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Full Length Research Paper

Financial stability of Islamic banking in Pakistan: An empirical study

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The relative financial strength of Islamic banks was assessed empirically based on evidence covering individual Islamic and conventional banks in Pakistani banking system with a substantial presence of Islamic banking. Industry specific, bank specific, country specific and macro-economic variables were pooled for pair-wise and regression analysis. We found that (i) small Islamic banks tend to be financially stronger than small conventional banks; (ii) large conventional banks tend to be financially stronger than large Islamic banks; (iii) small Islamic banks tend to be financially stronger than large Islamic banks, which may reflect challenges of credit risk management in large Islamic banks; and (iv) the market share of Islamic banks had a significant impact on the financial strength of other banks.

Key words: Islamic banking, conventional banking, financial stability.

INTRODUCTION

The banks offering Islamic financial services are presenting a remarkable and growing share in financial systems of a number of countries. Three decades ago, with the launching of Islamic banking, the number and approach to Islamic financial institutions have risen from one institution in one country in 1975 to more than 300 institutions, operating in more than 75 countries, including non-Islamic countries (Cihak et al., 2007). The banking system in Sudan and Iran is completely based on the Islamic financial principles. Many Islamic banks are entering the United States and Europe. The worldwide Islamic banks total assets are estimated at about $ 250 billion and are expected to grow by about 15% per year (Choong et al., 2006).

Due to increased role of Islamic finance, the literature on Islamic banking and financial systems has grown. A large part of literature discusses the comparison of instruments used in Islamic and conventional banking and focuses the regulatory and supervisory challenges related to Islamic banking system (Bourkhis et al., 2010). The work on empirical analysis of financial stability of Islamic banks is relatively little. Many papers talk about the risks involved in Islamic financial system, but only in theoretical terms, while the empirical papers discuss the issues related to efficiency. The Islamic banking financial stability has not yet been analyzed in dependable and empirical approach. A lot of work requires attention at world, as well as local level and especially in Islamic countries in this regard.

This paper attempts to fill the gap in the empirical literature on Islamic banking and stability. To our knowledge, it would be the first paper to provide an empirical analysis of financial stability of Islamic banking in Pakistan.

Research objectives

The research objectives were to find out the answers to the following questions if:

1. Small Islamic banks tend to be financially stronger than small conventional banks?
2. Large conventional banks tend to be financially stronger than large Islamic banks?
3. Small Islamic banks tend to be financially stronger than large Islamic banks?

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4. The market share of Islamic banks has any significant impact on the financial strength of other banks?

LITERATURE REVIEW

The remarkable research work has been done by Muslim as well as non-Muslim researchers on the profitability and performance of Islamic banking during the last two decades. The volume of literature on Islamic banking is rapidly expanding in different dimensions but many issues are still required to be resolved. Islamic banking is a new but fast developing industry; sometimes, researchers face problem of scarcity of relevant data. Further, we have intended to review some of the leading researches on Islamic banking. We review what the prior researches say about stability and performance of Islamic banking.

Discussing the external determinants of performance of Islamic banks, Haron (1996) argues that proposed conventional banking theory of, bigger the market, more profit the banks earn; is not necessarily true for the Islamic banks because, Islamic banks perform well due to efficient utilization of capital in short-term financing. The businesses operating in a competitive environment, if they wish to remain in market, must be alert to the changes and introduce innovative strategies and policies. In the same way, Islamic banks are better managed in a competitive market than those in monopolistic markets. But it is opposite for the conventional banks. Conventional banks perform better in monopolistic environment because competitive environment engages them in ethical issues and adverse selection that result into less profitability and high rate of default.

