BALANCING RISK MANAGEMENT AND PROFITABILITY

H. Jamal Zubairi[1] and Sarwat Ahson[2]

Abstract

This study examines the strength of linkage between current risk management practices and the profitability of five Islamic Banks in Pakistan. In order to achieve this objective, the current risk management practices of five Islamic banks were studied and quantified over a period of seven years. The study uses both primary (survey questionnaires) and secondary data (annual reports) to gather information. The link of these practices with the banks' financial performance, controlling for other internal and external determinants of profitability was analyzed by adopting an econometric framework. Estimating pooled regression and checking the reliability of the estimated model through Augmented Dickey-Fuller test, it was found that the risk management framework had a statistically significant negative impact on profitability during the period under review.

Keywords: Islamic Banking, risk management, risk policy and environment, risk measurement, risk mitigation, ROA, ROE, Pakistan

JEL Classification: Z 000

1 & 2 - Department of Accounting and Finance, Institute of Business Management (IoBM), Karachi, Pakistan

Introduction

In this paper, we determine the impact of risk management practices on Islamic banks' profitability. Using survey and annual report data for seven years of five Pakistani Islamic banks, we analyze the effects of risk management practices after controlling various factors that determine profitability, such as internal and external bank characteristics, macroeconomic conditions, financial market structure and taxation.

The leading Islamic financial institutions have been able to grow in spite of challenging and difficult worldwide economic environment. Islamic banking assets are expected to grow to $2 trillion by 2014[3]. David Cameron, British Prime Minister during the ninth World Islamic Forum held in London recently announced £200 bn sukuk to be issued by Britain Government[4]

Globalization, informational technology revolution, unprecedented development in mathematical finance and innovation in risk management has magnified the challenges faced by banks. In fact, Islamic banks face a greater number of risks than conventional banks. These additional risks arise for various reasons such as the specific nature of financing contracts and legal requirements to ensure compliance with Shari'a principles (Khan & Ahmed, 2001). In order to mitigate these greater risks, an Islamic bank needs to allocate more resources as compared to a conventional bank. However, we believe that although greater risk mitigation may draw resources and adversely affect profitability, it is crucial for their sustenance in the long run. Islamic banks need to arm themselves with management skills and operational systems to cope with this environment in the face of rapid growth. Weak risk culture has been identified as a hindrance to sustainable growth of Islamic banks (EY, 2013).

3Ernst and Young 2013, *World Islamic Banking Competi tveness Report,* Bahrain
4Telegraph, 13/10. *Britain to become first non-Muslim country to launch sharia bond,* London

Risk management in the financial institutions is of prime concern for industry players, as well as for policy makers. Despite the well-established literature on the conventional banks, studies on the relationship between risk management practices and the Islamic banks are scarce. This gap has prompted us to conduct this study.

Islamic Banking Industry

The assets of banks and financial institutions practicing Islamic finance globally had reached an impressive US $1.3 trillion by 2011 and forecast to surpass US$ 2 trillion by 2014. Around 375 banks and financial institutions are fully dedicated to Islamic finance while over 110 conventional banks offer Islamic finance windows (EY, 2013).

Islamic banking industry in Pakistan has been expanding at a remarkable rate of over 30 percent annually for the last 5 years. With an asset base of more than Rs. 926 billion Islamic banking comprises of more than 10.1 percent share of banking as of Sept 2013 compared to an insignificant figure of 0.3 percent in 2003. In terms of deposits the share of Islamic banking industry is almost 10 percent of overall banking industry reaching Rs. 775 bn by end September 2013. At present the Islamic banking sector consists of 5 full fledged Islamic banks and 14 conventional banks having Islamic banking windows with a network of 1161 branches and presence in over 80 districts throughout the country (SBP, 13/9). A graphical representation is attached in Annexure 3.

Theoretical Framework

The risks faced by Islamic banks include market risk, credit risk, operational risk, Shari'a compliant risk, equity investment risk, rate of return risk, displaced commercial risk, which are defined in Annexure 4.

Literature Review

Few studies have been conducted to measure the link between profitability and risk management practices at Islamic Banks. A study (Ariffin & Kassim, 2012) concluded that risk management practices were positively associated with bank profitability for five Islamic banks in Malaysia. Risk management practices have been found to be adequate in a study conducted to perform differential analysis of risk management in Islamic banks in Pakistan and comparing their ROEs with conventional banks (Shaikh & Jalbani, 2008).

