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Altman Model and Bankruptcy Profile of Islamic Banking Industry: A Comparative Analysis on Financial Performance

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Abstract

The purpose of this paper is to examine the bankruptcy profile of Islamic banking industry and perform a comparative analysis of their financial characteristics with regards to bankruptcy. This paper applied Altman model on top five Islamic banking countries by global Islamic-banking assets with the objective to examine their bankruptcy profile, while ANOVA Post Hoc Scheffe test is applied to perform a comparative analysis on their financial characteristics relating to bankruptcy. From the selected sample the Saudi Arabian Islamic banks are found less bankrupt and moreover, two Saudi Arabian Islamic banks reserved the top two spots in z-score bankruptcy ranking list. However, Malaysian Islamic banks are found more bankrupt as they entitled the bottom four positions on z-score bankruptcy profile list. On performance indicators like liquidity, profitability and insolvency with regards to bankruptcy the Islamic banks from top five Islamic banking countries has a significant relationship. However, the relationship on productivity with regards to bankruptcy among the top five Islamic banking countries is found insignificant**.** The analysis here is viable for drawing the attention of researchers and practitioners of Islamic banking industry towards the overall deterioration in compound annual growth rate and the identified bankruptcy rate along with comparative financial performance on bankruptcy.

Keywords: bankruptcy, financial characteristics, performance indicators, Altman model

1. Introduction

The stability of financial institutions is very vital for achieving sustainable economic growth and development of any economy. However, banking industry due to its central part in the economy accounts for achieving socio economic development of the country (Jeucken et al., 1999; Brown, 2003; Safiullah, 2010; Olson et al., 2011; Hanif et al., 2102). Apparently due to the dominance and central role of banking industry in the financial system the threat of collapse to the financial system is ever more dependent on the working process of banking industry, especially where the dominance of banking industry in the overall economy has reached up to 70-80 percent (Swamy, 2014). Additionally, the significance of banking industry in the world's financial system can also be trace back to the subprime financial crisis of (2007-2008) where the failure of giant world banks like the Anglo Irish bank, Lehman brother's investment banking, and Citigroup New York immensely affected the flow of global financial system (Sharma et al., 2013). Rashid et al. (2009) argued that, as the banking industry and its activities affects the overall world financial flow therefore regular monitoring of banking industry is compulsory.

In current financial system the failure of businesses is considered as a natural phenomenon with some businesses failing while the others replacing it known as enter and exit phenomena (Chieng, 2013), however, the essential thing is to take proactive measures regarding minimization of any detrimental effect on the financial health of business using wise business monitoring processes which is literally termed as the early warning systems the (EWS). In the literature the bankruptcy prediction has been extensively studied and became the area of interest for many researchers since 1960's (Kumar et al., 2007). In line with bankruptcy prediction (Hung et al., 2009) categorized bankruptcy literature in to two main categories, the first category is called statistical techniques which further includes, the correlation matrix, the regression analysis, the logit modeling, the discriminant analysis, ratio analysis and the probit modeling. While, the second category include artificial intelligence technique such as artificial neural network the (ANN). However, in the available bankruptcy prediction techniques i.e. either statistical or artificial intelligence techniques the ratio analysis techniques is found to be the efficient predictor for bankruptcy (Altman, 1968; Mossman, 1998; Pompe et al., 2005; Chieng, 2013).

Islamic banks performance is studied from a variety of angles, i.e. foreign vs. domestic Islamic banks (Muda et al., 2013), Islamic vs. conventional banks performance (Qureshi et al., 2012), profitability determinants of Islamic banking industry (Hassan et al., 2003), Islamic vs. Islamic banks performance (Husain et al., 2012), performance of Islamic banking industry during financial crisis (Said, 2013) etc. However, studies relating to sustainability and bankruptcy of Islamic banking industry are found scanty in the literature (Jan et al., 2015b; Cihak et al., 2010). Husna et al. (2012) argued that, Islamic banks are more liquid and are less risky compared to conventional banks but it does not guarantee that Islamic banks will never face any financial distress. Jan et al. (2015a) by evaluating the sustainability profile of Islamic banking industry illuminated that, the sustainability profile of Islamic banking industry is not preserved effectively. Therefore, bankruptcy evaluation of Islamic banking industry almost becomes obligatory for all the interested and concerned parties associated with Islamic banking industry.