The performance of Islamic banking in eight Middle East countries is measured by Bashir (2000). In his study, the bank characteristics are analyzed, that influence the profitability of Islamic banks by controlling economic and financial structure measures. To analyze performance of fourteen Islamic banks from 8 countries (Egypt, Jordan, Kuwait, Malaysia, Qatar, Sudan, Turkey and U.A.E.) from 1993 to 1998, return on assets (ROA), return on equity (ROE), non-interest margin (NIM) and profit before tax (PBT) are used as performance indicators. Internal and external variables are also used. The size of bank, loans, ownership, leverage, advances and overheads are used as internal variables in regression. Regulations, financial market and macroeconomic factors are used as external variables. The results of the study confirm the findings of previous studies, that Islamic banks' profitability is directly related to the equity and loans. As a result, Islamic banking will be more profitable if loans and equity are high and loan to asset will also be high if leverage is high. The findings also indicate that favorable macroeconomic conditions are also positively related to the profitability of Islamic banks.

Another study regarding the profitability of Islamic banking is conducted by Bashir and Hassan (2004). Adding up the previous study of Bashir (2000), this study examines the determinants of Islamic banking from 1994 to 2001 of 21 countries. Profitability indicators including, non interest income, profit before tax (PBT), total assets (TA), return on assets (ROA), return on equity (ROE), internal and external characteristics and macroeconomic indicators of countries are used to analyze profitability of banks. Non- interest income of a bank means the bank service charges, bank fee and foreign exchange. The findings by the study indicate that loans and profitability have inverse relationship but capital and profitability have the positive relationship. Another important finding is that there is negative relationship between total assets and profitability, that means the banks having less total assets (small banks) are more profitable than the banks having large total assets (large banks). There is no impact on profitability of Islamic banks due to inflation, and overhead expenses also have a positive relationship with profitability. The findings also indicate that, as compared to conventional banks, the Islamic banks have better capital to assets ratio, so the Islamic banks are well capitalized. The comparative study of Islamic banking and conventional banking regarding growth is conducted by Iqbal (2004). Ratio analysis methodology is used to measure the growth of Islamic and conventional banks. The financial data from 1990 to 1998 of 23 banks is used for comparison. The ratios include liquidity ratios, development ratios, profitability ratios, capital to asset ratio, cost to income ratio and return on equity ratio. Findings indicate that return on assets ratio for Islamic banks are 2.3, while it is 1.35 for conventional banks. Return on equity ratio for Islamic banks is 22.6 and for conventional banks it is 15%. The depositors of conventional banks are guaranteed for their principal investments and they bear less risk as compare to the depositors of Islamic banks. So, the Islamic banks' depositors expect higher rate of return to bear extra risk.

The study regarding Gulf Corporation Council (GCC) countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates) by Alkassim (2005) finds that higher capital ratio supports the profitability of Islamic banks. For conventional banks, deposits have direct relation but for Islamic banks deposits have negative relation with profitability of banks. But the advances have positive relation with the profitability of both Islamic and conventional banks.

Talking about the stability of Islamic banks, Cihak and Hesse (2008) in cross-country empirical study on Islamic banking stability analyze 20 banking systems of Bahrain, Bangladesh, Brunei, Egypt, Gambia, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Mauritania, Pakistan, Qatar, Saudi Arabia, Sudan, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen; having 520 observations for 77 Islamic banks and 3,248 observations for 397 conventional banks from 1993 to 2004. In this study, the impact of Islamic banks on financial stability is measured. Z-score is used as a measuring tool for stability of banks. The findings of study indicate that; Small Islamic

Table 1. List of banks operating in Pakistan.

Number	Type of banks	Number of banks
1	Public sector banks	4
2	Specialized banks	4
3	Private banks	20
4	Islamic banks	5
5	Foreign banks	7
6	Micro finance banks	7
7	Development finance institutions	8
	Total	55

Source: State Bank of Pakistan, 2010.

banks tend to be financially stronger than small conventional banks. Z-score for small Islamic banks is 25.00 and for small conventional banks, it is 17.20. Large conventional banks tend to be financially stronger than large Islamic banks. Z-score for large conventional banks is 19.50 and for large Islamic banks it is 12.90. Small Islamic banks tend to be financially stronger than large Islamic banks.