Another study aimed to investigate the factors which influenced the risk management practices in Islamic banks of Pakistan for the period 2006-2009 found that the size of bank has significant positive relationship with financial risks (credit and liquidity risk), whereas its relation with operational risk was negative and statistically insignificant. The capital adequacy has a negative and significant relationship with credit and operational risk, whereas it is found to be positive and significantly affected to liquidity risk. (Ahmed, et al., 2011)

Due to separate nature of risk characteristics of conventional and Islamic banking products there should be separate prudential regulations for Islamic banks (Sarker, 1999). The reason being that the characteristics of risks faced by Islamic bank give rise to a distinct asset / liability structure due to compliance with Shari'a laws, thereby necessitating greater forethought and stricter risk management practices (Khan & Ahmed, 2003). Similarly another study (Errico & Farahbaksh, 1998) also opine that while the regulators might use conventional standards for supervising Islamic banks, it must be appreciated that Islamic banks are in many ways different from conventional banks. However, they agree that minimum capital requirement should be in accordance with assets composition, which means that for uncollateralized assets the minimum capital requirement should be set at a higher level. A different view is put across by a study (Kahef, 2005) which evidences that qualitatively Islamic bank

and conventional banks face a similar credit risk; therefore similar methods for calculation of minimum equity requirement for credit risk exposure may be used for both types of banks. Islamic banks were adversely affected by the global crisis in 1998-1999, but their performance subsequently improved, indicating close linkage between the Islamic banks and other financial system (Yudistra, 2003).

Islamic banks and financial institutions in the past did not enjoy the privilege of T-bills. The cash balances carried by Islamic banks were viewed as an insurance against a distressing "run" on the bank (Abdul-Rahman, 2006). With the advent of sukuks the problem of high liquidity has been resolved to some extent.

Variables Description and Research Methodology

This section presents the research methodology, hypothesis, and modeling framework used to test the hypothesis and provides information regarding the source of data and the sample size.

Methodology

The study used survey method and gathering of time series data through published financial reports. The survey which outlined risk management practices was distributed to middle managers in Risk Management departments of the targeted banks. Interviews were also held with the respondent and departmental heads of Operations and Shari'a Compliance.

The Risk management practices were defined as Risk Policy and Environment, Risk Measurement, Risk Mitigation and Risk Monitoring. The questionnaire was designed with reference to Basel II guidelines, IFSB guidelines and SBP guidelines on risk management. The questionnaire was administered on a Likert scale of 1-5 (with 1 being 'strongly disagree' to 5 being 'strongly agree').

Analysis has been conducted in the study based on assignment of a risk score to each Islamic Bank for its risk management

function for comparison with bank profitability. The fourth variable Risk Monitoring as mentioned above was later dropped in the regression model due to lack of variability of data. Regression analysis technique was applied to study the relationship between risk management practices and financial performance. The risk management practices and the intensity of financial performances of the Islamic banks are deliberated based on descriptive statistics and frequency distributions. Augmented Dickey Fuller test was conducted to assess the robustness of the model and presence of white noise.

The responses on which the research is based may be biased by the opinion of the respondents employed by the banks who may have consciously or unconsciously overestimated the strength of their risk management practices. This might have impacted on the results of the research to some extent.

Sample

Out of the over 55 banks in Pakistan, 5 are full fledged Islamic banks which have been selected for the study. The five banks are: Meezan Bank Limited, Burj Bank, Al-Barakah, Bank Islami and Dubai Islamic Bank. The commercial banks with Islamic windows were not part of the study.

Data:

The study collected time series data through both primary and secondary methods. Secondary data was collected through annual reports from 2007 to 2013. The data for Sept 2013 was annualized where necessary to obtain the full year figures. Primary data was collected via questionnaire based survey. The questionnaire was designed to gather the risk management practices in the Islamic banks.

