Financial Stability of Islamic Banks: An Empirical Evidence from Bangladesh

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Abstract

This paper examines the financial stability of eight (8) full-fledged Islamic banks in Bangladesh for the period of 2010-2017 by using the technique of Z-score, along with different financial ratios such as NPF ratio, IDR ratio, and liquidity ratio that are widely used to access the financial stability of Islamic banks. The relevant data are collected from published annual reports of these Islamic banks. The finding of the paper reveals that most of the Islamic banks have lower Z-score in recent years, thus suggesting that Islamic banks at present are not on the whole financially stable. The results of the study suggest that Islamic banks in Bangladesh are now experiencing higher IDR ratio which indicates that these banks are making excessive financing. Although, the NPF ratios for some Islamic banks are decreasing but the pace of this decrease is very slow.

Keywords: Financial Stability, Islamic banks, Z-score

1. Introduction

From the origin of *Shariah*-based banking and financing in mid-1970s, Islamic banking and finance is now increasingly growing all over the world. The main differences between conventional banking and Islamic banking is that conventional banks permit interest receiving against their loans or advances whereas, Islamic banks are prohibited to involve in interest in their transactions. In line with the requirements of the *Shariah*, banks are permitted only to utilize their deposits by providing investments through different *Shariah*-compliant financial products. The concept of loans which is the advance from the conventional banks, is offered in the form of investment made by the Islamic banks.

At present, many Muslim and non-Muslim countries are practicing Islamic banking either as full-fledged or window/branch-based operations. For this, Islamic banking practice has shown increasing trends in the last couple of decades. At the time of worrisome global financial crisis especially in 2008; several Islamic banks were opened such as Gatehouse Bank in 2008. The World Islamic Banking Competitiveness Report (EY, 2016) projected that Islamic banking is to grow to more than USD 1.6 trillion banking market by 2020, while the total participant is worth around USD 920 billion in 2015 (EY, 2016). Since Bangladesh is one of the largest Muslim countries in the world and mass people are deeply following Islamic way of life in accordance with the Holy Qur'an and the Sunnah, Islamic banking was greeted and received warmly by the people of Bangladesh after its first establishment in 1983. In 1974, Bangladesh signed the charter of Islamic Development Bank (IDB) and committed herself to regroup her economy and financial system according to Shariah. The pioneer Islamic bank in Bangladesh is 'Islamic Bank Bangladesh Limited (IBBL)' which was established in 1983. Following that, another seven banks have been established in the country. From the first establishment till present time, the Islamic banks have shown their soundness in fulfilling the requirements of Shariah. In view of their success and popularity, many conventional banks have also opened their own Islamic branches or windows.

Bangladesh Bank, the central bank of Bangladesh, has initiated several policies to expand the Islamic

banking industry in the country. The introduction of Shariah-based Islamic banking system proved its contribution in the country's money market and has continued to show consistent growth since its inception in tandem with the growth in the economy. At the end of June 2018, there were eight full-fledged Islamic banks are operating with 1134 branches, 19 Islamic banking branches of 9 conventional commercial banks and 25 Islamic banking windows of 8 conventional commercial banks out of total 10114 branches of the banking industry are providing Islamic financial services in Bangladesh (Bangladesh Bank, 2018). According to the view of Bangladesh Bank, in terms of deposits and investments at the end of June 2018, the Islamic banking industry in Bangladesh has accounted for more than one-fifth share of the entire banking industry.

Compared to the conventional banking system, Islamic banking has impressive growth recording worldwide. The reason behind this remarkable steady growth of the Islamic banks can be attributed to the efficient performances of the Islamic banks as well as the high demand for Islamic banking products in view of the rise of Muslim population who are really craving for Shariah compliant financial products (Derbel, Bouuraoui and Dammak, 2010).

It should be mentioned here that Islamic banking is a banking system based on ethical value that remit speculation and prohibit any kind of illicit investment such as interest, alcohol, gambling, pork, bad activities but allow only real asset investments. The principle of Islamic banking investment is on profit-loss sharing approach, and does not involve any kind of *riba*-based (interest), *gharar* (uncertainty) and *maysir* (speculation) elements. This difference makes it possible for having steady growth worldwide.