The important point is the distinction between the low stability in large Islamic banks relatively high stability in small Islamic banks. The results show that Islamic banks are relatively less stable while operating on a large scale and are more stable while operating on small scale. Possible explanation for the aforementioned findings by Cihak and Hesse (2008) is that it is significantly more complex for Islamic banks to adjust credit risk system as they become bigger. Another possibility is that large banks do more business on profit-and-loss sharing (PLS) basis while small banks focus on low risk investments and fee income.

Bourkhis et al. (2010) also measures the Islamic banking stability following the model adopted by Cihak and Hesse (2008). The authors use the sample of 407 banks of 19 countries from 1993 to 2009 to investigate the Islamic banks resistance than their conventional peers to the 2007 to 2008 financial crisis. Secondly, to find whether the presence of Islamic banks in conventional banking system enhance the overall systematic stability, they calculate the Islamic banking stability under three sub periods; from 1993 to 2006 (before crisis), 2007 to 2008 (during crisis) and 2009 (after crisis).

The similar variables are used in this study. It finds that before the financial crisis, Islamic banks were stronger than conventional banks. During crisis, only large Islamic banks were stable than other banks. However, Islamic banks become less stable in 2009 after the crisis passed through. Contradicting the findings by Cihak and Hesse (2008), this study confirms that presence of large Islamic banks has a positive impact on soundness of large conventional banks. They also suggest that the countries should encourage the entrance of large Islamic banks to their banking system if they want to enhance the banking system stability.

Hypotheses

The following hypotheses have been generated on the basis of prior discussion:

H_0: There is no significant impact on the financial stability of other banks due to market share of Islamic banks.
H_1: There is significant impact on the financial stability of other banks due to market share of Islamic

METHODOLOGY

To measure the bank risk and soundness, Z-score has become a very popular tool (Maechler et al., 2005; Hesse and Cihak, 2008). In our study, dependent variable is z-score to measure the individual bank risk. Z-score is inversely related to the probability of bank insolvency. Regressions of z-scores as a function of numbers of variables are used for this purpose. Cihak and Hesse (2008), in International Monetary Fund working paper, used regressions of z-scores as a function of a number of variables to test whether Islamic banks are less or more stable than conventional banks. Modified model is used to test Pakistan's conventional and Islamic banking systems, as follows:

$$Z_{i,\,t} = \alpha + \beta B_{i,\,t} + \gamma I_t + \Sigma\delta_s T_s + \Sigma\Phi_s T_s I_t + \Sigma\varphi_s B_{i,t} T_s + \acute{\omega} M_t + \Sigma\lambda_t C_t + \Sigma\pi_t D_{t-1} + \varepsilon_{i,t} \quad \text{.....(i)}$$

In equation (i), dependent variable is z-score $Z_{i,\,t}$ for bank i at time t; $B_{i,\,t}$ is a vector of bank-specific variables; I_t contains time-varying industry-specific variables; T_s and $T_s\, I_t$ are the type of banks and the interaction between the type and some of the industry- specific variables; M_t C_t and D_t are vectors of macroeconomic variables, country specific variables and yearly dummy variables respectively and $\varepsilon_{i,\,t}$ is the residual.

There are 55 banks operating in Pakistan and distributed in 7 categories by the State Bank of Pakistan. Table 1 shows the categories of banks specified by State Bank of Pakistan. These 55 banks include 5 Islamic banks, whereas 1 foreign Islamic bank is operating in Pakistan. So, a total 6 Islamic banks and 20 conventional banks are operating in Pakistan. Banks are rated in Pakistan by credit rating agencies, Pakistan Credit Rating Agency Limited (PACRA) and a joint venture of Japan Credit Rating Agency Limited (JCR) and Vital Information Services Private Limited (VIS) (JCR-VIS). As per credit rating of January 2011, a total of 10 top rated conventional banks are selected out of 20. These selected banks would represent the conventional banking sector. Table 2 shows the growth trends in total assets of banks in Pakistan.

Table 2. Trend in total assets of Pakistani banks.

Banks	2005	2006	2007	2008	2009	2010
	(Rupees in billions)					
Public sector conventional banks	724	836	1,036	1,042	1,230	1,321
Local private banks	2,483	3,102	3,836	4,220	4,905	5,073
Foreign banks	339	224	173	234	241	249
Specialized banks	113	120	127	130	140	139
All banks	3,659	4,282	5,172	5,626	6,516	6,782

Source: State Bank of Pakistan, 2010.