Table 1. Compound annual growth rate of Global Islamic banking industry by key performance indicators (%)

#	KP1	CAGR (2004-2007)	CAGR (2007-2011)	Decline
1	CAGR (Net profit)	127.0	-05.49	132.49
2	CAGR (Equity)	104.3	09.08	94.05
3	CAGR (Assets)	74.01	16.06	57.95
4	CAGR (Deposit)	73.03	17.07	55.96
5	CAGR (Financing)	71.09	16.00	55.90
6	Average (KPI)	89.88	10.54	79.34

Source: The banker, KFHR, Bloomberg, & Islamic financial service industry stability report (2013) page.27

Data presented in Table 1 is taken from a report compiled by Islamic Financial Service Board the (IFSB), moreover, IFSB is the legitimized institution which enacts rules, regulation and business standards for Islamic banking and finance industry, and hence it is considered an authentic report. The above Table shows the cumulative annual growth rate of two periods i.e. pre financial crisis period (2004-2007) post financial crisis period (2007-2011) of global Islamic banking industry by key performance indicators. However, the key performance indicators (KPI) includes Assets CAGR, Financing CAGR, Deposit CAGR, Equity CAGR, and Net profit CAGR

The average CAGR for all KPI's is recorded with 89.88 per cent for the pre-crisis period (2004-2007) and 10.54 per cent for the post crisis period (2007-2011). A significant decline of 79.34 per cent is recorded overall, however decline in Net profit CAGR is recorded with 132.49 percent, followed by Equity CAGR, Assets CAGR, Deposits CAGR and Financing CAGR with 94.05 per cent, 57.95 per cent, 55.96 per cent and 55.90 per cent respectively.

Considering the above deterioration in major key performance indicators of the overall Islamic banking industry its sustainability looks suspicious. Secondly, in the perspective of deteriorated KPI's the threat of collapse to the financial system is more likely inside those countries where the dominance of Islamic banking industry out of country's overall banking system is prominent. Therefore, the above findings legitimized and further strengthen the argument of this study to examine bankruptcy profile of Islamic banking industry.

2. Objectives of the Study

1): To perform a comparative analysis on bankruptcy exposure among the top five Islamic banking countries.

2): To perform a comparative analysis on performance indicators with regards to bankruptcy.

2.1 Novelty

The pioneer study examined the cross country bankruptcy profile of Islamic banking industry, and also examined the role of individual performance indicator in causing bankruptcy in different Islamic countries. Therefore, this study will open new discussion on the topic of cross country bankruptcy comparison, and at the same time will also enlighten the practitioners and researchers of Islamic banking industry to identify the root cause of bankruptcy in specific country, and therefore, to adopt more specifically built models rather than adopting a general measures and models for diagnosing bankruptcy in top five Islamic banking countries by global banking assets.

