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# Stability difference in conventional and Islamic banks: Evidence from the Middle East and North African region

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**Abstract**

*In this piece of work, we consider the financial stability difference between the interest conventional and interest-free Islamic banks. The crucial problem with the existing literature is the over-dependence on the historical information to account on the stability, which could undermine Islamic free interest banks. Using a bank data of 81 sampled banks from the MENA region, we combine both accounting and market-based measurements of banking stability to determine whether conventional banks are more resilient financial tremor than Islamic banks from 2008-2016 financial year. The study found accounting stability measurements more appropriate to explain conventional banks stability better, while the market-based measure explains the stability of Islamic banks better. At large the outcome indicates that Islamic banks are not free from financial crunch, but can recover from the financial shock faster than conventional banks.*

**Keywords:** Banking stability; probability to default; Z-score; MENA; GMM; conventional banks; Islamic banks.

## 1. INTRODUCTION

In recent years, a significant number of large Islamic institutions have defaulted or come nearby to insolvency following a change in their lending strategy and operational behaviour (Laeven, 2011). Such defaults have activated a sharp contraction in the banks' ability to create credit facilities in the Gulf Cooperation Council –GCC region (IMF, 2014). These trials decorated the crucial importance of investigating the instability determinants of banking default of traditional and Islamic banking sectors in an attempt to promote their financial stabilities.

Prior studies have portrayed that Islamic banks are resilient and stable to stand the pressure of bankruptcy and cost of shock of financial crunch compared to the traditional counterpart(Ahmed, 2002; Darrat, 1988; Hasan & Dridi, 2011; Hasan, Syed, & Alhabshi, 2014; Hussain, Shahmoradi, & Turk, 2015; Khan, 1986), but contrary to the prediction of their studies, few years after the global financial crisis significant number of Islamic financial institute defaulted such as Dubai Bank in 2012, Bahrain Elaf Bank in 2013, Capivest Bank in 2012, DMI Bank 2014 and many more (Othman, 2012; Zawya, 2015).

The empirical literature of banking stability tends to be one of the areas that receive global holistic attention because of its importance. Banking insolvency is one of the uncertainties neighbouring a financial institutions capability to perform its credit supply functions to private sectors ((Stepanyan & Guo, 2011). Furthermore, two of the most common measures for detecting the financial sector instability are either through the accounting based Z-score and Non-Performing Loan or a market-based Distance to Default and Probability to Default (DD, PD) measures as in (Boumediene, 2011; Kabir, Worthington, & Gupta, 2015; Miller, 2009). Meanwhile, the

plethora of empirical literature exploring the numerous factors militating the bankruptcy of the banking sector emerge because of the lesson we derived from 2008-2009 global financial crunch, such as (Beck, Demirguc-Kunt, & Merrouche, 2013a; Berger & Bouwman, 2013; Berger, Imbierowicz, & Rauch, 2016; Čihák & Hesse, 2010; Farooq & Zaheer, 2015; Smolo & Mirakhor, 2010).

Contemporary investigations such as Siraj and Sudarsanan (2012); Khan and Bhatti (2008) suggested that conventional and Islamic banks dominate the banking assets in the Middle East region. Therefore, it would be interesting for research environments, operators and banking supervisors to undertake an in-depth analysis of the stability of the banking industry. Despite the continuous effort of the empirical literature on numerous facets of banking stability, very few studies focus their investigating tools to drives banking stability of conventional and Islamic banks, their implications in the banking regulation. In the line of this, this paper examined the determinants of financial sector stability in the Middle East states. There is no widespread agreement among scholars on the appropriate measure to capture financial sector stability, and a myriad of scholarly works have adopted a solo measure, usually Z-score of banks solvency. A single indicator of bank stability would not avail to deliver inclusive information on financial stability (Svirydzenka, 2016).