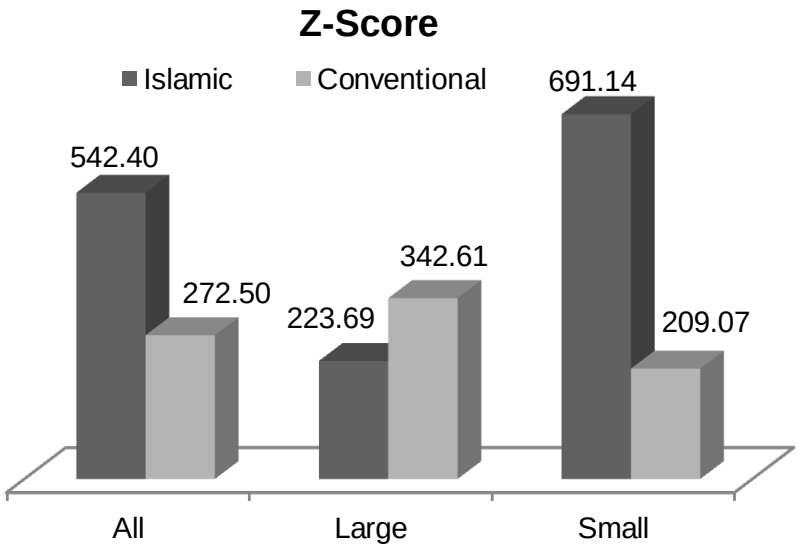

Figure 1. Comparison of Z-score.

As bank size is an important factor in most of the existing papers on banking performance and stability, we have subdivided banks into large Islamic and conventional banks and small Islamic and conventional banks, based upon average of total assets of conventional banking and Islamic banking sectors, as the cut-off point between small and large banks for pair-wise comparisons of z-scores of these various subgroups. The conventional banks having total assets more than Rs. 399.27 billions are large conventional banks and the rest are small conventional banks. Whereas, Islamic banks having total assets more than Rs. 42.66 billions are considered as large Islamic banks and the others are small Islamic banks.

The regression includes number of other variables, both at individual bank level as well as at the country level. Bank asset size, loans to assets and cost to income ratios are included, in order to control the bank level differences in size, cost efficiency and assets composition of banks. A measure of income diversity, followed by Leaven and Levine (2005) and Cihak and Hesse (2008) is also used in order to control differences in bank income structure. This variable measures how much the bank income is diversified from traditional lending activities to other activities. As per Cihak and Hesse (2008), the sum of positive and negative income flows associated with profit and loss arrangements, is used for the case of Islamic banks. These control variables are important due to the differences in working concepts of conventional and Islamic banking systems.

Three macroeconomic variables including real GDP growth rate, inflation rate and exchange rate depreciation are included to adjust the impact of macroeconomic cycle at country level. Herfindahl-Hirschman index (HHI) (the sum of squared market share in terms of total assets of banks) is used to investigate the impact of market concentration on the financial stability. To account for the impact of governance on banking stability, the average of six governance indicators compiled by Kaufmann et al. (2005), including accountability, political stability, Government effectiveness, regulatory quality, rule of law and control of corruption are used in our study (Appendix 1). At country level, the governance indicators might have an effect on banking risk.

RESULTS

Pair-wise analysis

Z-score

Figure 1 explained the pair-wise comparison of Z-score between Islamic and conventional banks. Preliminary Z-score analysis proved that Islamic banks were 49.76% more financially stronger than conventional banks as a whole, while large conventional banks were 53.16% stronger than large Islamic banks. As we talk about the