In the context of Bangladesh, whether this steady and stable growth in Islamic banking systems holds or not, is now a discussed topic for the deep thought and research. Besides, if the financial stability is occurring in the Islamic banking in Bangladesh like as the rest of the world, is also a concern issue for the economist of Bangladesh. Using various techniques, this paper attempts to analyze the financial stability of the Islamic banks currently operating in Bangladesh.

2. Literature Review

Islamic banking practice is expanding day by day in the banking industry of Bangladesh. Several researches on Islamic banking are available in the literature especially on the subject of performance and efficiency. By broadening our search, we got Akeem, Abideen & Salisu (2016) undertook one of such study. They used the method that calculated z-score and various financial ratios to measure whether the Islamic Banks are financially stable or not. Using a time frame from 2008 to 2012, they have gathered data from the published annual reports of 16 Islamic banks of Malaysia. The results of the paper exhibited that the z-score was relatively high and thus suggested that Islamic banks are on the whole financially stable. The paper also found about granting excessive financing by the Islamic banks while the total assets they have invested on financing are on the increase.

Mat Rahim, Mohd Hassan and Zakaria (2012), tried to assess whether there is any differences in the level of financial stability of Islamic banks as compared to commercial or conventional banks by using the Z-score and NPL as proxies for financial stability. This paper collected secondary data from the annual report of 17 Islamic banks and 21 commercial banks in Malaysia from 2005 to 2010. This paper used regression based econometric method for panel data analysis and the findings of the paper showed that Islamic banks are more stable than commercial bank in terms of stability.

The research work of Martin and Heiko (2008) could be considered as one of the well-known studies for comparing financial stability of the Islamic banks and the Conventional banks. In this paper, they presented the first cross-country empirical analysis of Islamic banks' impact on financial stability. They accumulated topical data from the database of Bank-Scope from 77 Islamic banks and 397 conventional banks from 20 banking systems over the period 1993 to 2004 and computed z-score model. The paper resulted that small Islamic banks were financially stronger than small commercial banks; whereas large commercial banks tended to be financially stronger than large Islamic banks. They also commented that small Islamic banks were more stable than large Islamic banks as concentrated only low risk investment. But that might reflect challenges of credit risk management in large Islamic banks.

Likewise, Shahid and Abbas (2012) utilized z-score and econometric model similar to that of Martin and Heiko (2008). They used the annual financial data for 2006 to 2009 of all the 6 Islamic banks operating in Pakistan and top 10 conventional banks ranked by Credit Rating Agencies. They found that small scale Islamic banks were stronger than small conventional banks as well as large Islamic banks. Their studies also exhibited that large scale conventional banks were stronger than large Islamic banks.

A study by Farook, Hassan and Clinch (2012) was performed to determine if Islamic banks dominating profit distributions and whether so, what factors were attached with it. The results suggest that most Islamic banks profit distributions were directly related to religiosity, asset composition, and presence of discretionary reserves.

Islam and Kozokov (2009) investigated empirically the comparative stability between Islamic and conventional banks. For this purpose, accounting data from eight countries during the period of 2005 to 2008 were taken for 66 banks of which 26 Islamic and 40 Conventional ones. The paper concluded that there were no statistically significant differences between Islamic and conventional banks' stability.

Returning to the arena of Islamic banking practice in Bangladesh, literature regarding the financial stability of Islamic banks was not very much available. Within the short-listed studies, Md. Safiullah (2010) emphasized on the financial performance analysis of both stream of the banks. This study indicated that of both streams of banks financial performance is notable.

Sarker (2005) stated and recommended on the issues related to the problems and challenges facing for the continued expansion of the Islamic banking system in the financial sector of Bangladesh. The work suggested development of Inter-Bank Islamic Money Market; activation of Shariah Supervisory Boards, enactment of full-fledged Islamic Banking Act, development of New Financial Products in line with Islamic Shariah and the extension of investment in line with PLS framework. The paper recommended that micro, small, and medium enterprises (MSMEs) should get priority in the investment decisions of the Islamic banks.

