‘GDPGR’ refers to ‘growth in GDP’; ‘EXR’ refers to ‘exchange rate values’; and the error term is represented by ϵ .

The data used for risk-sharing deposits, risk-sharing financing and bank size is all bank-specific data derived from the Islamic Banking Intelligence database. It is based on data of Islamic banks all over the world from Afghanistan to the UK - amounting to a total of 132 Islamic banks spanning over 28 countries. The macro level data such as GDP growth, interest rates and exchange rates were extracted from the World Bank database. All monetary data such as risk-sharing deposits and financing as well as exchange rates have been measured in their level form in US Dollar terms, while other statistics such as GDP growth and interest rates have been recorded in percentage points. Bank size is the summation based on the total asset value of each bank.

Based on the type of data we are using as well as the fact that we only have 6 years of data for each bank (from 2008 to 2013), we decided to use panel techniques as our mode of analysis. Which type of panel technique would be best for this type of data required us to characterize this data first. With a large number of N’s (cross sectional values i.e. 132 banks) and a small number of T’s (number of years), as well as the fact that our data is unbalanced and that there is likelihood of there being a significant level of heteroscedasticity and serial correlation inherent in

our data, dynamic panel techniques and specifically, the Generalized Method of Moments (GMM) technique seems to be most appropriate for this panel dataset.

In order to overcome the limitations presented by static OLS estimators due to the need for orthogonality conditions to be fulfilled, and to account for the endogeneity amongst variables, we included lag-dependent variables. This was done to account for any discrepancies between moment conditions and the parameters being considered, where any covariance between the independent variables and the error term would ideally be minimized, if not eliminated completely. This was especially important as evaluating countries all over the world and modelling their performance under one equation would require us to use the type of model and the type of analysis that accounts for any inherent lack of orthogonality or presence of endogeneity.

Therefore, we opted to choose between system and difference GMM techniques. Arellano and Bond (1991) suggested that the use of either technique would help to overcome the limitations produced by fixed effects estimators. In order to overcome the potential problem in the validity of results due to autocorrelation and heteroscedasticity, we carried out the two-step GMM and then also made these results robust by conducting the Windmeijer test to eliminate any downward bias of the standard errors produced.

SeHo et. al. based their findings on System GMM. However we decided to analyze our findings based on the results derived from difference GMM as specific diagnostic values indicated that difference GMM would help provide us with the best understanding of our model and its implications. We have chosen difference GMM over system GMM while acknowledging the limitations of this technique; namely, that the lagged variables tend to be weak instruments for the differenced form of the variables and also that difference GMM can magnify gaps in an unbalanced panel (Roodman, 2009), as pointed out formerly by SeHo et. al. (2015) in their study as well.

Despite these limitations, we believe using difference GMM provides more robust and consistent results and this will be further elaborated on later, along with specific diagnostic tests including the Arellano Bond test for efficiency and the Hansen J test for consistency of the result values. We will now show some of our preliminary findings followed by the results of carrying out

difference GMM and what its implications are with regard to risk-sharing deposits and the factors that affect them.

Table 1: Descriptive Statistics

	<i># of Obs.</i>	<i>Mean</i>	<i>Standard Dev</i>	<i>Min Value</i>	<i>Max Value</i>
<i>Risk-sharing Deposits</i>	499	\$3.29e+09	\$5.65e+09	\$52,254.77	\$3.61e+10
<i>Rik-sharing Financing</i>	428	\$1.03e+09	\$2.49e+09	\$1620	\$1.58e+10
<i>Bank Size</i>	686	20.86308	2.296893	13.17178	24.99047
<i>Interest Rates</i>	641	2.140%	8.845%	-19.927%	47.053%
<i>GDP Growth</i>	790	3.262%	4.287%	-15.0884%	17.663%
<i>Exchange Rates</i>	792	\$3023.8	\$5152.3	\$0.2866	\$18,414.45

Table 2: Correlation Matrix

	RSD	RSF	SIZE	INT	GDPGR	EXR
RSD	1					
RSF	0.7905*	1				
BS	0.6572*	0.4776*	1			
INT	-0.1877*	-0.2169*	-0.1734*	1		
GDPGR	-0.0012	-0.1023*	0.0598	0.0380	1	
EXR	0.2723*	0.5599*	0.2940*	-0.2607*	-0.1631*	1

* Indicates significance at the 5% level

Based on these results, all the variables except for GDP growth have significant correlations with risk-sharing deposits on an average level. This impact needs to be further investigated since these

are average values for a large number of banks in varying regions of the world with varying economic and social conditions at hand.

We conducted the Wooldridge test for strict exogeneity to determine which variables could be considered as potentially strictly exogenous when conducting our system and difference GMM tests. For this, we compared the F values for each variable with the critical F value while also taking into account the p-values for each F-value. Any F-value found to be insignificant could be used as an instrumental variable and such figures have been highlighted in the table below.