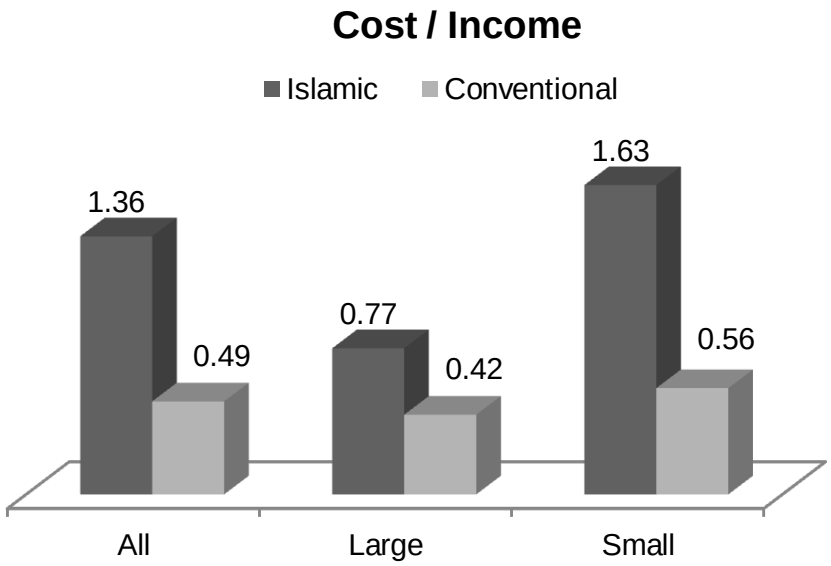

Figure 2. Comparison of cost to income ratio.

Table 3. Summary of the sample's statistics (averages across the banks in the respective category).

Parameter	All banks		Large banks		Small banks	
	Islamic	Conventional	Islamic	Conventional	Islamic	Conventional
No. of banks	6	10	1	4	5	6
Z-score	542.40	272.50	223.69	342.61	691.14	209.07
Cost to income	1.36	0.49	0.77	0.42	1.63	0.56
Loan to assets	0.44	0.55	0.49	0.55	0.42	0.55
Income diversity	0.34	0.48	0.34	0.39	0.35	0.56
Total assets (Rs. in bl.)	42.66	399.27	124.18	592.08	26.36	270.73

Source: Authors' calculations based on financial data of banks.

small banks, small Islamic banks were 69.75% stronger than small conventional banks and small Islamic banks were 208.96% stable than large Islamic banks. Therefore, our objectives have been confirmed. The results also confirmed the findings by Cihak et al. (2008) and Bourkhis et al. (2010).

Cost to income ratio

Figure 2 showed the comparison of cost to income ratio between Islamic and conventional banks. As cost to income ratio shows the efficiency of the banks (Bourkhis et al., 2010), by analyzing the results, conventional banks were found more efficient than Islamic banks (63.82%). Large conventional banks (0.42) were 45.27% and small conventional banks (0.56) were 65.96% efficient than large Islamic (0.77) and small Islamic banks (1.63) respectively. This confirmed that conventional banks got more income by spending less. Results in Table 3 showed that small Islamic banks were more financially stable than large Islamic banks but in efficiency they were in adverse situation. These results were in line with the part of the literature on efficiency in which Mokhtar et al. (2006) find that Islamic banks are less efficient than conventional banks in Malaysia. Cihak and Hesse (2008) also find that conventional banks are more efficient than Islamic bank worldwide but this gap is decreasing overtime.

Loans to assets ratio

Figure 3 mentioned results regarding loans to assets ratio of Islamic and conventional banks. Islamic banks had lesser loans to assets ratio than conventional banks. Large conventional banks had 12.48% more ratio than large Islamic banks while, small conventional banks had 30.16% more ratio than small Islamic banks. This comparison also confirmed that conventional banks take more risk than Islamic banks at both, large and small levels. These results