Hypothesis:

H_0: There is no significant impact of strength of risk management practices on profitability of Islamic Banks in Pakistan

$\mathbf{H_1}$: There is a significant impact of strength of risk management practices on profitability of Islamic Banks in Pakistan

Variables:

The dependent variables selected are measures of profitability and independent variables are risk policies and environment, risk measurement and risk mitigation, controlling for other determinants of profitability

Dependent variables:

- Profit Before Tax / Total Assets hence forth referred to as (ROA)
- Profit Before Tax / Total Equity hence forth referred to as (ROE)

Independent Variables:

The scores assigned to risk management practices were measured / regressed against profitability. The risk management practices were defined as Risk Measurement, Risk Mitigation and Risk Monitoring.

Control Variables:

Bank's internal characteristics

- Advances and Investments / Total Assets
- Number of branches

External variables

- Macroeconomic environment (GDP per capita, Interest rates)
- Financial market structure (Competition)
- Taxation

Modeling Framework:

The following Model has been constructed to measure the effect of Risk management on profitability. Three separate regressions

were run on time series data of five banks to assess the effect of these practices on performance measures:

$Y_{it} = C + R1_{it} + A_{it} + G_t + T_t + B_{it} + \varepsilon$

$Y_{it} = C + R2_{it} + A_{it} + G_t + T_t + B_{it} +$

$Y_{it} = C + R3_{it} + A_{it} + G_t + T_t + B_{it} +$

Y = Profitability (Before Tax ROA and Before Tax ROE)

R1 = Risk Policy and Environment

R2 = Risk Measurement

R3 = Risk Mitigation

A = Advances & Investments / Total Assets

B = Number of Branches

G = GDP growth rate

T = T –Bills rate

 = error term

Empirical Findings:

This section presents the descriptive statistics and the results of regression analysis. The interpretation and detailed discussion of the empirical findings are also reported in this section.

Descriptive Statistics:

In an effort to determine the risk management practices in the Islamic banks in Pakistan by using the descriptive statistics, 5-Likert scale approach was used in the questionnaire. The higher the score, greater was the strength of the respondent's agreement with the adequacy of practices implemented by their respective banks. The descriptive statistics of the time series data of five banks and their risk management practices along with other determinants of profitability are summarized below whereas the descriptive Statistics of Risk Management Practices across the Industry is attached in Annexure 3.

Table 1:

Descriptive Statistics of Consolidated Islamic Banking Industry during 2007 -2013 E

	RMP (R1, R2, R3)	Adv&Inv/TA	GDP GR	T Bills	# of Branches	ROA	ROE
Mean	4.20	68.9%	3.79	11.28	103	-0.28%	1.87%
Median	4.33	73.6%	3.70	11.50	89	0.09%	0.83%
Max	4.35	87.9%	7.20	13.10	350	2.17%	33.78%
Min	3.69	14.0%	-1.60	9.00	5	-4.66%	-25.71%
St. Dev	0.19	14.5%	2.72	1.52	-	1.73%	15.35%

Source: SBP website publications and our own analysis

According to the survey, the Risk Policy and Environment in the five Islamic banks had a mean score of 4.5 with a standard deviation of 0.14 over a period of seven years implying more or less little variation in the Board of Director's approach towards providing a risk management framework to their respective Banks. The risks that were recognized were under the radar of the Board of Directors (BOD) and objectives, policies and limits were being communicated down the line. Beyond identification, valid processes and monitoring systems were duly approved by the BOD and they were fully cognizant of the implementation as well. The gap, however, was recognized in the identification of some risks particular to Islamic banks only, essentially due the management's view of those risks being irrelevant.

Moving to the risk measurement practices, the mean score was 4.26 with a standard deviation of 0.36 suggesting risks which have been identified are being measured with little variation across the industry. The banks were using basic techniques to measure credit, market, operational risk as required by Basel II Accord and the Regulator. Gap / Duration analysis, VaR, stress testing and scenario analysis were also employed to measure the risks stated above. Some of the measurement techniques were relatively simple but the industry does also utilize more sophisticated models and processes. Furthermore, some risks which although being specific to Islamic banks have not been measured due to not generally being regarded as

significant. These include Displaced commercial risk and Equity Investment risk (IFSB Guidelines, 2005).