3. Methodology

3.1 Selection of Bankruptcy Model

The bankruptcy prediction has been extensively studied and became the area of interest for many researchers since 1960's (Kumar et al., 2007). Beaver (1966) carried out the earliest work done in the field of bankruptcy by developing a univariate bankruptcy model with the help of different accounting ratios. However, on the basis of its limited prediction use i.e. prediction of only one variable at a time, the model faced a lot of criticism. Altman (1968) addressed the criticism made on earlier Beaver's model and developed a new z-score bankruptcy model using multivariate technique for the first time. Altman's model opened new dimension in the field of bankruptcy and therefore it became very famous in bankruptcy literature due to its highest accuracy level overall i.e. the model was reported 94 percent accurate. Deakin (1972) also criticized the univariate nature of earlier Beaver's model and transformed his model in multivariate perspective for achieving highest accuracy. Altman et al. (1977) developed a new bankruptcy model called the Zeta-model, in that new Zeta-model the study introduced some new variables for finding financial distress. Ohlson (1980) introduced a new concept in bankruptcy literature by introducing logistic regression and developed a new bankruptcy model, however the model also faced a lot of criticism on the basis of its complexity. Mossman (1998) compared the top available bankruptcies models and rated Altman model as the best predictor for bankruptcy due to its ratios built nature, while ratios are the best predictor in finding bankruptcy (Altman, 1968; Mossman, 1998; Pompe et al., 2005; Chieng, 2013). Moreover, due to the accuracy and popularity of Altman bankruptcy model (Altman, 2000) addressed all the criticism made on earlier bankruptcy models especially on (Altman, 1968) and (Altman et al., 1977) and revised both the earliest models according to need of time, the new models are discussed as under.

Table 2. Formulas used in Altman model

If public firm	**Z = 1.2x1 + 1.4x2 + 3.3x3 + 0.6x4 + .999x5**
If private firm	Z = 0.717x1 + 0.847x2 + 3.107x3 + 0.420x4 + 0.998x5
If service firm	Z = 6.56x1 + 3.26x2 + 6.72x3 + 1.05x4

Source: (Altman, 2000).

Total of three formulas are used in Altman's bankruptcy model as shown in the Table 2. For manufacturing firms the formula is divided into two sets i.e. public and private. While predicting the bankruptcy of service industry like the banking industry Altman introduced the separate service firm model (Altman, 2000).

3.2 Altman Model for Service Firms

Altman model is a linear model assigned with different weights. The model is being used by different researchers over the period of time, (Kyriazopoulos et al., 2014) used Altman model on Greek banking industry and found the model very accurate in finding financial distress. Chieng (2013) applied Altman model on Euro zone banks and reported the model 100 percent accurate in finding financial distress. Sharma et al. (2013) used Altman model on Indian banking industry and reported the accuracy of the model with 70 percent. Mamo (2010) applied Altman model on Kenyan banking industry and reported the model 90 percent accurate overall.

3.3 Zone of Discrimination for Altman Model of Service Firms

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

According to (Altman, 2000) if the value of z score found greater than 2.90 the firm will be rated in the (safe) zone, if the value of z-score found less than 1.21 the firm will be rated in (distress zone). However, if the value of z-score lied in between $1.21 < Z < 2.9$ the firm is said to be in the (grey) zone. And technically (grey) zone is also called the safe

3.4 Explanatory Variables

Z-score = Z-score is the dependent variable which is used to denote bankruptcy.

There are four independent variables in Altman model of service firm's i.e.

X1 =Working Capital / Total Assets.

This ratio measures the liquidity of the firms. As liquidity is the most important aspect in finding bankruptcy.

X2 =Retained Earnings / Total Assets.

This ratio measures the cumulative profitability of the firms.

X3 =Earnings before Interest and Taxes / Total Assets.

This ratio measures the total productivity of the firms that how productive the firm's assets are.

X4 =book value of Equity / Book Value of Total Liabilities.

This ratio is responsible for measuring the insolvency of the firm. Higher the ratio safest is the firm.

3.5 Sample Selection

Table 3. Domicile of global sharia-banking assets

S.N	Country	Share (USD1.1 Trillion)
1	Iran	39.7
2	Saudi Arabia	13.7
3	Malaysia	09.8
4	U.A.E	09.1
5	Kuwait	09.0
6	Qatar	04.1
7	Turkey	02.7
8	Bahrain	02.3
9	Indonesia	01.5
10	Egypt	01.3
11	Sudan	01.1
12	Others	05.6
13	**Total**	**100.0**

Source: The banker, KFHR, Bloomberg, Islamic financial service industry stability report (2013) page.26.
Global Islamic forum 2012: Bridging economies introductory session and GIFF report by KFH .page. 5.

