

Comparative Predictability of Financial Stability in Islamic Banks: An Analytical Study of Malaysian & Pakistani Islamic Banks Using Altman's Z Score

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Abstract

The research was conducted for the comparison of monetary stability in the Islamic banking of Malaysia and Pakistan for this purpose the secondary data of year 2011 to year 2015 was analyzed by means of Altman's Z score. Research results identified, the distress zone in Islamic banking sector of Malaysian, but Pakistani Islamic banks are in "Safe Zone". Malaysian banks are found to be more unstable as compare to Pakistan Islamic banks. Hence, this study proposes stakeholders, which includes supervisory authorities and academics to be more observant of the procedures of Islamic Banks to satisfy the requirements of customers because the banking sector is significantly contributing in the growth of the economy.

Keywords: Z score, Islamic banks, financial stability, Malaysian and Pakistani Banks

Introduction

Islamic financial transaction is that kind of activity that motivates the principles of Sharia and it's practically applications for prosperity of Muslim economy. A basic purpose for banking in Islamic way is "all forms of interests are Riba and hence prohibited" Interest in Islam is prohibited, trade and profits are allowed and in fact encouraged. The system of Islamic banking includes all activities relevant to banking that are in consideration with Islamic rules, laws and principles which are guided by Islamic economics Nasser and Juriah (2013). Islamic banks in contrast with conventional banks have been less affected in the recent global failure. The actual difference between Islamic banking and the conventional banking deals with the old banks are centered upon conventional principle of interest, whereas the prior one follows the principle of profit loss sharing and interest free transactions in operating their businesses Ariff (1988).

All over the world, UK is the one of the principal hub for Islamic banking, yet only the percentage of its inhabitant which are Muslim is 5%. And administrations and controllers in a multiple countries already have acknowledged the importance of Islamic banking Ainley et al. (2007). Generally financial institutions offer both commercial and Islamic banking services simultaneously to encounter the expanded and diversified constraints of customers. In traditional banking, the risk of depositor is handed over to the bank in which the depositor receives fixed rate of return, whether the bank is able to receive or not on assets Al-Salem and Fouad (2009). Now 16 full-fledged Islamic banks are working in Malaysia, these 16 banks of Malaysia is giving rise to healthy competition in Islamic banking industry Mohd Faisal (2016).

According to Samad and Hassan (1999) that the cause of slow pace of growth in profit sharing loans is the absence of banker's knowledge. In Pakistan, State Bank of Pakistan the Central bank has took initiative to develop Islamic banking system as a result Meezan bank was the first one start working as an Islamic bank in year 2002. There are number of opportunities for Islamic Banks in Pakistan because 96 percent of the population is Muslim Ahmad (2010).

According to Yousef and Rajesh (2000) in the last two decades, Islamic banks have advanced in scope, number and size everywhere in the world. In almost sixty countries Islamic bank are functioning, most of them are in Asia and Middle East. In Pakistan, Sudan and Iran, the complete banking system has been moved to Islamic banking. The banking system in other countries are still governed by traditional banking institutions functioning together with Islamic banks. Even so, Islamic banking is the wildest developing division of the credit market.

The performance of Islamic Banks is observed through multiple angles for example, Domestic Islamic Banks versus the Foreign banks working on Islamic methods of banking. According to Muda et al. (2013),

conventional versus Islami bank has significant relation. Qureshi et al. (2012), Elements and determinants of Profitability in Islamic Banking industry (Hassan et al, 2003), the Islamic banks versus Islamic banks performances Hussain et al. (2012), performance during financial crisis of industry(said, 2013) etc. but the studies relevant to the bankruptcy and sustainability of Islamic banks are few in literature Jan et al. (2015). That is why it is important to measure the financial distress of Pakistani Islamic banks and the research also compares the result with Malaysian Islamic bank.