Table 2:

Risk Measurement techniques used by Islamic banks are as follows:

	Yes	No
Internal Credit Rating based system	✓	
VaR for market risks	✓	
VaR for operational risks		✓
Scenario Analysis	✓	
Gap / Duration Analysis	✓	
Maturity matching analysis	✓	
RAROC		✓
Stress Testing	✓	

Risk Mitigation practices have the lowest mean of 3.83 with a standard deviation of 0.12. Again, being a regulated industry the practices are more or less the same across the industry with a slight lag between the industry leader and others. Risk mitigation techniques for credit risk were most comprehensive – being the single most important risk faced by Banks. Some risks specific to Islamic banks such as Equity Investment risk and Displaced commercial risk were not taken into consideration in the framework. Furthermore, some banks were weaker in their training of employees in comparison to others. Also, it was noted that operational risk was not an independent function and was merged with internal audit in most cases, contrary to best risk management practices.

Risk monitoring practices, which was the fourth variable showed no variation across the industry and its mean was 4.5 with zero standard deviation. Banks have early warning systems and reports to monitor any deviations from acceptable limits. The banks periodically compile maturity ladder charts based on settlement dates and also continuously scrutinize gaps in cash positions. Back up of files are maintained and all banks have contingency funding plans.

Regression Results:

Using pooled regression technique, we ran the regression of the profitability on the Risk Policy and Environment, Risk Measurement, Risk Mitigation, along with control variables Advances and Investments to Total Assets, Number of Branches, GDP growth rate and Interest rates (T- Bill rates) with an aim to investigate whether these variables have significant explanatory power. ADF test was run to assess the stationarity of residuals. The graphical comparison of industry wide ROA, ROE and # of branches during 2007 -2013E and of Advances &Investments/Total Assets, T-bills, GDP growth rate, ROA and ROE represented in Annexure 3.

The estimated results of pooled regression of ROA on R1 (Risk Policy and Environment) are depicted in Table 3 below:

Table 3:

Regression of ROA on R1

Dependent Variable: ROA
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008936	0.083190	0.107416	0.9152
R1	-0.007735	0.019473	-0.397192	0.6941
ADV	0.001358	0.020039	0.067751	0.9464
GDP	0.001648	0.001126	1.463286	0.1541
TBILLS	0.000320	0.002132	0.150240	0.8816
BRANCHES	0.000121	3.70E-05	3.265825	0.0028

R-squared	0.339044	Mean dependent var	-0.002767
Adjusted R-squared	0.225085	S.D. dependent var	0.017308
S.E. of regression	0.015236	Akaike info criterion	-5.375476
Sum squared resid	0.006732	Schwarz criterion	-5.108845
Log likelihood	100.0708	F-statistic	2.975162
Durbin-Watson stat	1.357936	Prob(F-statistic)	0.027476

The estimated value of Adjusted R^2 is only 0.22 suggesting only 22% of the variation in ROA is due to the above five variables. Adjusted R^2 is on the lower side due to pooled nature of the data. R1 being the Risk Policy and Environment has a statistically insignificant and negative relationship with the profitability measure ROA. Contrary to the expectations, the evidence is not strong enough to reject the null hypothesis in this case. The negative relationship between Risk Management Policy and Environment suggests that Islamic banks invest greater resources into development of Islamic finance related processes, measures and mitigants, which adversely impact on profitability. The industry is relatively new and in its development phase. Research and development in risk management is, therefore, critical to their long term survival but currently appears to be a drag on profitability. Implementation of Basel 2 (and with Basel 3 in the pipeline) and the 2008 global financial crisis has re-focused efforts on enhancing risk management practices even in conventional set-ups, forcing them to also allocate greater resources for risk management, thereby reducing their bottom line as well to some extent.

Other variable at 5% level of significance is branch network strength only which is positively correlated with profitability, suggesting that economies of scale are playing a positive role in favour of banks with a larger branch network.

The Augmented Dickey Fuller Test was run to check the reliability of the model. The tables for the test are attached in Annex2.

The estimated value of Adjusted R^2 is 0.52 suggesting almost 52% of the variation in ROE is due to the above five variables. R1 like the relationship with ROA has a statistically insignificant negative relationship with profitability measure ROE, thus the evidence is not strong enough relationship to reject null hypothesis at 5% level of significance. The number of branches has a significant and positive relationship with ROE, more or less in line with its relationship with the other profitability measure of ROA, as shown in Table 5 above.