The above Table 3 shows the breakdown of Islamic banking assets globally. Iran is the market leader in Islamic banking assets with 39.7 percent followed by Saudi Arabia, Malaysia, U.A.E, and Kuwait respectively. In the above table the top five countries retain more than 80 percent of the global Islamic baking asset, and in case of any financial distress the threat of collapse to the financial system will be ever more in these countries due to the dominance of Islamic banking industry in these countries. Therefore, on the basis of judgmental sampling techniques the top five Islamic banking countries are selected as a sample of the study for further empirical evidence.

3.6 Data Collection

This study is based on secondary data, and all the required data is taken from the annual report of representative banks. However, the official website links for downloading the required annual reports (2009-2013) of Islamic banks is traced via http://wiki.islamicfinance.de/index.php/Islamic_financial_institutions.

3.7 Hypotheses Development

The first objective of the study is to perform a comparative analysis among the top five Islamic banking countries on bankruptcy. As the CAGR of major Islamic banking countries is decreasing with different rates, inline to that, the comparative bankruptcy examination will lead us to understand the fact that, is there any significant effect of decreasing CAGR on the financial health of top five Islamic banking countries. And hence, the following hypothesis is developed.

H_1: Top five Islamic banking countries do differ on bankruptcy exposure.

The second objective of the study is to perform a comparative analysis on performance indicators of top five Islamic banking countries with regards to bankruptcy. Altman put forward the argument that liquidity, profitability, productivity, and insolvency are the top performance indicators that cause bankruptcy. Therefore, the cross country examination of all the top indicators will lead us to understand the fact that, whether bankruptcy in top five Islamic banking countries is caused due to similar performance indicators or it is being caused by different indicators in different countries. This will enlighten the practitioners and researchers to understand the difference of bankruptcy cause in different areas, and to adopt more specific approach rather than

adopting a general bankruptcy approach for all. Therefore the following hypothesis are developed.

H_2: Top five Islamic countries do differ on performance indicators with regards to bankruptcy exposure.

***H_{2a}**: Top five Islamic banking countries do differ on liquidity with regards to bankruptcy exposure.*

***H_{2b}**: Top five Islamic banking countries do differ on profitability with regards to bankruptcy exposure.*

***H_{2c}**: Top five Islamic banking countries do differ on productivity with regards to bankruptcy exposure.*

***H_{2d}**: Top five Islamic banking countries do differ on insolvency with regards to bankruptcy exposure.*

4. Results and Discussion

4.1 Selection Criteria of Islamic Banks for the Study

The list of Islamic banks operating in the top five Islamic banking countries is approached through, http://wiki.islamicfinance.de/index.php/Islamic_financial_institutions. After identifying the list of Islamic banks operating in top five Islamic banking countries by global banking assets, five Islamic banks from each country are selected on the basis of convenient sampling techniques. However, a total of 25 Islamic banks are selected from the sample of five countries for further empirical evidence.

Table 4. Ranking and z-score results of 25 Islamic banks (2009-2013)