Table 3: Wooldridge Test for exogeneity of explanatory variables

Variable	Test 1 (<i>F-value: 298.08</i>)	Test 2 (<i>F-value: 3.85</i>)
RSF	0.1048 [0.282]	0.5999 [0.000]
Size	7.91e+08 [0.036]	4.10e+08 [0.501]
INT	-7.9e+07 [0.000]	-4550978 [0.824]
GDPGR	1.09e+08 [0.136]	3.93e+07 [0.731]
EXR	-17,227 [0.230]	-219604 [0.217]

Test 1 is the result of a general regression method while test 2 is carried out with a fixed effects estimator included in the regression. As can be seen from the results, the only two variables to show insignificant F-values are ‘bank size’ and ‘GDP growth’. However, the only significant p-value of these F-values is that of bank size in Test 1 while the value for GDP growth in Test 1 is significantly less significant. The highlighted values of bank size and GDP growth in Test 2 are both highly insignificant based on their p-values. We decide to not include any instrumental variables as the results are inconsistent and bank size has a significantly strong correlation with risk-based deposits, based on our correlation matrix. Therefore, we choose to maintain it as an endogenous variable while conducting our analysis using differenced and system GMM below.

Table 4: Results based on Difference and System GMM

	<i>RSD</i> (Difference)	<i>RSD (System)</i>
<i>l.RSD</i>	-0.755** (-2.22)	0.0418 (0.15)
<i>RSF</i>	1.205*** (7.61)	1.679** (2.28)
<i>SIZE</i>	1.9836e+09 (1.47)	357824271* (1.98)
<i>INT</i>	1302973.6 (0.03)	101509036.3* (1.66)
<i>GDPGR</i>	-123400873.2 (-0.39)	-528153773.2 (-1.61)
<i>EXR</i>	-285773.1 (-0.54)	-766760.5 (-1.55)
AR (1)	0.276	0.576
AR (2)	0.770	0.229
Hansen J-Test	0.631	0.105
No. of obs.	126	192
No. of groups	45	55
No. of instruments	18	19

t-statistics are given in parentheses

* ** and *** implies significance of results at 90%, 95% and 99.9% confidence intervals

In order to obtain these results, we used the collapse function to reduce the number of instruments involved. Even though the number of instruments initially were less than the number of groups, we felt that by reducing the number of instruments involved, we may obtain more robust results, where the covariance between the variables taken into account and those that were not could be minimized as much as possible. As can be seen from the AR(2) values and those of the Hansen J-test, the results are both efficient and consistent in terms of there being no

persistent autocorrelation or a high proliferation of instrumental variables. The next section details our analysis of these results.

4. Empirical findings

One of the first things we note is that in both difference and system GMM applications, the value of the lagged dependent coefficient i.e. the lagged value of risk-based deposits, is far below the value of 0.8. This indicates to us that we may be using a better measure for our further analysis if we choose to use difference GMM. The results of the AR(2) autocorrelation test and Hansen J-test also indicate that using difference GMM may be a more robust measure. Therefore, our following analysis is focused on the difference GMM results.

As can be seen, only two variables stand out from the rest in terms of their level of significance. Risk-sharing financing has a highly significant impact on risk-based deposits. Based on the figures we have, every \$1 of risk-sharing financing offered by Islamic banks leads to \$1.205 being added back into risk-sharing deposits. This is a very important result as it indicates the potential of risk-based financing as a tool to provide returns to depositors willing to place their deposits and share profits and losses with the banks, on a risk-shared basis. This is precisely the reason why scholars such Khan and Mirakhor (1989) and Iqbal (1997) say that profit and loss-based tools can help insulate Islamic banks from the intensity of exogenous shocks as these will be partially shared between Islamic banks and their depositors.

This is also an important finding as it implies that greater access to financing has the potential to not only empower those who receive this financing, but that those who receive it can reinvest their profits into such deposit accounts, for more potential financing that can be offered to others. Such a result is uplifting as it allows us to consider the potential of risk-sharing financing even more, and perhaps focus more on that as a vehicle in influencing the level of deposits, rather than focusing on how deposits can be improved through other means. Despite the numerous studies that emphasize the importance of factors such as changes in interest rates and their impact on the stability of Islamic banks' deposits (Kassim et. al, 2009; Kaleem and Isa, 2006; Sukmana and Kassim, 2010), this significant result for risk-sharing financing indicates that Islamic banks could

potentially use their assets as a tool to minimize their risks, increase their monetary base and also improve their ability to provide more financing.

This result may also indicate that those who use strictly risk-based financing, especially for religious reasons, may feel that their own deposits too, should be placed in risk-based deposits only, rather than wadiah or general investment accounts.