Literature Review:

There were a lot of researches on topic of banks efficiency in different countries especially in US and European countries but only few researches was done on Islamic banks efficiency. Islamic banks suffer and show inefficiency during the global financial crisis Yudistira (2003). A study by Khan and Ahmed (2001) proposed that in Musharakah the credit risk is highest (3.69 from a score of 5). After calculating various factors they conclude that Islamic banking have the maximum advantage over the traditional banking and that exclusive a case of undersized banks which are mostly working in Muslim countries those having more than or equal to 90% of Muslim population. Undersized banks reveals a low bankruptcy risk investigated in research of financial institution Yudistira (2003).

The financial distress means an organization have no enough operating cash to assure the current obligations and are forced for taking compulsory measures Ross and Jordan (2007). Corporate governance have taken importance while determining financial performance the research focused on the relationship of financial performance with corporate governance that argues, there is no important constructive relationship of CG practice in UAE national bank performance conversely there is considerable encouraging relation of CG and financial distress Hussain et al. (2012). On average the Islamic banks are less efficient, more solvent and profitable have higher internal growth. It is found that there is no major difference in the level of efficiency and performance between Islamic banks and traditional banks Osama and Hares (2013).

Banks that are facing financial distress prepare false financial statement to gain the confidence of stakeholders which is affected by distress. With regard to literature Islamic banks have more liquidity and less risk as compare to commercial bank but that are not guarantee that Islamic banks are not facing distress Nurul and Abdul (2012). By means of the z-score model Uddin et al. (2017) choose the sample from 16 states there were 34 traditional banks and 34 Islamic banks the result showed that there was no major variance in shape of financial crisis on soundness of the Islamic banks on other hand the conventional banks showed divergence of IBs from the theoretical business model that allowed them to have the same level of security even in time of crisis. The superior stock performance of listed Islamic banks in the era of financial disaster is also due to their grand capitalization and superior assets quality. The research also argued that while comparing conventional and Islamic banks there is few important differences in business orientation, Islamic bank are less cost effective but at the same time have higher intermediation ratio, higher assets excellence and capitalized Merrouche et al. (2012).

It was investigated by Abedifar et al. (2012) in a research on risk and stability of 553 banks from 24 various countries for the period of 1999 to 2009. On the other hand Islamic ways of financing have more complications and restrictions and have complicated management activities due to this reason the cost of transition increases in Islamic way of funding subsequent to the recent global financial crisis there is a failure of many conventional that leads the bank towards Islamic banking model. Bourkhis, et al. (2013) did research “the effect of 2007-2008 financial crisis on Islamic banks and conventional banks and found that, in Pakistan those Islamic banks which are basically established in countries where primarily Muslim population exists have minor credit risk and related with bankruptcy those banks also appeared secure.

Z score was established by Edward Altman in 1968 it is a combination of five weighted business ratios that is used to estimate the likelihood of financial distress. The original Altman model took the following form,

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

X1= Working capital/Total assets

X2= Retained earnings/Total assets

X3= Earnings before interest and tax/Total assets

X4= Market value of equity/Book value of total assets

X5= Sales/Total assets.

This formula for Altman Z-Score is helpful in calculating and predicting the probability that a company will go into bankruptcy within two years. This formula revised from time to time and last revised in 2012 it kept four variables with different weighted coefficients,

$$Z_2 = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

X1= Working capital/Total assets

X2= Retained earnings/Total assets

X3= EBIT/Total assets

$X4 = \text{Book value equity} / \text{Total assets}$

Following table represents the zones of discrimination according to Altman's Z score:

Table 1. Zone of Discrimination

Zone of Discrimination		
$Z > 2.6$ - "Safe" Zone	$1.1 < Z < 2.6$ - "Grey" Zone	$Z < 1.1$ - "Distress" Zone

Research Methodology:

The financial data are sourced from banks' financial reports and central bank web site. These data consist of Malaysian and Pakistani Islamic bank. To identify the trend of the Z score in Islamic banking of Malaysia and Pakistan over the five years starting from 2011 to 2015. A model is proposed to estimate the stability and to develop an early warning for banks. This study used the maximum sample range of all Islamic banks of Malaysia and Pakistan therefore, the data have full coverage and reliability for calculating the Altman's Z score. These all banks are listed and running during the period of research.