Table 4:

Regression of ROE on R1

Dependent Variable: ROE
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.617794	0.582195	1.061146	0.2974
R1	-0.202327	0.136281	-1.484632	0.1484
ADV	-0.100170	0.140245	-0.714250	0.4808
GDP	0.012925	0.007880	1.640221	0.1118
TBILLS	0.015310	0.014921	1.026063	0.3133
BRANCHES	0.001576	0.000259	6.082763	0.0000

R-squared	0.588232	Mean dependent var	0.018714
Adjusted R-squared	0.517238	S.D. dependent var	0.153465
S.E. of regression	0.106629	Akaike info criterion	-1.484110
Sum squared resid	0.329725	Schwarz criterion	-1.217479
Log likelihood	31.97192	F-statistic	8.285607
Durbin-Watson stat	1.558199	Prob(F-statistic)	0.000059

Table 5:

Regression of ROA on R2

Dependent Variable: ROA
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.029391	0.036926	0.795950	0.4325
R2	-0.017621	0.009011	-1.955399	0.0602
ADV	0.004121	0.018939	0.217614	0.8293
GDP	0.001641	0.001059	1.549966	0.1320
TBILLS	0.001584	0.002041	0.776114	0.4440
BRANCHES	0.000156	3.90E-05	4.009263	0.0004

R-squared	0.412861	Mean dependent var	-0.002767
Adjusted R-squared	0.311630	S.D. dependent var	0.017308
S.E. of regression	0.014360	Akaike info criterion	-5.493902
Sum squared resid	0.005980	Schwarz criterion	-5.227271
Log likelihood	102.1433	F-statistic	4.078408
Durbin-Watson stat	1.339707	Prob(F-statistic)	0.006321

The R^2 reveals that 31% of the variation in ROA can be attributed to the five variables chosen for the study. The low R^2 is due to pooled nature of the data. The variable R2 has a negative and statistically significant relationship with ROA at 10% level of significance thus rejecting the null hypothesis. Other significant variable is the number of branches. This suggests that Risk Measurement measures are closely linked to Risk Management policy and thus have a pulling down effect on profitability due to the current development stage of the Islamic Banking industry in Pakistan[5].

Table 6:

Regression of ROE on R2

Dependent Variable: ROE
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.322599	0.250207	1.289328	0.2075
R2	-0.177722	0.061060	-2.910621	0.0069
ADV	-0.071911	0.128331	-0.560354	0.5795
GDP	0.013365	0.007175	1.862859	0.0726
TBILLS	0.023197	0.013828	1.677489	0.1042
BRANCHES	0.001860	0.000264	7.044235	0.0000

R-squared	0.657105	Mean dependent var	0.018714
Adjusted R-squared	0.597985	S.D. dependent var	0.153465
S.E. of regression	0.097304	Akaike info criterion	-1.667146
Sum squared resid	0.274575	Schwarz criterion	-1.400515
Log likelihood	35.17505	F-statistic	11.11481
Durbin-Watson stat	1.738894	Prob(F-statistic)	0.000005

The R^2 reveals that 60% of the variation in ROE can be attributed to the five variables chosen for the study, which indicates a good fit of the model. The variable R2 has a negative and statistically significant relationship with ROA at 1% level of significance, thus rejecting the null hypothesis. This implies that expenditure in research

---

5- See section on Islamic banking Industry

and development of the tools employed for risk measurement are biting into the profits. Other significant variables are the number of branches at 1% significance level, while both interest rates and GDP growth rates are at 10% level of significance. As the interest rates in the market rise, the profitability of banks also increases as the rates on deposits are sticky and involve a time lag, whereas the rates on advances change almost immediately. As the GDP growth rates increase, the profitability of the bank also increases due to greater opportunities of investment and growing profitability of businesses.