The significance of the lagged risk-based deposit variable and the fact that the coefficient is negative in value, goes both in line with and also against our intuition of this impact. Its significance shows the importance of past performance being a determinant of investor confidence over time. It also highlights the significance of Islamic banks performing the role of an efficient intermediary as was alluded to earlier in our mention of Abedifar et. al's (2016) study. Islamic banks need to accurately assess a potentially worthy investment compared to an unworthy one, just as this is done when conventional banks assess a client's credit-worthiness, in order to maximize the expected returns from risk-based financing projects. The significance of the lagged variable suggests that returns on deposits in the previous term have a relatively significant impact on the potential of risk-based deposits in the future. What goes against our intuition is the relatively small and negative coefficient which implies that passed increases in deposits could lead to future decreases while past decreases could lead to future increases in deposit value. In order to understand this better, we look back at SeHo et. al's (2015) analysis of the impact of risk-based deposits as an independent variable on risk-based financing as a dependent variable. They suggest that only 40% of risk-based deposits tend to be placed in risk-based financing projects. From this perspective, we see that since such a low percentage of risk-based deposits tend to be placed in risk-based financing, the more deposits there are, the less the total amount of returns a depositor will receive once the share is divided. For this reason which points to the fact that Islamic banks may not be able to cater to risk-based depositors' expectations efficiently, it is possible that this is the cause for the negative correlation of the lagged dependent variable. Increased deposits in one period may lead to a lower than expected level of returns and a shift from risk-based deposits to other deposits whereas lower total risk-based deposits may improve a depositor's chance of receiving a higher percentage of the share.

As for our focus variable of interest rates, it is interesting to note that the coefficients though positive in both difference and system GMM, are only significant at the 10% level for system

GMM. This is another uplifting observation as it implies that risk-based deposits are truly separate from the impact of interest rates, and do not follow the pattern of overall deposits, which seem to be highly impacted as they include all forms of deposits. Such a result is rare in the literature for Islamic bank deposits and is perhaps a further affirmation of the great value that risk-based deposits and financing can live up to, given they are focused on more.

GDP growth measured as insignificant in both forms of GMM. Unlike SeHo et al.'s (2015) finding of a significant negative correlation between risk-based financing and GDP growth which was considered an indication of the beneficial counter-cyclical role fulfilled by risk-based financing, our results indicate that those who choose to place their deposits in these type of accounts do not do so as a consequence of the state of the economy. A number of studies (Metawa and Almossawi, 1998; Okumus, 2005; Hakan and Gulumser, 2011) have highlighted the importance of religiosity for bank clients and their choice of using Islamic banking products over others. This could potentially be more so the case when it comes to Islamic banking risk-based deposits, as these are meant to reflect a client's desire to place deposits in worthy business projects, while accounting for the possibility of incurring losses, if the project fails to produce the expected returns. Although investments tend to be linked with the state of the economy, where a recession tends to lower the level of investments made, risk-based deposits are not as dependent on macro variables in this sense, and are more affected by factors such as the capability and reliability of Islamic banks and their choice of individual offerings of risk-based financing.

Finally, we also observe the lack of significance between exchange rates and risk-based deposits. This is possibly an affirmation of our previous reference to the potential of PLS models being significantly more immune to the effects caused by internationally influenced currency appreciation and depreciation pressures. Considering the strong link between interest rates and exchange rates that forms the base of the interest rate parity theory, the lack of influence of exchange rates on risk-based deposits is in concurrence with our observation of the lack of impact of changes in interest rates on risk-based deposits. Since the two are strongly linked, that neither of them seems to have significant values in our results further points to the factor of counter-cyclicity that has been emphasized on by SeHo et. al. in their study with this dataset.

Ultimately, it seems that in order for Islamic banks to expand risk-based deposits and the amount of influence they have on the balance sheet, it is crucial that risk-based financing projects are managed effectively and efficiently, as this and the past performance of Islamic banks with regard to deposits, both have the greatest level of influence.

5. Conclusion

Although a number of studies have been carried out to measure the relationship between interest rates and Islamic banking financing and deposits, there is a dearth in terms of the number of studies separating the types of financing and deposits into those which are fixed-rate versus those which are variable-rate in nature. Our study is expected to be a complement to that previously conducted by SeHo et. al. (2015) and it is aimed at assessing the level of influence of interest rates on risk-based deposits. Our findings suggest that interest rates do not have a significant impact on the level of risk-based deposits and that risk-based deposits are heavily influenced by risk-based financing as well as their own lagged values. These results are in line with our own hypothesis which was that risk-based financing and deposits are meant to be the antidote to the damage that can be caused by a debt-ridden economy that relies on income through interest-based instruments only. We hope that this research will prove to be amongst those that provide a helpful insight into the potential of using PLS modes of financing and that this can provide some form of encouragement to those who wish to rely more on risk-sharing instruments of finance as a way to counter the instability and fragility of the financial industry.

We recognize that our study comes with a number of limitations. Firstly, we have used a relatively simple model and have tried to evaluate a large number of countries using this one model. We did not separate countries and analyze them on a regional basis or on any other common factor. It is for this reason that we chose to use GMM as our technique of analysis as we believe GMM can help to take into account the mismatch between moments and the variables being considered. We also hope to analyze our results further and checking for their robustness by putting the data to test using Wavelet coherence and other methods. This could help to further highlight the level of correlation between different variables and different periods of high and low correlation.

Finally, we hope that our limited analysis can be further improved upon by those who are at a higher level of knowledge and expertise. We hold ourselves responsible for all the assumptions we have made and all the limitations of our research.

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