Sampling percentage is shown below:

Table 2. Sampling percentage

Sector	Nature	Total number of Islamic Banks	Malaysian Banks	Pakistani Banks	Sample take	Percentage of sample%
Banking	Islamic	24	16	8	20	83.33%

For measuring risk level/bankruptcy rate of these Islamic banks, we are going to make the data from statistical model of the Z score giving blow,

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

In which $X1$ is calculated by dividing working capital to total assets, $X2$ is found by dividing total reserve with total assets, and $x3$ and $x4$ by diving earnings before interest and tax and equity by total assets respectively.

The reason for preferring Z score as statistical model of research is its high predictability because it uses profitability, leverage, liquidity, solvency and activity ratios where a bank or other financial institutions shows a degree of probability of being insolvent. The objective behind selecting the revised version of the Z score model was to verify the validity as a predictor for Islamic banks of Malaysia and Pakistan

Analysis and Research Findings:

After organizing and gathering the data from different sources and applying different ratios we come across the Z score of each Islamic bank for both countries from the year 2011 to 2015. The detail of banks, financial records presented in appendix. After analysis, we found all Pakistani Islamic banks are in a safe zone the result is 100%, the MCB Islamic bank is the only bank which get the status of Islamic banking in 2015, is in the safe zone for that year we calculate the Z score only for the year of 2015. Meezan bank was in a crisis situation for the year of 2012 even became insolvent. On another side the insolvency ratio of Malaysian banks was very high as compared to Pakistani Islamic banks so it was analyzed that the stability of Malaysian Islamic Banks is in danger. Stability in the terms of percentages of Malaysian and Pakistani Islamic Banks is shown in the table below: (table 3)

Table 3. Stability in the terms of percentages of Malaysian and Pakistani Islamic Banks

Type of Zone	2011		2012		2013		2014		2015	
	Mala	PAK	Mala	PAK	Mala	PAK	Mala	PAK	Mala	PAK
Safe	0%	100%	0%	87.5%	0%	100%	0%	100%	0%	100%
Gray	0%	0%	8.3%	12.5%	0%	0%	8.3%	0%	16.66%	0%
Distress	100%	0%	91.6%	0%	100%	0%	91.6%	0%	83.33%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

In the year of 2012 the insolvency ratio goes down some banks can try to better position 8.3% banks in the gray zone and 91.6% in distress zone the same result for the year of 2014. In 2015 the result presented that 16.66% banks having situation of grey zone and 83.33% in distress zone.

Furthermore, there is a graphical representation of each bank Z score trend over the five years which is shown in the appendix. Also one overall graphical presentation of each country's Islamic banking industry. Through which we can easily exert the bankruptcy rate of all banks according to Z score model. Financial ratios of each Islamic bank of Malaysia and Pakistan for the year of 2011 to 2015 are calculated for the purpose of finding Z score which are shown in table 4 and 5 respectively.

Table 4. Financial ratios of each Islamic bank of Malaysia and Pakistan for the year of 2011 to 2015