Table 7:

Regression of ROA on R3

Dependent Variable: ROA
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.151691	0.080388	1.886977	0.0692
R3	-0.047756	0.020950	-2.279579	0.0302
ADV	0.003928	0.018538	0.211875	0.8337
GDP	0.001792	0.001038	1.726057	0.0950
TBILLS	0.000332	0.001844	0.179754	0.8586
BRANCHES	0.000141	3.42E-05	4.105801	0.0003

R-squared	0.436433	Mean dependent var		-0.002767
Adjusted R-squared	0.339266	S.D. dependent var		0.017308
S.E. of regression	0.014069	Akaike info criterion		-5.534878
Sum squared resid	0.005740	Schwarz criterion		-5.268247
Log likelihood	102.8604	F-statistic		4.491587
Durbin-Watson stat	1.814717	Prob(F-statistic)		0.003747

The Adjusted R^2 reveals that 34% of the variation in ROA can be attributed to the variables stated above. The Adjusted R^2 is on the lower side due to pooled data nature. The variable R3 has a negative and statistically significant relationship with ROA at 5% level of significance thus rejecting null hypothesis. Other significant variables are the number of branches at 5% level of significance and GDP growth

rate at 10% level of significance. The plausible reasons for these relationships have been explained above under Table 6.

Table 8:

Regression of ROE on R3

Dependent Variable: ROE
Method: Least Squares
Sample: 1 35
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.100345	0.578678	1.901481	0.0672
R3	-0.356549	0.150807	-2.364277	0.0250
ADV	-0.080535	0.133446	-0.603504	0.5509
GDP	0.014593	0.007475	1.952323	0.0606
TBILLS	0.009744	0.013276	0.733989	0.4688
BRANCHES	0.001638	0.000246	6.650341	0.0000
R-squared	0.628536	Mean dependent var		0.018714
Adjusted R-squared	0.564491	S.D. dependent var		0.153465
S.E. of regression	0.101277	Akaike info criterion		-1.587118
Sum squared resid	0.297451	Schwarz criterion		-1.320487
Log likelihood	33.77457	F-statistic		9.813906
Durbin-Watson stat	2.258274	Prob(F-statistic)		0.000014

The Adjusted R^2 reveals that 56% of the variation in ROE can be attributed to the five variables chosen for the study, suggesting the model is a good fit. The variable R3 has a negative and statistically significant relationship with ROA at 5% level of significance thus rejecting null hypothesis. Continuous investment in endeavors like employee training, engaging of Shari'a advisor etc. are additional burdens which risk mitigation practices place on Islamic banks. Taking initiatives to spread awareness about Islamic finance in the society also takes its toll on profitability in the short run. Once the industry reaches a maturity phase, the benefits of these practices will become evident. Other significant variables are the number of branches at 1% significance level and GDP growth rates at 10% level of significance.

The plausible reasons for these relationships have already been explained above under Table 6.

Conclusion

In this study we analyzed 5 full fledged Islamic banks in Pakistan by using descriptive statistics and pooled regression model to measure the strength of risk management practices and their effect on the profitability of these Banks. The robustness of the model was verified with Augmented Dickey Fuller test which depicted stationery residuals and presence of white noise. The study used the data over the period 2007 to 2013E. The results of the regression places risk management at crossroads with profitability in the short term. However, effective risk management practices are vital for the long term survival of Islamic banks and will distinguish the strong banks from the weaker ones in the long run. The findings of the study are:

1.   Strength of risk management practices generally has a significant negative impact on profitability of the Islamic banks in Pakistan.
2.   Within the risk management practices, risk policy and environment does not have statistically significant influence on profitability of Islamic banks in Pakistan.
3.   The strength of branch network is strongly positively associated with the profitability of Islamic banks in Pakistan.
4.   Growth in the economy and increase in interest rates generally lead to greater profitability of the Islamic banks in Pakistan, and finally:
5.   Advances and investments with respect to profitability depicted insignificant relationship, which may be attributed to high Non performing financing of certain banks and low yield on GOP ijara sukuks

Given that the industry is well- regulated by the Central Bank, there is little variability in procedures of the subjects of study. Nevertheless, risk management framework of the industry is in an

evolutionary phase. Therefore, a few risk types considered insignificant by the Islamic Banks, were not incorporated in the risk management framework. Equity Investment risk – because mostly banks are not directly investing equity with their clients; Displaced Commercial Risk – because the risk framework is still under development and to date has not affected the profitability of Islamic banks significantly.

The risk management practices have strengthened over the period of seven years under study, due to compliance with Basel II requirements and greater supervision by SBP. This has resulted in more research and investment, both in terms of time and money, which has subsequently caused a negative relationship between risk management practices and profitability.