The Middle East is an exciting location for the studies because of its developmental nature of Islamic banks and other financial institutions in the region compared to the other areas in the biosphere (Alqahtani, Mayes, & Brown, 2017; Youssef & Osama,2015). The area serves as the hobs of Islamic banks with assets around $ 1.9 trillion (Ernst & Young, 2015) IMF 2015). Despite a series of banking reorganisations still, the capital supplies to private business organisation remain inadequate (De Lima et al., 2016); IMF (2014). The contribution of this paper is twofold. Firstly, to identify the bank-specific factors

responsible for banking sector stability differences between conventional and Islamic banks. Secondly, it represents that banking sector stability is sensitive to alternative change in stability measurements. In a simple note, the banking stability in Middles East states relies solely on the dimension from which the solvency of the banking sector is evaluated. The organisation of the paper is as follows. Section 2 literature preview.Section 3 methodological description. Section 4 presentation and discussion of results. Section 5 summary and policy suggestions.

## 2. BANKING STABILITY - REVIEW OF THE LITERATURE

Numerous literature has studied the stability of the banking sector using historical based Z-score as the determinants of banking solvency risk (Beck, Demirguc-Kunt, & Merrouche, 2013b; Bourkhis & Nabi, 2013; Čihák & Hesse, 2010; Köhler, 2015; Tabak, Fazio, & Cajueiro, 2013). Similarly, few empirical studies focus on banking stability with particular attention to market-based approach Probability to default (PD) as the determinants of financial institution solvency level as the dependent variable (Boumediene, 2011; Kabir et al., 2015; Zhang, Xie, Lu, & Zhang, 2016).

The literature cited upstairs emphasis mostly on the traditional interest banks. However, considering the vulnerability of banking industry to economic bubbles, cyclical financial risk and the promising pace of progress of the Sharia financial industry have attracted the attention of researchers transversely to examine the stability difference between conventional and Islamic financial institutions. For instance, Beck et al. (2013) argue on the role of non-loan incomes increase the stability in 510 combinations of dual banks from 22 cross countries for the span of 1995 to 2009 financial periods.

The outcome of the literature reveals that Islamic financial institutions are more resilient than their interest-driven banks with a higher stability index. In a night shall, the overall result indicated that small banks to appear more resilient following the highest value of stability index of Z-score. Based on capitalisation quality, larger banks are found to less capitalise than smaller banks. Finally, the study found the selected banks to skip bankruptcy by increasing the rate of non-loan incomes and assets size. Analysing 175 conventional and Islamic banks in 10 MENA group of countries, Srairi (2013) utilised static regression to determine bank stability risk; the outcomes indicate loan growth, total assets reduce bank risk to insolvency. The result shows finally that conventional banks appear more stable and resilient to financial bubbles than the Sharia banking system.

Similarly, Bourkhis and Nabi (2013) on their analysis of the difference between interest gearing and Sharia non-interest banks, the study reveals that Islamic banks reduce the risk of default more than an interest banking model from 1998 to 2009. Ghosh (2014) relate banking stability with bank capital buffer in the GCC financial market, from 1996 down to the 2011 financial period. The study reveals that financial institution responds to higher tendencies of default by improving on their capital base. Expanding on the work of Ghosh (2014), Khediri, Charfeddine and Youssef (2015) reveal that Islamic banking system is appeared to more liquid and adequately capitalised than interest banking system, this is consistent with Beck et al. (2013). Another stability differences between the dual banking systems were explored by (Miah & Uddin, 2017), the empirical findings proved that Islamic banks in GCC region from 2005 to 2014 are more stable than their conventional counterpart banks, but the stability difference is not extended to the long-run period within the static model of ordinary least square.