3. Methodology

The data for conducting the research purpose has been collected from the published Annual Reports of the eight (8) full fledge Islamic banks in Bangladesh. The time frame covered from 2010 to 2017 and this time frame was elected to consider same years of analysis, though a bank named Union Bank Ltd is relatively new in the banking operation of Bangladesh, only started its walking in 2013.

All the data related to the calculation method of the study were available in the annual reports of these respective banks. This study calculates the Z-Score per year, Non-performing Finance, Loan-to-Deposit Ratio, Liquidity Ratio of the discussed eight (8) full fledge Islamic banks using the time period from 2010 to 2017. These four (4) techniques were used to measure the financial stability of Islamic banks in Bangladesh in this study.

3.1 Z score

Z score is a kind of statistical tools that used in measuring the soundness and the stability of banks. The Z-score calculation has placed as a proper measure of bank soundness (Maechler, Mitra, and Worrell, 2005). The view of Martin and Heiko (2008) work also showed that the Z-score works as a measure of individual bank risk and be an objective measure of soundness because it focuses only on the risk of insolvency, i.e., on the risk that a bank (whether commercial, Islamic, or other) runs out of capital and reserves. The Z-score calculation can be applied equally to banks that use a high risk/high return strategy and those that use a low risk/row return strategy, providing those strategies lead to the same risk-adjusted returns.

A probable criticism of the z-score calculation as applied to Islamic banks is that Islamic Banks presumably show high Z-score because of their risk-sharing arrangements that provides an additional protective buffer in deposit liabilities. This stated that the book values of capital and reserves will miscalculate financial strength of these banks.

The Z-score calculation can be summarized as the following formula:

$$Z=(k+\mu)/\sigma$$

Here, k is equity capital and reserves as percent of assets of the banks; μ is average return as percent of assets of the banks; and σ is the standard deviation of return on assets as a proxy for return volatility.

From the Z-score formula, it is evident that higher score of z-score indicates a more stable bank than the lower score of Z-score.

3.2 Non-performing Finance Ratio (NPF Ratio)

Non-performing Investment, NPI or Non-performing Finance, NPF (known also as Non-performing Loan, NPL in the conventional banking system) refers to the investments or financings that have already stopped producing income (payments) for the banks. An investing or financing is normally considered as non-performing if it has been in default or close to default for at least three consecutive months (usually at least 90 days) or as each of any types of banks specifies.

To measure the attribute of any investment outstanding, Non-performing Finance ratio calculation seems sufficing. Ratio of Non-performing Investment or Finance to Total Investment or Finance is showing the actual scenario of any investment made by the banks or any other financial institutions. Therefore, a smaller NPF ratio indicates smaller losses for the banks while a larger (or increasing) NPF ratio implies bigger losses for the bank.

3.3 Liquidity Ratio or Investment to Asset Ratio

Liquidity ratio measures to what extent an institution or bank is capable to meet its recurring financial obligations. A bank or financial institution must calculate this ratio to avoid defaulting on the financial obligations. This Liquidity ratio can also be addressed as Investment to Asset Ratio as this ratio measures the liquidity condition of the bank by having estimation on the percentage of total assets invested by any bank. Likewise, in this paper Total Investment to Total Asset ratio is calculated to measure liquidity of the Islamic banks.

A bank with low investment to asset ratio is considered liquid and so it is stable financially. On the other hand, a bank with high investment to asset ratio may indicate a potential high profitability but it is saturated with risks.

3.4 Investment to Deposit Ratio or Loan to Deposit Ratio

Investment to Deposit Ratio (IDR) for Islamic Banks (Loan to Deposit Ratio (LDR) or Advance to Deposit Ratio (ADR) for conventional Banks) is used to assess the credit risk circumstance and the liquidity of any banks by comparing its total Loan or Investment to its total Deposit for the same period.

If a bank's Investment to Deposit ratio is too high, then it suggests that the bank is engulfed in additional financial stress by making excessive financings that result into that the bank may not have enough liquidity to cover any unpredicted fund requirements. Conversely, if the ratio is too low for a bank, the bank has less credit risk but may not be earning as it could be. For the context of Bangladesh, IDR may not exceed 89 percentages for any Islamic Banks according to the Central Bank of Bangladesh.