The current risk management practices must evolve as the business model of Islamic banks is developing. Islamic financial industry has so far concentrated on trade based modes and shied away from participatory modes of financing. With SBP taking initiatives to encourage participatory modes and Islamic banks inching from conformity to differentiation (from their conventional counterparts), risk management framework demands greater research and investment to find solutions for managing the unique risks faced by Islamic Financial Institutions.

Given its inception stage, demand for product innovation and profitability constraints of Islamic Banks, the risk management practices which entail huge investment and focus, serve as a challenge to the Islamic Banks and face the risk of taking the back seat.

A firmer opinion can be formed on this subject by further deliberations on Risk Manuals of Banks with a reasonable level of Test of Controls on Risk Management, and reports by independent assurance firms or SBP could be referred to achieve a reasonable assurance as to risk management procedures of the sample.

References

Abdul-Rahman, Y., 2006. Islamic instruments for managing liquidity. *International Journal of Islamic Financial Services,* 1(1).

Ahmed, N., Akhtar, M. F. & Usman, M., 2011. Risk Management Practices and Islamic banks: An Empirical Investigation from Pakistan. *Interdisciplinary Journal of Research in Business,* 1(6), pp. 50-57.

Akkizidis, I. & Khandelwal, S., 2008. *Financial Risk Management for Islamic Banking and Finance.* First ed. s.l.:Palgrave Macmillan.

Al-Tamimi, H. & Al-Mazrooei, M., 2007. Banks' risk management: A comparison study of UAE national and foreign banks. *The Journal of Risk Finance,* 8(4), pp. 394-409.

Angbazo, 1997. Commercial Bank Net Interest Margin, Default Risk, Interest Rate Risk and Off balance Sheet Banking. *Journal of Banking and Finance,* Volume 21, pp. 55-58.

Berger, A. & Udell, G., 1994. *Did Risk-Based Capital Allocate Bank Credit and Cause a 'Credit Crunch' in the U.S.?,* s.l.: Journal of Money Credit and banking.

Brinkmann, E. & Horvitz, P., 1995. Risk-based capital standards and the credit crunch. *Money, Credit and Banking,* 27(3), p. 848–863.

Drzik, J., 2005 . New Directions in Rsik Management. *Journal of Financial Econometrics ,* Volume 1, pp. 26-38.

Errico, L. & Farahbaksh, M., 1998. *Islamic Banking: Issues & Prudential Regulations and Supervision.* s.l.:IMF Working paper WP98/30.

EY, 2013. *World Islamic Banking Competitveness Report,* Bahrain: EY.

Fisher, I., 1933. The debt-deflation theory of great depressions. *Econometrica ,* Volume L, pp. 337-357.

Furlong, F., 1992. *Economic Review,* s.l.: Fed Reserve bank of san Francisco.

Ghamidi, J. A., 2007. *Meezan.* Lahore : Dar-ul-Ishraq.

Haberler, G., 1937. *Prosperity and Depression.* London : George Ellen & Erwin .

Hakim, S. & Neami, S., 2001. *Performance & credit risk in Banking: A comparative study of Egypt and Lebanon.* s.l.:ERF, Working paper series 0137.

IFSB Guidelines, 2005. s.l.:s.n.

Kahef, M., 2005. *Basel II: Implications for Islamic Banking.* Jakarta, 6th International Conference on Islamic Economics and Banking.

Kahef, M., 2006. *Innovation and Risk Management in Islamic Finance.* s.l., 7th Harvard International Forum on Islamic Finance.

Khan & Ahmed, 2003. Risk Management in Islamic Banks. *RTI publication.*

Khan, T. & Ahmed, H., 2001. Risk Management: An Analysis of Issues in Islamic Financial Industry. *IRTI/IDB,* Occasional Paper, No. 5.(2001).

Newman, Ridenour, Newman & DeMarco, 2003. *A Typology of research purposes and its relationship to mixed methods.* s.l.:Pearson Education Inc.

Nocco., B. a. S. R., 2006 . *Enterprise Risk Management: Theory and Practice.* Ohio: Ohio State University Working Paper .

Annexure 1

Risks as defined in IFSB Guidelines 2005

Market risk is defined as the risk of loss positions due to movements in market prices i.e. fluctuations in values in tradable, marketable or leasable assets (including sukūk) and individual portfolios (for example restricted investment accounts).

Credit risk is the risk that counterparty will fail to meet its obligations in a timely manner and fully according to the terms of the agreement.