<u>Malaysian Islamic Banks</u>					
AFFIN BANK					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0734	0.0499	0.1283	0.0563	0.0604
X2 = RE/TA	0.0238	0.0243	0.0296	0.0355	0.0345
X3 = EBIT/TA	0.0015	0.0036	0.0021	0.0020	0.0022
X4 = TE/TA	0.0552	0.0486	0.0631	0.0692	0.0620
ALLIANCE BANK					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0839	-0.0423	0.0514	0.0737	0.0567
X2 = RE/TA	0.0270	0.0421	0.0429	0.0441	0.0388
X3 = EBIT/TA	0.0121	0.0170	0.0110	0.0099	0.0088
X4 = TE/TA	0.0752	0.0879	0.0868	0.0847	0.0715
ALRAJHI BANK					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0475	0.0259	0.0424	0.0730	0.0871
X2 = RE/TA	0.0491	0.0411	0.0421	0.0384	0.0366
X3 = EBIT/TA	-0.0046	0.0006	0.0009	0.0014	0.0031
X4 = TE/TA	0.1140	0.1019	0.1060	0.0991	0.1001
BANK ISLAM					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0609	0.0557	0.0516	0.0565	0.0524
X2 = RE/TA	0.0161	0.0223	0.0241	0.0308	0.0336
X3 = EBIT/TA	0.0146	0.0160	0.0159	0.0153	0.0138
X4 = TE/TA	0.0865	0.0828	0.0777	0.0814	0.0810
BANK MUAMALAT					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0807	0.0627	0.0643	0.0659	0.0578
X2 = RE/TA	0.0197	0.0210	0.0283	0.0272	0.0290
X3 = EBIT/TA	0.0112	0.0060	0.0111	0.0102	0.0051
X4 = TE/TA	0.0743	0.0698	0.0757	0.0868	0.0822
CIMB					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0348	0.0374	0.0330	0.0455	0.0684

X2 = RE/TA	0.0200	0.0249	0.0324	0.0399	0.0437
X3 = EBIT/TA	0.0104	0.0105	0.0099	0.0106	0.0099
X4 = TE/TA	0.0449	0.0457	0.0540	0.0644	0.0661
HONG LEONG					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0803	0.0864	0.0690	0.1097	0.0909
X2 = RE/TA	0.0300	0.0213	0.0300	0.0386	0.0408
X3 = EBIT/TA	0.0074	0.0070	0.0138	0.0141	0.0110
X4 = TE/TA	0.0711	0.0533	0.0623	0.0707	0.0708
HSBC					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0696	0.1047	0.0955	0.1221	0.2433
X2 = RE/TA	0.0798	0.0815	0.0774	0.0774	0.0725
X3 = EBIT/TA	0.0096	0.0136	0.0129	0.0111	0.0079
X4 = TE/TA	0.0847	0.0856	0.0808	0.0805	0.0751
OCBC					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0329	0.0354	0.0339	0.0318	0.0470
X2 = RE/TA	0.0409	0.0513	0.0464	0.0456	0.0548
X3 = EBIT/TA	0.0042	0.0085	0.0135	0.0064	0.0118
X4 = TE/TA	0.0558	0.0678	0.0588	0.0577	0.0675
PIBB					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0461	0.0575	0.0502	0.0412	0.1987
X2 = RE/TA	0.0656	0.0715	0.0694	0.0643	0.0604
X3 = EBIT/TA	0.0206	0.0186	0.0137	0.0123	0.0099
X4 = TE/TA	0.0719	0.0781	0.0752	0.0695	0.0649
RHB					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0468	0.0567	0.0570	0.0398	0.0316
X2 = RE/TA	0.0251	0.0281	0.0338	0.0299	0.0300
X3 = EBIT/TA	0.0093	0.0081	0.0086	0.0084	0.0079
X4 = TE/TA	0.0592	0.0661	0.0802	0.0624	0.0566
STANDARD					

Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.0986	0.0444	-0.0181	-0.0253	-0.0843
X2 = RE/TA	0.0622	0.0548	0.0545	0.0472	0.0418
X3 = EBIT/TA	0.0095	0.0122	0.0063	0.0015	0.0018
X4 = TE/TA	0.0784	0.0689	0.0670	0.0578	0.0509

Table 5. Financial ratios of each Islamic bank of Malaysia and Pakistan for the year of 2011 to 2015