4. Results and Findings

The following tables and charts are showing the Z-scores per year, Non-performing Financing, Loan-to-Deposit Ratio, Liquidity Ratio of the sample banks from 2010 to 2017 as calculated by the authors.

Table 1: Z-score per year

Name of the Bank	Year							
	2010	2011	2012	2013	2014	2015	2016	2017
AIBL	19.56	22.77	15.39	14.66	13.12	12.69	12.71	11.28
IBBL	59.16	83.40	17.93	18.61	12.61	10.11	10.16	9.45
EXIM	8.94	10.50	9.94	9.82	9.21	7.98	7.32	6.93
SJIBL	74.7	10.81	11.66	12.15	11.41	12.09	11.40	9.39
SIBL	8.57	10.25	10.77	11.61	12.07	11.73	12.13	11.63
FSIBL	63.79	48.30	39.82	26.81	21.27	17.96	18.51	17.49
ICB	3.75	6.73	8.97	10.24	10.23	11.21	12.57	14.45
Union Bank	-	-	-	80.72	35.69	20.10	23.86	20.23

$$Z \text{ Score} = \frac{(\text{Total Equity}/\text{Total Asset}) + \text{ROAA}}{\text{Standard Deviation of ROAA}}$$

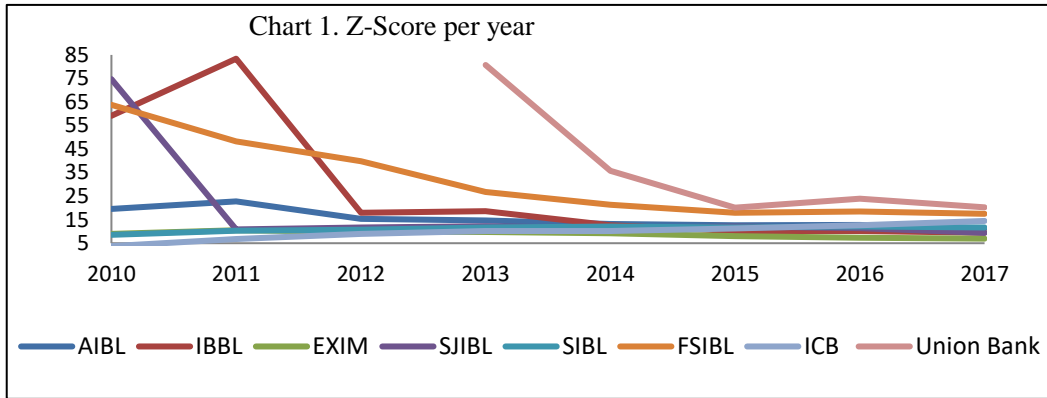Hence, ROAA means Return on Average Assets

Chart 1. Z-Score per year

Table 1 shows the Z-score of the eight banks in the study from 2010 to 2017. The lowest happens to be about 3.75 in 2010 by ICB Islamic bank. This is due to the high NPF ratio and lower asset return. The highest Z-score of all the banks is 83.40 in 2011 by IBBL. Most of the Islamic banks have lower Z-score in recent years (Chart 1) that indicates poor in performance. Moreover, IBBL has a decreasing trend of Z-score. Since IBBL constitutes almost 25 percent of the share of banking sector, it represents distressing situation not only for Islamic banking but also for the whole banking sector.

Table 2: Non-performing Financing

| Name	Year							
	2010	2011	2012	2013	2014	2015	2016	2017
AIBL	1.14	0.95	1.63	2.77	4.50	4.66	4.54	4.10
IBBL	1.77	2.71	3.81	3.71	4.92	4.25	3.83	3.59
EXIM	1.99	1.63	4.27	3.67	3.22	4.69	5.23	5.32
SJIBL	1.91	1.89	2.96	6.47	7.87	6.47	4.70	3.97
SIBL	4.76	3.93	3.33	5.35	4.56	3.84	4.44	8.20
FSIBL	2.61	1.94	1.85	2.17	2.22	2.76	2.58	3.07
ICB	61.60	57.27	60.78	73.31	77.52	76.14	71.89	80.04
Union Bank				0.00	0.002	0.00	0.568	0.071