Liquidity risk arises due to insufficient liquidity for normal operating requirements reducing the ability of the banks to meet its liabilities when these fall due, without incurring unacceptable costs or losses.

Operational risk is the risk of direct or indirect loss resulting from inadequate or failed processes, people or technology or from external events.

Shari'a compliance risk is the risk of loss in income if the transaction does not meet the criteria laid down by Shari'a or the risk of loss of reputation if it is perceived as weak in Shari'a compliance.

Equity Investment risk refers to the risk arising from entering into partnership for the purpose of participating in a particular business activity in which the Islamic Bank shares the business risk.

Rate of Return risk is the exposure of Islamic banks to risk of returns on assets in the context of their overall balance sheet exposures. An increase in benchmark rates may result in banks having expectations of a higher rate of return. Rate of return risk differs from interest rate risk in that Islamic Banks are concerned with the result of their investment activities at the end of the investment-holding period. Such results cannot be pre-determined exactly.

Displaced Commercial risk is a consequence of rate of return risk. Islamic banks may be under market pressure to pay a return that exceeds the rate that has been earned on assets financed by depositors/ investors when the return on assets is under-performing as compared with competitors' rates. Islamic Banks may decide to waive their rights to part or their entire Mudārib share of profits in order to satisfy and retain their fund providers and dissuade them from withdrawing their

funds. Displaced commercial risk derives from competitive pressures on Banks to attract and retain investors (fund providers).

Annexure 2

Table 1:

Augmented Dickey-Fuller Test Results for Regression of ROA on R1

Null Hypothesis: E2 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		**-4.100215**	**0.0144**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

Table 2:

Augmented Dickey-Fuller Test Results for Regression of ROE on R1

Null Hypothesis: E3 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-4.437366**	**0.0064**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Table 3:

Augmented Dickey-Fuller Test Results ROA on R2

Null Hypothesis: E4 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-4.013023**	**0.0177**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Table 4:
Augmented Dickey-Fuller Test Results for Regression of ROE on R2

Null Hypothesis: E1 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-4.875374**	**0.0021**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Table 5:
Augmented Dickey-Fuller Test Results For Regression of ROA on R3

Null Hypothesis: E5 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-5.336734**	**0.0006**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Table 6:
Augmented Dickey-Fuller Test Results for Regression of ROE on R3
Null Hypothesis: E6 has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-6.955462**	**0.0000**
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Annexure 3

Figure 1:

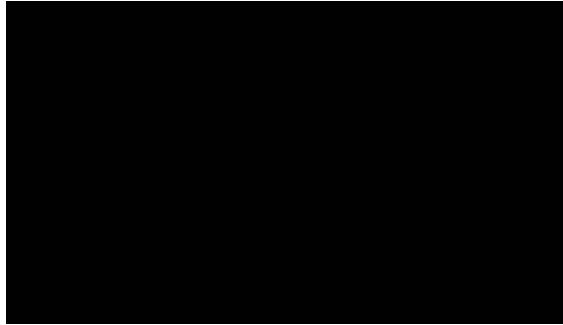*Growth of market share for Islamic Banks during the period 2007 to 2012*

Figure 2:

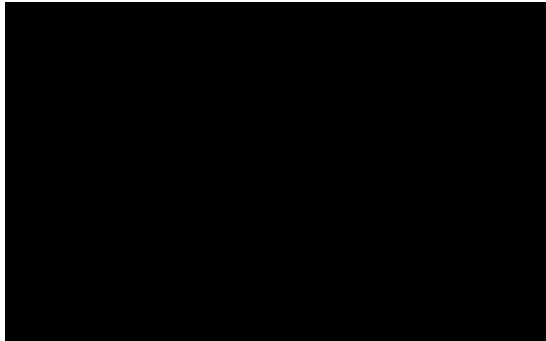*Graphical representation of Advances &Investments/Total Assets, T-bills, GDP growth rate, ROA and ROE*

Table 7:

Descriptive Statistics of Risk Management Practices across the Industry

	R1	R2	R3
Mean	4.50	4.26	3.83
Median	4.57	4.50	3.93
Max	4.57	4.56	3.93
Min	4.00	3.25	3.64
St. Dev	0.14	0.36	0.12