#	Country	2009	2010	2011	2012	2013	Avg	Z-score Ranking
	Iran							
1	Bank Maskan	0.63	1.12	0.87	0.24	0.69	0.71	18
2	Bank Saderat Iran	0.24	0.18	0.33	0.02	0.65	0.28	24
3	Karafarin Bank	2.17	5.07	1.95	1.51	1.21	2.38	5
4	Saman Bank	6.15	7.03	6.30	5.94	6.36	6.36	3
5	Sina Bank	0.43	0.73	0.75	0.53	0.84	0.66	19
	Saudi Arabia							
6	AL-Baraka Investment and development Co	8.35	8.36	7.44	7.38	6.89	7.68	1
7	Al Jazeera Bank	1.39	1.28	1.30	1.09	1.05	1.22	14
8	Alinma bank	1.05	1.07	1.08	1.04	1.01	1.04	15
9	Islamic development bank	6.41	7.45	6.10	5.64	6.40	6.40	2
10	Al-Rajhi bank Saudi Arabia	1.90	1.56	1.42	1.22	1.23	1.47	10
	Malaysia							
11	Affin Islamic Bank Berhad	0.75	0.69	0.55	0.51	0.44	0.59	22
12	Alliance Islamic bank	0.93	0.87	0.76	0.69	0.65	0.78	17
13	Public Islamic Bank	0.61	0.72	0.55	0.62	0.53	0.61	20
14	RHB Islamic Bank	0.77	0.62	0.47	0.54	0.58	0.60	21
15	Bank Islam	0.32	0.63	0.48	0.58	0.55	0.51	23
	U.A.E							
16	Abu Dhabi Islamic Bank	1.48	1.68	1.62	1.75	1.37	1.58	9
17	Attijari Al Islami	4.40	4.74	4.80	1.87	3.90	3.95	4
18	Dubai Islamic Bank	1.30	1.33	1.07	1.06	2.01	1.35	12
19	Emirates Islamic Bank	1.54	1.24	1.49	0.99	1.27	1.31	13
20	Sharjah Islamic bank	2.16	2.11	2.00	1.97	1.70	1.99	7
	Kuwait							
21	Al-Ahli Bank	0.13	0.19	0.19	0.22	0.21	0.19	25
22	Al-Rajhi Bank	2.17	1.85	1.67	1.90	1.89	1.90	8
23	Boubyan Bank	1.17	2.65	2.44	2.06	1.84	2.03	6
24	KFH	1.23	1.02	0.91	0.91	1.17	1.05	16
25	Kuwait international Bank	1.07	1.40	1.53	1.48	1.39	1.37	11
#	**Average**	**1.94**	**2.22**	**1.92**	**1.59**	**1.04**	**1.74**	**--**

The above Table 4 is showing the z-score results (2009-2013) of all the 25 selected Islamic banks from top five Islamic banking countries by global Islamic banking assets. Yearly z-score is calculated for each individual banks from (2009-2013) however, the ranking is assigned on the basis of five year average z-score.

In line with objective number one i.e. to perform a comparative analysis on bankruptcy profile among the top five Islamic banking countries, the above Table 4 shows that, Saudi Arabian Islamic banks performed better than the rest of sample, as it reserved the first and second spot in z-score bankruptcy list. While the performance of selected Malaysian Islamic banks in the sample is found unsatisfactory, as it registered 20th, 21st, 22nd, and 23rd positions in z-score bankruptcy list out of the total of 25 Islamic banks. Furthermore, banks AL-Baraka Investment and development Co Saudi Arabia outperformed the rest of sample and entitled the top spot, while Bank Saderat Iran performance is recorded the worst in the sample and it reserved last spot in bankruptcy profile list.

On the basis of z-score the performance of Saudi Arabian Islamic banking industry found better than the rest, followed by Iran, U.A.E, Kuwait and Malaysia on 2nd, 3rd, 4th, and 5th, position respectively. The average z-score of 25 selected Islamic banks for the period (2009-2013) is recorded with 1.74. And according to Altman model for service firms the z-score 1.94 lies in Grey zone. The highest average Z-score recorded in 2010 with 2.22 and the lowest in 2012 with z-score 1.04.

Table 5. Ranking on the basis of performance indictors

#	Country	Liquidity Based Rank	Profitability Based Rank	Productivity Based Rank	Insolvency Based Rank
	Iran				
1	Bank Maskan	18	20	24	25
2	Bank Saderat Iran	25	09	25	24
3	Karafarin Bank	08	03	01	11
4	Saman Bank	01	16	03	22
5	Sina Bank	24	06	09	17
	Saudi Arabia				
6	AL-Baraka Investment and development Co	02	13	12	01
7	Al Jazeera Bank	15	18	06	12
8	NCB	16	07	15	15
9	Islamic development bank	03	02	19	02
10	Al-Rajhi bank Saudi Arabia	06	21	02	08
	Malaysia				
11	Affin Islamic Bank Berhad	21	15	22	23
12	Alliance Islamic bank	19	11	17	18
13	Public Islamic Bank	23	17	16	20
14	RHB Islamic Bank	20	08	23	21
15	Bank Islam	22	24	18	19
	U.A.E				
16	Abu Dhabi Islamic Bank	07	12	11	13
17	Attijari Al Islami	04	01	20	03
18	Dubai Islamic Bank	12	14	10	14
19	Emirates Islamic Bank	13	23	05	16
20	Sharjah Islamic bank	05	04	08	05
	Kuwait				
21	Al-Ahli Bank	11	05	04	09
22	Al-Rajhi Bank	09	19	07	10
23	Boubyan Bank	14	25	13	04
24	KFH	17	22	14	07
25	Kuwait international Bank	10	10	21	06