Pakistani Islamic banks					
Bank Islami					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.5013	0.4468	0.7405	0.4756	0.6330
X2 = RE/TA	0.0016	0.0023	0.0024	0.0053	0.0027
X3 = EBIT/TA	0.0877	0.0736	0.0636	0.0618	0.0604
X4 = TE/TA	0.0104	0.0063	0.0036	0.0046	-0.0009
Burj Bank					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.7255	0.6422	0.6965	0.8145	0.7515
X2 = RE/TA	0.0006	0.00004	0.00004	0.0001	0.0001
X3 = EBIT/TA	-0.0125	0.0007	-0.0326	-0.0180	-0.0147
X4 = TE/TA	0.2089	0.1243	0.0993	0.1416	0.1353
Al-Baraka Bank					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.5187	0.5760	0.5670	0.6413	0.7144
X2 = RE/TA	0.0011	0.0011	0.0009	0.0012	0.0018
X3 = EBIT/TA	0.2103	0.2181	0.1701	0.2378	0.2963
X4 = TE/TA	0.1005	0.0900	0.0752	0.0713	0.0801
Askari Bank					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.6240	0.6179	0.6472	0.5984	0.5570
X2 = RE/TA	0.0237	0.0242	0.0142	0.0108	0.0120
X3 = EBIT/TA	0.0071	0.0050	-0.0211	0.0131	0.0155
X4 = TE/TA	0.0480	0.0501	0.0426	0.0437	0.0410
Dubai Islami Bank					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.6552	0.5617	0.5763	0.7269	0.7700
X2 = RE/TA	0.0018	0.0011	0.0003	0.0015	0.0015

X3 = EBIT/TA	0.0066	0.0079	0.0026	0.0091	0.0045
X4 = TE/TA	0.1296	0.1070	0.0863	0.0742	0.0507
Meezan Bank					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.4789	-0.3993	0.4797	0.4847	0.4679
X2 = RE/TA	0.0103	0.0101	0.0108	0.0167	0.0161
X3 = EBIT/TA	0.0217	0.0191	0.0171	0.0158	0.0159
X4 = TE/TA	0.0664	0.0565	0.0543	0.0532	0.0481
MCB Islamic Bank					
Financial Ratios				2015	
X1 = WC/TA				79.0126	
X2 = RE/TA				0.0770	
X3 = EBIT/TA				0.4280	
X4 = TE/TA				80.9809	
Standard Chartered					
Financial Ratios	2011	2012	2013	2014	2015
X1 = WC/TA	0.6572	0.6417	0.6021	0.5187	0.4503
X2 = RE/TA	0.0107	0.0127	0.0177	0.0217	0.0240
X3 = EBIT/TA	0.0236	0.0234	0.0404	0.0366	0.0341
X4 = TE/TA	0.1415	0.1269	0.1298	0.1304	0.1212

Furthermore graphical representation of Malaysian and Pakistani Islamic banks along with average Z score value is also presented in table 6 and 7.

Table 6. Malaysian Islamic banks Z score and Graphical representation of Average Z score.

Malaysian Banks	Years	2015	2014	2013	2012	2011	Average Z score	Zone Determinants
AFFIN BANK	Z score	0.5881	0.5709	1.0184	0.4814	0.6276	2.8159	Distress zone
ALLIANCE BAN	Z score	0.6329	0.7829	0.6416	0.0663	0.7986	2.4160	Distress zone
ALRAJHI BANK	Z score	0.8162	0.7176	0.5323	0.4148	0.5609	2.3889	Distress zone
BANK ISLAM	Z score	0.6308	0.6593	0.6059	0.6324	0.6407	2.6644	Distress zone
BANK MUAMALAT	Z score	0.5939	0.6809	0.6686	0.5934	0.7468	2.8085	Distress zone
CIMB	Z score	0.7271	0.5673	0.4454	0.4444	0.4104	2.0130	Distress zone
HONG LEONG	Z score	0.8772	1.0147	0.7091	0.7396	0.7488	3.2775	Distress zone
HSBC	Z score	1.9647	1.2123	1.0501	1.1336	0.8703	4.6592	Distress zone
OCBC	Z score	0.6371	0.4609	0.5261	0.5273	0.4357	2.0774	Distress zone
PIBB	Z score	1.6347	0.6349	0.7264	0.8170	0.7297	3.2350	Distress zone
RHB	Z score	0.4177	0.4802	0.6264	0.5878	0.5136	2.2917	Distress zone
STANDARD	Z score	-0.3513	0.0586	0.1716	0.6239	0.9957	1.7794	Distress zone