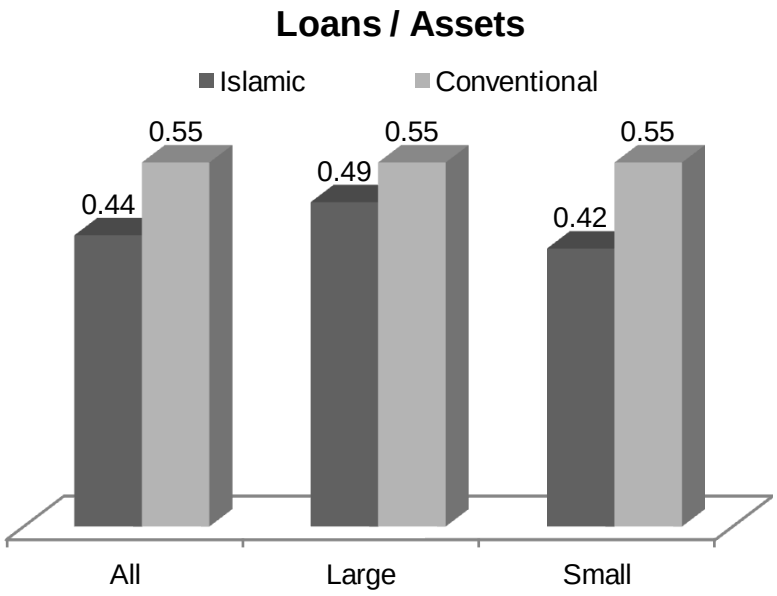

Figure 3. Comparison of loans to asset ratio.

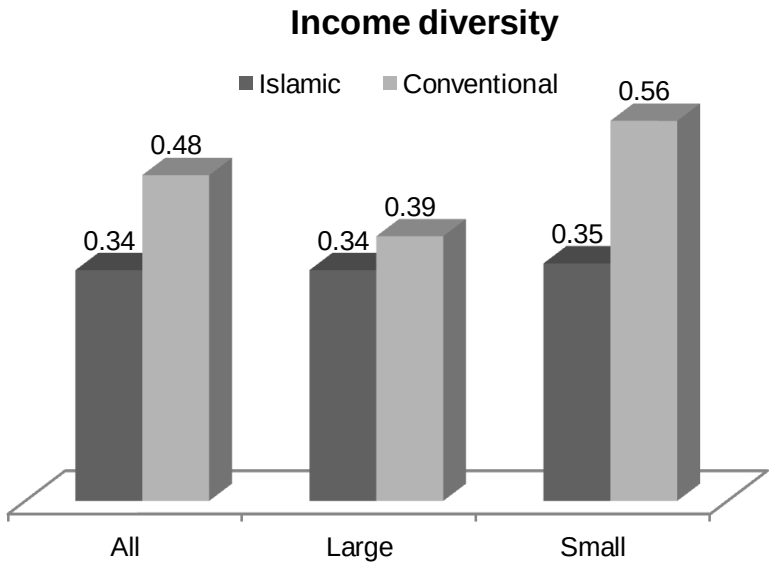

Figure 4. Comparison of income diversity.

were contradicting to the findings of Cihak and Hesse (2008). In their study, they find that Islamic banks have higher loan to asset ratio than conventional banks.

Income diversity

Income diversity comparison in Figure 4 showed that conventional banks had more diversified income than Islamic banks. The Islamic banks whether large or small got same income diversity ratio. This reflects the fact that Islamic banks have to be careful regarding income due to Islamic laws and restrictions (Cihak et al., 2008).

Regression analysis

The regression results (Table 4) confirmed the pair-wise results of Z-score that stability of Islamic banks decrease with the increase in size (see total assets in 5 and 8) and small Islamic banks were more stable than small conventional banks (total assets in 8 and 9). Large

Table 4. Regression results (ordinary least squares) dependent variable Z-score.