The above Table 5 is showing the ranking of each selected Islamic bank from top five Islamic banking countries on the basis of performance indicators i.e. Liquidity, profitability, productivity, and insolvency. Altman used these four performance indicators as the top predictors for bankruptcy. Therefore, ranking is assigned to each individual bank on the basis of performance indicators used by Altman to witness the comparative analysis of performance indicators with regard to bankruptcy.

On the basis of performance indicator (liquidity) Saman Bank of Iran registered 1st place, however, on

(profitability) Attijari Al Islami of U.A.E, on (productivity) Karafarin Bank of Iran, and on performance indicators (insolvency) AL-Baraka Investment and development Co of Saudi Arabia registered the first places respectively.

Contrary to that, on the basis of performance indicator (liquidity) Bank Saderat Iran performance is found worst in the selected sample and therefore, it registered last place i.e. 25th. Similarly the Boubyan Bank of Kuwait on (profitability), Bank Saderat Iran on (productivity), and Bank Maskan Iran on (insolvency) registered last spots respectively.

The overall statistics of performance indicators used on the sample of 25 Islamic banks from top five Islamic banking countries by global banking assets shows that, Saudi Arabian Islamic banks on average performed better than the rest of sample as it registered the second position thrice and the first position once. However, after Saudi Arabia the Iranian banks performed better on average, followed by U.A.E, Kuwait and Malaysia Islamic banks performance respectively.

Table 6. Comparative analysis of financial performance

Country	**X1:Liquidity**	**X2:Profitability**	**X3:Productivity**	**X4:Insolvency**	**Z-score (Bankruptcy)**
Kuwait	0.94	0.27	0.21	0.43	1.59
U.A.E	1.16	0.05	0.17	0.38	1.76
Saudi	2.75	0.02	0.18	1.48	4.45
Iran	0.66	0.06	0.34	0.09	1.16
Malaysia	0.49	0.02	0.11	0.35	0.99
F-Test	**25.79**	**7.38**	**1.50**	**5.87**	**14.90**
P-value	**0.000**	**0.000**	**0.20**	**0.000**	**0.000**
Post Hoc test					
Kuwait					
Kuwait - UAE	N.S	Sig**	N.S	N.S	N.S
Kuwait – Saudi	Sig**	Sig**	N.S	Sig**	Sig**
Kuwait – Iran	N.S	Sig**	N.S	N.S	N.S
Kuwait – Malaysia	N.S	Sig**	N.S	N.S	N.S
U.A.E					
U.A.E – Kuwait	N.S	Sig**	N.S	N.S	N.S
U.A.E – Saudi	Sig**	N.S	N.S	Sig**	Sig**
U.A.E – Iran	N.S	N.S	N.S	N.S	N.S
U.A.E – Malaysia	Sig**	N.S	N.S	N.S	N.S
Saudi Arabia					
Saudi – Kuwait	Sig**	Sig**	N.S	Sig**	Sig**
Saudi – U.A.E	Sig**	N.S	N.S	Sig**	Sig**
Saudi – Iran	Sig**	N.S	N.S	Sig**	Sig**
Saudi – Malaysia	Sig**	N.S	N.S	Sig**	Sig**
Iran					
Iran –Kuwait	N.S	Sig**	N.S	N.S	N.S
Iran – U.A.E	N.S	N.S	N.S	N.S	N.S
Iran – Saudi	Sig**	N.S	N.S	Sig**	Sig**
Iran – Malaysia	N.S	N.S	N.S	N.S	N.S
Malaysia					
Malaysia – Kuwait	N.S	Sig**	N.S	N.S	N.S
Malaysia – U.A.E	Sig**	N.S	N.S	N.S	N.S
Malaysia- Saudi	Sig**	N.S	N.S	Sig**	Sig**
Malaysia – Iran	N.S	N.S	N.S	N.S	N.S

The mean difference is significant at the 0.05 level, and ** at 0.01.