In regards to the stability difference base on market measurement as the dependent variable, few studies explore the relationships. Boumediene (2011) Using the panel data of conventional and Islamic banks from 2005 down to 2009, Boumediene (2011) study reveals that Islamic shows significant higher stability than conventional banks in terms of the descriptive result. Similarly, Zhang et al. (2016) using both financial and market measures of financial default data of US financial holding companies from 2007 to 2013. The result of the quarterly data reveals that all three components of the capital buffer are very instrumental in controlling the bankruptcy level of financial institutions. Similarly, on the combination of both historical and market-based measures for gauging the tendency of the bank to go bankrupt, Kabir et al. (2015) utilised the data of conventional and Islamic banks from 2000 to 2012 financial year of 13 states in the organisation of Islamic Countries (OIC). The static panel outcome reveals that conventional banks are significantly far away from default when measured with Z-score, while the interest-free banks are more resilient when measured with market-based distance to default. This study reveals the best way to asses' instability risk of both interest and interest-free banks.

However, our investigation is unique from the prior studies as it examines the Middle East and North African banking sector stability, the region that hold most significant percentage of global Islamic bank assets of 47.7% (Islamic Financial Service Board-IFSB, 2015). More so, the banking sector in the region has experienced series of reforms, changing from public sector economy to a more private sector driving economy (Caporale, Lodh, & Nandy, 2017; Lee, 2002) that have a tremendous influence on the stability level of the banking industry. In a broader sense, this comparative work will fill the literature gap by providing information and a new line of

measuring the stability difference between the clusters of banks.

## 3 METHODOLOGY AND DATA OF THE STUDY

**3.1** As we strive to evaluate and compare the stability condition between conventional and Sharia banks in the MENA group, the study takes to employ a combination of market and accounting base stability measurements. In the list of market base stability indicators, Probability of default (PD) is selected as the dependent variable following the Merton-KVM framework base on improve version of Merton (1974) by (Duan, Sun, & Wang, 2012). The data market data for the banks in this study were retrieved from Credit Research Initiative (CRI) database for all quoted banks in MENA region, and financial data were sourced from Bank scope database for 85 banks for the period 2008 to 2016 fiscal year. Moreover, the countries with operational dual banking in the region of MENA form the sample, a total of 120 banks were selected and data set used for this study is actively balance (as in table 1 for sample classification).

Based on Merton KVM model, a bank insolvency probability at a point ţ is N(-DDţ) where DDţ signified distance to default with formula as.

$$DD_t = I_n(V_t/K) + (\mu - \sigma^2/2)(T - ţ)/\sigma\sqrt{T - ţ} \quad (1)$$

$$PD_t = N_t(-DD_ţ) \quad (2)$$

The bank face instability level with a higher value of PD

On the part of historical based stability measurement, Z-score is adopted; Z-score evaluated the Return on assets of the bank plus the capital buffer and divided by volatility of ROA (Asli Demirgüç-Kunt & Huizinga, 2010; Korbi & Bougatef, 2017; Laeven & Levine, 2009).

$$Z - score_t = ROA + CAR/SD_{ROA} \quad (3)$$

Unlike previous literature that considers the panel model static Boukhis and Nabi (2013), Kabir et al. (2015), this study presumes the model be a linear and dynamic one. This assumption renders the traditional panel of OLS inappropriate; we consider the Generalized system Method of Moment (GMM) wealthy of estimating our model as in (Arelliano & Bover, 1995; Blundell & Bond, 1998).

### 3.2 Data

The historical bank data are retrieved from Bank scope database, while the market bank data are sourced from data stream and risk management institute for the all the quoted banks in the MENA region at an annual rate for 81 banks for the span of 2008 to 2016. While the macroeconomic data comprising of GDP-growth and inflationary rate were obtained from the World Bank database.

**Table 1 The Sample of MENA Banks for the study**

| Countries MENA | Conventional Banks | Islamic Banks | Total |
|---|---|---|---|
| Bahrain | 3 | 3 | 6 |
| Egypt | 5 | 3 | 8 |
| Jordan | 9 | 1 | 10 |
| Kuwait | 4 | 6 | 10 |
| Lebanon | 6 | 0 | 6 |
| Qatar | 4 | 3 | 9 |
| Saudi | 7 | 4 | 11 |
| UAE | 8 | 5 | 13 |
| Tunisia | 10 | 0 | 10 |
| Total | 56 | 25 | 81 |

Source: Bank scope/Risk Management Institute

### 3.3 Explanatory factors

In this study, we hold the assumption that an array of bank internal factors, institutional and macroeconomic factors explained the stability of the banking institutions as the probability of default and Z-score measures it.