Variable	All (1)	All (2)	All (3)	Large (4)	Large (5)	Large (6)	Small (7)	Small (8)	Small (9)
Total assets	(0.020) 2.418	(0.612) 0.530	(0.016) 2.571	(0.053) -2.145	(0.907) -0.146	(0.314) 1.075	(0.881) -0.152	(0.384) 1.45	(0.829) 0.221
Loans /Asset	(0.015) -2.535	(0.797) 0.267	(0.102) -1.689	(0.375) 0.922	(0.784) 0.353	(0.195) 1.413	(0.072) -1.892	(0.463)1.13	(0.863) -0.176
Cost / Income	(0.033) 2.200	(0.580) 0.580	(0.257) -1.156	(0.085) 1.879	(0.996) -0.006	(0.012)3.229	(0.046) 2.121	(0.408) 1.34	(0.599) -0.542
Income diversity	(0.264) -1.131	(0.385) -0.927	(0.646) 0.465	(0.809) 0.247	(0.945) -0.086	(0.351) -0.991	(0.652) -0.458	(0.396) -1.4	(0.900) -0.129
HHI	(0.016) 2.494	(0.541) 0.642	(0.045) 2.097	(0.290) -1.107	(0.659) -0.594	(0.023) -2.810	(0.042) 2.168	(0.304) 1.93	(0.004) 3.617
Islamic bank	(0.337)			(0.023)			(0.911)		
Dummy	0.970			-2.595			0.114		
HHI*Islamic	(0.009)	(0.434)	(0.000)	(0.268)		(0.247)	(0.030)	(0.175)	
Bank dummy	-2.711	-0.829	-3.975	1.161		1.250	-2.332	-3.54	
Income diversity	(0.421)	(0.993)	(0.668)	(0.794)		(0.680)	(0.876)	(0.214)	(0.262)
*Islamic dummy	0.812	-0.009	0.434	0.266		0.427	0.158	-2.86	1.182
GDP growth	(0.010)	(0.269)					(0.185)	(0.428)	
Rate	2.673	1.200					-1.371	1.26	
Inflation rate	(0.010) -2.685	(0.271) -1.195	(0.173) -1.397	(0.131) 1.621		(0.998) 0.002	(0.170) 1.422	(0.516)-0.95	(0.602)-0.537
Exchange rate	(0.010)	(0.271)	(0.996)	(0.765)		(0.225)	(0.239)	(0.44)	(0.515)
Depreciation	2.672	1.194	-0.005	-0.306		-1.314	-1.211	1.21	0.673
Governance	(0.009) -2.721	(0.301) -1.116							
2007 dummy	(0.088) -1.743	(0.694) 0.410	(0.291) -1.075	(0.126) 1.643		(0.910) 0.117	(0.131) -1.570	(0.886) -0.18	(0.814) 0.241
2008 dummy	(0.917) -0.105	(0.356) 0.988		(0.752) -0.323			(0.033) -2.288	(0.407) -1.35	
2009 dummy	(0.876) -0.158	(0.412) 0.873		(0.267) -1.164			(0.032) -2.304	(0.255)-2.36	
Constant	(0.007) 2.812	(0.330) 1.047	(0.049) 2.06	(0.321)-1.036	(0.926) 0.117	(0.268) -1.191	(0.114) 1.649	(0.449) -1.17	(0.711) 0.380
R-square	0.685	0.831	0.595	0.678	0.853	0.827	0.799	0.9947	0.837

P values in parentheses, significant at 5%.

conventional banks were stronger than large Islamic banks (total assets in 5 and 6).

As HHI acted as an indicator of market share of the bank in a system; the interaction of HHI with Islamic bank dummy showed the impact of Islamic banks' market share on the other banks. The results confirmed that presence of Islamic banks had very strong significant impact on the stability of other banks (specifications (1), (3) and (7) in Table 4). We therefore rejected the null hypothesis and confirmed that presence of Islamic banks had a significant impact on financial stability of other banks.

Concerned to the bank specific variables, loan to asset ratio did not appear significant in all regressions, except (1). It confirmed that bank stability decreased with increase in loan to asset ratio. Cost to income ratio was significant at 5% confidence level in large conventional banks. It again confirmed the pair-wire comparison that large conventional banks were more efficient than the others. Income diversity did not appear significant in all regressions but it had persistent negative values in small banks.

GDP growth rate and exchange rate depreciation had significant positive impact on the financial stability of all banks. Financial stability of banks was negatively affected by the inflation and governance. These factors must be controlled in the country to have a positive impact on financial stability of the banking sector of Pakistan.