To examine the difference of financial characteristics with regards to bankruptcy ANOVA Post hoc Scheffe test is carried out on variable X1–Z-score. The p-value in the above Table 5 is showing the significance of

performance indicators i.e. liquidity, profitability, productivity, insolvency.

The results shows that on the basis of performance indicators like liquidity, profitability, insolvency the relationship of top five Islamic banking countries with regard to bankruptcy is found significant. But on the basis of performance indicator (productivity) the top five Islamic banking countries does not have a significant relationship because of the insignificant p-value. Therefore, it is proved the bankruptcy caused in different Islamic countries is due to different performance indicators except productivity.

This study illuminated that, among the top five Islamic banking countries by global Islamic-banking assets the role of productivity ratio in registering bankruptcy is common however, the role of performance indicators like liquidity, profitability, and insolvency in bankruptcy exposure of top five Islamic baking country differs. In line of the above findings the hypothesis H1, H_{2a}, H_{2b} and H_{2d} are retained, while the p-value of variable X3 is insignificant therefore, hypothesis H2c is rejected.

5. Conclusion

To achieve the set objectives of this study, the study applied Altman bankruptcy model, and post ANOVA post hoc Scheffe test on 25 selected Islamic banks from top five Islamic banking countries by global Islamic banking-assets. In response to the first objective of the study, the comparative analysis of z-score results in Table 4 illuminated that, on average the Islamic banking industry of Saudi Arabia performed better than the rest of the sample as Saudi's banks reserved 1st and 2nd spots on z-score bankruptcy ranking list. Following Saudi Arabia the performance of by Iranian Islamic banks found better on average, as its banks reserved the 3rd and 5th spots in z-score bankruptcy list as well. The bankruptcy performance of U.A.E and Kuwaiti Islamic banks found mediocre, as its banks reserved the 4th & 7th and 6th & 8th spots respectively in z-score bankruptcy list out of the total of 25 banks. However, the performance of Malaysia Islamic banks found unsatisfactory in the sample as its banks reserved 19th, 20th, 21st, and 23rd positions in comparative z-score ranking out of the total of 25 Islamic banks from top five Islamic banking countries by global banking assets. Furthermore, the individual performance analysis of banks illuminated that, banks AL-Baraka Investment and development Co Saudi Arabia entitled the top spot on the z-score bankruptcy ranking, while Bank Saderat Iran reserved the last spot in bankruptcy profile list**.** The average z-score for all 25 selected Islamic banks is recorded with 1.74, and according to the zone of discrimination for Altman model of service 1.74 lies in the grey zone.

In response of saturating the second objective of the study, to perform a comparative analysis on performance indicators with regards to bankruptcy. The results shows that, on the basis of performance indicators like liquidity, profitability, insolvency the relationship of top five Islamic banking country with regard to bankruptcy is found significant. However, on the basis of performance indicator the (productivity) top five Islamic banking countries does not have a significant relationship. Therefore, it is proved the bankruptcy caused in different Islamic countries is because of different performance indicators except productivity.

In the context of inefficient sustainability maintaining and bankruptcy profile evaluation by Islamic banking industry the results of this study are consistent with the findings of (Jan et-al. 2015a). Moreover this research will lead the researchers to understand the bankruptcy profile of Islamic banking industry in the top five Islamic banking countries along with the pivotal role of different performance indicators in causing bankruptcy in different countries. Furthermore, the findings of this study will also lead the researchers and practitioners associated with Islamic banking industry towards the adoption of more specific models and techniques of diagnosing bankruptcy in different countries.

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