Chart 2. Trends of Non-performing Financing
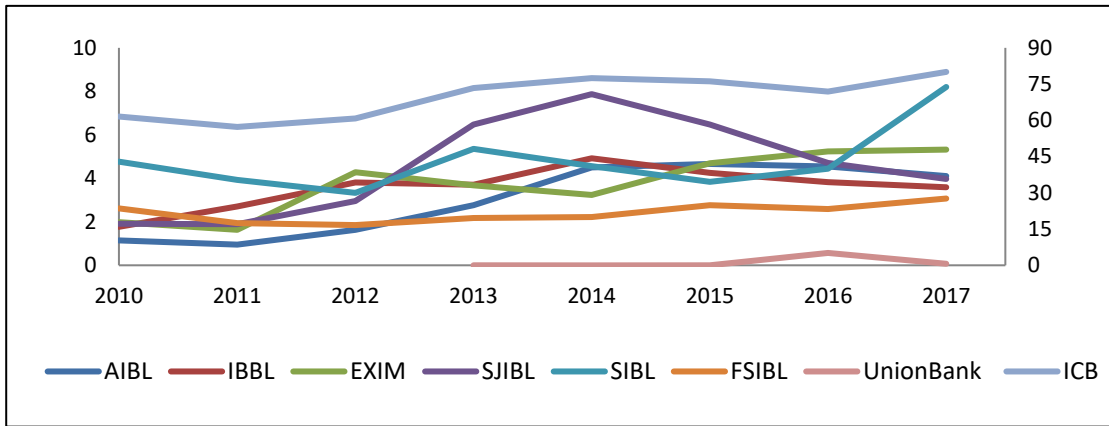
From Chart 2, an interlace pattern was observed in NPF ratio from 2010 to 2017. However, there was a drastic increase in NPF of Islamic Banks in 2012 and 2013. In 2017, Union Bank has the lowest NPF, ICB Islamic Bank has the highest NPF, EXIM and SIBL have NPF of more than 5 percentage and other banks have the NPF of less than 5 percentage (Table 2).

Table 3: Investment-to-Deposit Ratio
Credit risk: Loan /Deposit

| Name of the Bank	Year							
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
AIBL	93.43	89.07	90.56	88.74	84.58	88.59	88.50	89.95
IBBL	90.17	87.29	85.18	82.35	79.88	83.59	86.43	87.80
EXIM	98.26	92.42	84.22	86.79	88.84	87.88	90.00	89.91
SJIBL	96.34	93.00	89.64	88.88	80.82	82.77	85.98	90.17
SIBL	81.78	80.63	81.23	84.15	86.64	89.54	91.41	91.80
FSIBL	92.51	88.90	87.62	82.14	83.49	80.96	82.37	87.78
ICB	102.0	113.0	89.0	82.0	77.0	83.0	86.0	78.0
Union Bank				60.08	81.33	82.07	90.44	88.34

Chart 3: Investment-to-Deposit Ratio
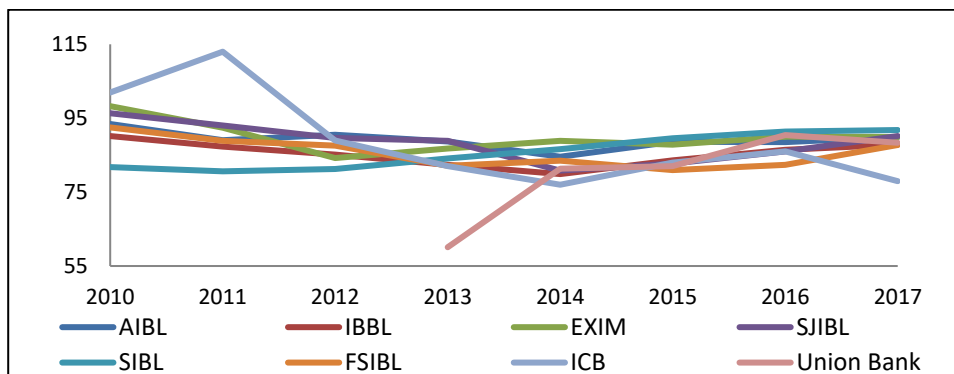
From the Table 3, it is evident that the loan to deposit ratio from 2010 to 2017 exhibits intermix pattern.