SUMMARY AND CONCLUSION

In this study, we have attempted to empirically

answer the questions whether: i) small Islamic banks tend to be financially stronger than small conventional banks? ii) Large conventional banks tend to be financially stronger than large Islamic banks? iii) Small Islamic banks tend to be financially stronger than large Islamic banks? iv) The market share of Islamic banks has any significant impact on the financial strength of other banks?

To answer these questions we used z-score and econometric model similar to that of Cihak and Hesse (2008). We used the annual financial data for 2006 to 2009 of all 6 Islamic banks operating in Pakistan and top 10 conventional banks ranked by credit rating agencies. For analysis, Industry specific variables (Herfindahl-Hirschman index), bank specific variables (size of bank, loan to asset ratio, cost to income ratio and income diversity), macro-economic variables (GDP growth rate, inflation rate and exchange rate depreciation) and country specific variables (accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption compiled by (Kaufmann et al., 2005) were used in study. To conduct the pair-wise comparison, banks were divided into small and large banks based upon the average of total assets of the sectors. The main findings from the pair-wise comparison of study are that small Islamic banks tend to be stronger than small conventional and large Islamic banks. Large Islamic banks tend to be stronger than large conventional banks. Large conventional banks are more efficient than the other banks. Islamic banks have lower loans to assets ratio. It shows the trend of low risk and confined investment of Islamic banks. Conventional banks have more diversified income than Islamic banks. The Islamic banks whether large or small have same income diversity ratio. This reflects the fact that Islamic banks have to be careful regarding income due to Islamic laws and restrictions.

These results are confirmed in regression analysis. Regression analysis also indicated that DGP growth rate and exchange rate depreciation have positive relationship with banks' stability and Government of Pakistan should take proactive measures to minimize the inflation and improve the governance (country specific variables). We also examined the impact of a bigger presence of Islamic banks on the stability of other banks in financial system of Pakistan. We found that the impact is highly significant.

LIMITATIONS AND FUTURE STUDIES

The sample size for Islamic banks is very small. There are only 6 Islamic banks operating in Pakistan and two of them; Dawood Islamic Bank Limited and Emirates Global Islamic bank started operating activities in year 2007. The previous financial statements of many commercial banks are not available on their respective web sites. The insufficient data and small sample size may seriously affect the reliability of tests. However, maximum available data is used in study. The gap between low stability in large Islamic banks and high stability in small Islamic banks is particularly interesting. It proposes that Islamic banks relatively has less probability of default when operating on a small scale and have more probability of default when operating on a large scale. This gap must be investigated and filled in future studies.

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Appendix 1. Variables list.

Variable	Description	Source
Z-score	Defined as $Z = (k + \mu) / \sigma$ where k is equity capital and reserves as percent of assets. μ indicates the average return as percentage of assets and σ is the standard deviation of return on assets, used as proxy for return volatility	Authors' calculations based on financial statements of banks
Total assets	Total assets of a bank (Rs. In billions)	Financial statements of banks
Loans to assets	Ratio of loans to assets (percent)	Financial statements of banks
Cost to income	Ratio of cost to income (percent)	Financial statements of banks
Income diversity	$1-\left[\frac{\text{(Net Interest Income-Other Operating Income}}{\text{Total Operating Income}}\right]$	Financial statements of banks
Herfindahl-Hirschman index (HHI)	Sum of squared market shares of banks in the system	Financial statements of banks
Islamic banks Dummy	Equals 1 for Islamic banks and 0 otherwise	
Income diversity*Islamic bank dummy	Interaction of income diversity and Islamic bank dummy	
HHI*Islamic bank dummy	Interaction of Herfindahl-Hirschman index and Islamic bank dummy.	
GDP growth rate	Real gross domestic product rate of Pakistan	Retrieved from World Bank database for Pakistan
Inflation rate	Inflation rate in Pakistan.	Retrieved from World Bank database for Pakistan
Exchange rate depreciation	Year to year change in exchange rate, Pakistani Rupees per United States dollars (percent)	Retrieved from World Bank database for Pakistan
Governance	Average of the six governance measures accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.	Retrieved from World Bank database for Pakistan