On the contest of bank internal factors, Korbi and Bougatef (2017) stress the significance of bank internal factors

in curtailing the cost of banking distress, bankruptcy and insolvency through banking reform and regular examinations. In this contest, the internal element that used in this study is based on CAMEL nomenclature of capital buffers, asset quality, and liquidity quality, management sufficiency and bank total assets as in Whalen and Thomson (1988); Pappas, Ongena, Izzeldin and Fuertes (2016).

**3.3.1 Capital buffers**: the direction between the capital adequacy level and banking stability literature is inconsistent. There are many empirical kinds of literature that indicate the significance of capital buffer to ginger banking stability such as (Ghosh, 2015; Köhler, 2015; Tabak, Gomes, & Medeiros, 2015; Williams, 2014). Consequently, higher capital buffer let bank free from the threat of default. However contrary studies such as Tabak et al. (2013) argued that banking demand for higher capital buffers drags bank to instability in the sub-American continent from the data span of 2001 to 2008. For a bank to escape the cost of bankruptcy, banks required to condense their equity capital which augments the stability. However, the work of Delis, Tran and Tsionas (2012) and Srairi (2013) reveals no significant relationship between the capital buffer and banking stability. The capital buffer is figured by dividing total equity capital with total weighted assets.

**3.3.2 Liquidity quality:** observing the work of (Soedarmono, Machrouh, & Tarazi, 2011) on the data span from 2001 to 2007, documented that liquidity of the Asian banks has a positive and significant effect on banking stability, the outcomes are consistent to empirical work of (Dima, Dincă, & Spulbăr, 2014; Jeon & Lim, 2013; Nguyen & Nghiem, 2015). In a nutshell, the studies reveal that banks can enhance their financial stability by providing fewer loan facilities to take care of customers' cash demand. However, Lee and Chih (2013) exploring the data

span from 2004 to 2011 found the liquidly quality to have a negative relation with bank stability Z-score. While the literature work of Dong, Meng, Firth and Hou (2014) on the banking industry of China revealed that liquidity ratio is irrelevant to the Z-score stability index. Conversely, the prior expectation of the variable should display a positive impact on probability to the default of a bank and an adverse effect on bank Z-score. An increase in this ratio signified the critical condition of the bank liquidity.

**3.3.3 Asset quality**: using the American bank data from 2003 to 2013, Zhang et al. (2015) found that loan loss reserves are significant to bank stability. In essence, the higher value of this ratio designates the poorer quality of banking sector assets. Thus, we presume that the relationship between loan quality probability of default to be positive, while the presume direction between stability Z-score and loan reserves to tilted toward negative.

**3.3.4 Macroeconomic level factors**: These factors represent a healthier economic prospect which entails annual growth, and general price indexes are likely to affect banking stability positively. However, various literature predicted that GDP growth to have a positive relationship with Z-score banking industry stability (Köhler, 2015; Srairi, 2013; Williams, 2014). Similarly, minority literature proposed GDP growth to adversely banking stability (Bertay, Demirgüç-Kunt, & Huizinga, 2013; Cubillas & González, 2014; Soedarmono et al., 2011). On contrary discoveries, Chalermchatvichien, Jumreornvong and Jiraporn (2014) estimation found no correlation between banking stability Z-score and GDP growth.
The inflationary rate macro-level factor represents the average price indexes in a given country; a persistent price surge is directly linked to a higher interest rate which affects the