In 2017, ICB has lowest loan to deposit ratio of 78.0 and SIBL has the highest loan to deposit ratio of 91.80. This result shows that loan-to-deposit ratio is on the rise in the last few years (Chart 3) and this trend could lead to a financial imbalance, which may threaten the viability of Islamic banks.

Table 4: Liquidity Ratio
Liquidity: Total Loan /Total Asset

| Name of | Year | | | | | | | |
the Bank	2010	2011	2012	2013	2014	2015	2016	2017
AIBL	72.40	72.79	71.42	72.60	69.73	70.93	72.01	73.89
IBBL	83.33	58.01	72.49	86.03	86.05	86.75	84.84	83.19
EXIM	82.53	76.86	70.77	73.60	76.56	74.18	76.43	76.13
SJIBL	78.19	74.81	72.42	66.67	66.32	70.24	73.54	76.32
SIBL	66.49	63.87	66.01	67.86	70.18	74.46	76.50	76.01
FSIBL	81.93	76.33	74.23	70.56	74.37	72.97	74.88	79.35
ICB	74.59	78.95	72.82	68.44	65.82	72.05	76.30	74.96
Union Bank				42.79	69.05	72.31	80.02	76.52

Chart 4: Liquidity Ratio
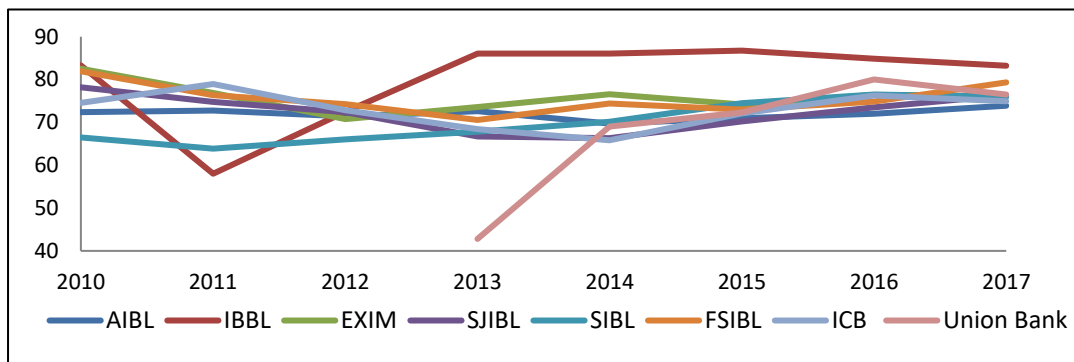
The liquidity is measured by loan to asset ratio as shown in the Table-04 above. The result indicates that the loan to total asset ratio of all Islamic banks shows a mixture pattern except SIBL which has an increasing pattern from 2010 to 2017 (Chart-04). The value ranges from 42.79 in 2013 to 86.75 in 2015. The lowest value of loan to deposit ratio belongs to Union Bank in the year 2013, as it's the launching year of that bank. The highest ratio belongs to IBBL in the year 2015, when the bank has a high NPF ratio. The higher the ratio, the lesser the liquidity of the bank; in this result, an increase in the ratio is observed and this implies that Islamic banks are facing liquidity problem. In other word, based on this result, increase in the ratio portrays great danger for the liquidity of Islamic banks.

5. Conclusion

From the above analysis, it is found that although most of the Islamic banks have a lower trend of NPF, the overall performance of Islamic banks as indicated by the Z-score is showing lower trend itself. This finding holds for all of the Islamic banks, especially for IBBL that has the largest market share in the banking sector of Bangladesh. Although the NPF ratios for a few of the Islamic banks are decreasing but the pace of this decrease is very slow. It may be mentioned that Z-score calculation may be used for predictive purposes of two years only, it is better to take another study to know the exact condition of these Islamic banks after two years.

The results of this study also show that liquidity ratio and investment to deposit ratio of Islamic banks

are also high. It is clear from the high loan-to deposit ratio that Islamic banks are taking more financial stress by making excessive financings. Though it is more profitable to have a high investment to deposit ratio, it is also risky for the banks to have high investment to deposit ratio. This calls for the Islamic banks to take measures to control their NPF and improve their performance in the near future.

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