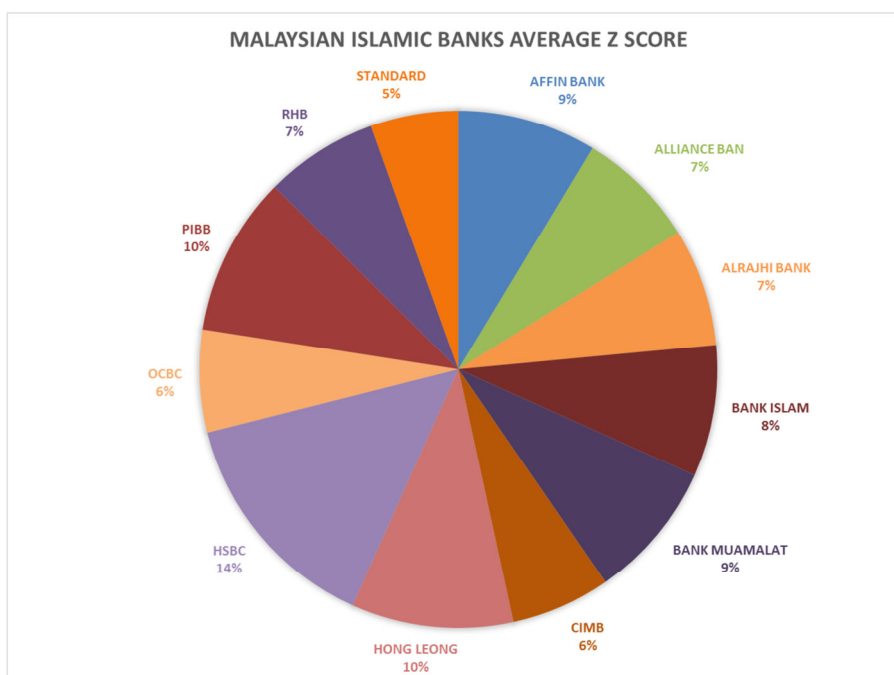
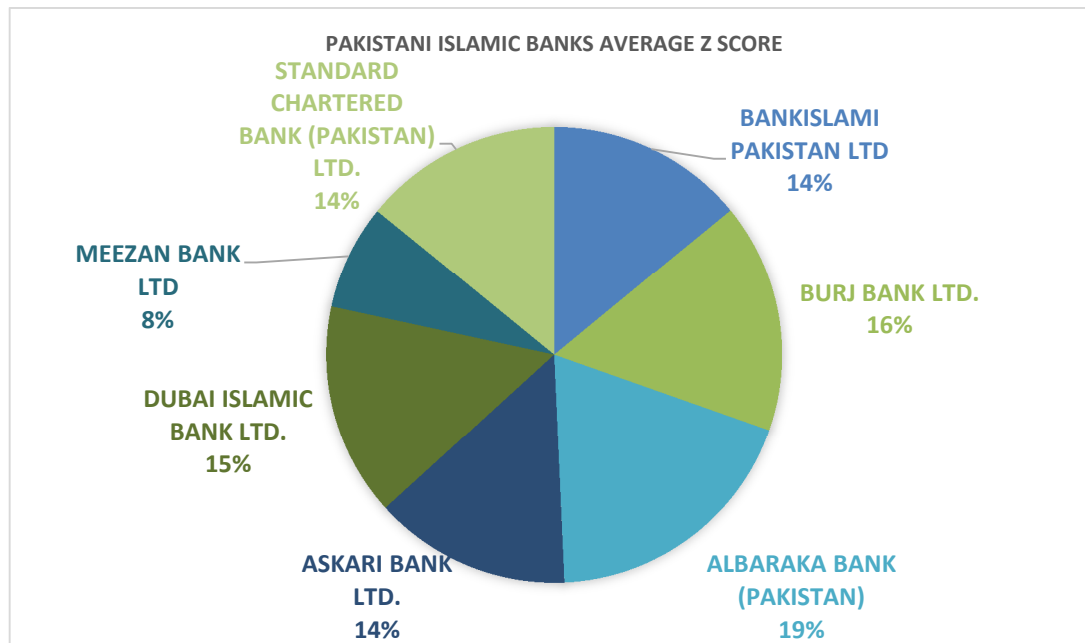


Table 7. Pakistani Islamic banks Z score and Graphical representation of Average Z score.

Pakistani Banks	Years	2015	2014	2013	2012	2011	Average Z score	Zone Determinants
BANKISLAMI PAKISTAN LTD	Z score	3.8940	3.4401	5.2962	3.5576	4.5662	4.1508	Safe zone
BURJ BANK LTD.	Z score	4.8966	4.3480	4.4546	5.3707	4.9737	4.8087	Safe zone
ALBARAKA BANK (PAKISTAN)	Z score	4.9250	5.3427	4.9446	5.8832	6.7671	5.5725	Safe zone
ASKARI BANK LTD.	Z score	4.2689	4.2184	4.1949	4.0945	3.8409	4.1235	Safe zone
DUBAI ISLAMIC BANK LTD.	Z score	4.4841	3.8538	3.8900	4.9125	5.1397	4.4560	Safe zone
MEEZAN BANK LTD	Z score	3.3906	(2.3990)	3.3543	3.3957	3.2795	2.2042	Safe zone
MCB ISLAMIC BANK	Z score	606.4802						Safe zone
STANDARD CHARTERED BANK (PAKISTAN) LTD.	Z score	4.6529	4.5410	4.4154	3.8562	3.3888	4.1709	Safe zone



Conclusion

This paper analyzed the comparative predictions of financial stability in Islamic banks of Malaysia and Pakistan for financial period (2011-15). Stable financial system is a requirement of stable economic growth. Moreover financial instability and its effects can be very costly for an economy and even it leads to adverse consequences. The findings suggest that the value of z score of Pakistani Islamic banks is higher than that of Malaysian Islamic banks. The principles, rules and obligations of Islamic banks toward investors are varied from the investors of conventional banks and likewise they are facing different kind of risks.

The position of banking has enhanced from 2011 onwards in the Pakistani banking industry. But in Malaysia the situation is completely opposite than that of Pakistani Islamic banks, Islamic banks of Malaysia are mostly in “distress zone”. The financing facility with the agreement of profit sharing is not very common in Malaysia and almost 40-70% banker surveyed concluded that the absence of experienced and knowledgeable bankers in selecting, managing and evaluating a profitable project is the main cause Samad and Hassan (1999). Malaysian Islamic banks have recorded 89 percent bankruptcy rate, highest among all Jan (2015). Moreover it is also found that the profile of Islamic banks in Malaysia is comparatively more bankrupt as it stands on the bottommost position in Altman’s z score profile list Jan (2015)

This analysis provides strong guidelines for shareholders and investors while taking the investment decisions. The similar study is conducted in UAE Islamic banks and it is determined that z score proves beneficial for organizations to access their sustainability Saif (2011). For the controlling experts is to implement more strict monitoring strategies and frequently academician and scholars to conduct further research in this area which will help regulatory bodies like Bank Negara and State bank of Pakistan to fill the lacks of the banking industry in each country.

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