outreach of banks (Alqahtani & Mayes, 2017). The situation could course bank credit bubbles which increase the tendency of banking instability (Demirgüç-Kunt & Detragiache, 1999). Empirical literature recorded a mixed finding regarding the relationship between inflation and bank Z-score. Previous research has found bank Z-score positively affecting banking stability as in (Bourkhis & Nabi, 2013; Nguyen & Nghiem, 2015). While different discoveries reported that higher inflationary rate ill the stability of the banking industry and therefore advice banks operators to shine away from countries with persistent inflation (Cubillas & González, 2014; Houston, Lin, Lin, & Ma, 2010; Köhler, 2015). The inflationary rate is not always very detrimental to banking stability (Delis et al., 2012; Srairi, 2013).

**Table 2 Variables and Measurement**

| Variables | Measurements | Source |
|---|---|---|
| Zscore | Equity to Asset + ROA/σ(ROA) | Beck et al., 2013. Bank scope |
| Probability to default | Short term liability, Risk-free rate, the market value of assets and expected returns | Kabir et al., 2015. Risk Management Institution |
| Capital sufficiency ratio | Equity/Asset | Ghosh, 2014. Bank scope |
| Asset quality ratio | Loan loss reserves/Total loan | Wahid & Dar, 2016. Bank scope |
| Liquidity quality | Net loan /Total Asset | Nguyen & Nghiem. Bank scope |
| GDP-growth | GDP nominal growth rate per year | Beck et al., 2013. World Bank |
| Inflation | CPI | Cihak & Hesse, 2010. WDI |
| Bank size | Natural log of total bank assets | Bourkhis & Nabi, 2013. Bank scope |
| Managerial efficiency | Operation expenses/operating income | Bustaman et al., 2017. |
| Diversification | Noninterest income/operation income | Kabir et al., 2015. Bank scope |

## 3.4 Description of the Model

To arrive into the answer to the main question of this study- whether there is a stability difference between conventional and interest-free banks after the global credit crunch, the following model is constructed.

$$PD_{btj} or Zscore_{btj} = \beta^{o} + \beta 1 Zscore_{btj-1} \, or \, \beta 1 PD_{btj-1} + \beta 2 Car_{btj} + \beta 3 Llr_{btj+} Nla_{btj} + \beta 4 Gdp_{bt} + \beta 5 Inf_{bt} + \beta 6 CBz_{btj} + \beta 7 CMe_{btj} + \beta 8 CBv_{btj} + \varepsilon_{btj} \quad (4)$$

Where PD or Z-score stand as proxy measures of banking stability, $Car$ measure of capital buffer, $Llr$ represent bank asset quality, $Nla$ is representing the banking liquidity quality, $Gdp$ is the rate of economic growth, $Inf$ stand for the country inflationary rate. $CBz, CMe \; and \; CBv$CBz stand for the control variable of bank size, management efficiency and level of bank revenue diversifications, while $\varepsilon$ represent the disturbance term within a given time, the subscript $(btj)$ denote; $b$ = 1…. N is the number of banking firms, $t$ stand for the time frame 2008 – 2016,$j$ =1…….9 group of country. $Zscore_{btj-1} \; or \; PD_{btj-1}$ as the lagged of the dependent variable built-in to deal with the endogeneity problem.

## 4. ESTIMATION AND ANALYSIS

This section entails the estimations of the study, starting with correlation and descriptive statistics followed by the result of the estimation.

### 4.1 Descriptive analysis

Table 2 reports the correlation matrix indicated a low correlation between the variables, as the correlation between the Probability of default and bank specific factors show a significant relationship. Similarly, the correlation between Zscore and bank internal factors also remains weak and positive, so also the correlation with other macroeconomic factors and control variables. Using the pairwise contrast to assess the overall stability differences over the time span under investigation reveals more meaningful evidence than descriptive statistics on this stability investigation.

**Table 2 Correlation Matrix**

| | PG | Zscore | EQTA1 | LLR1 | NLA | GDP | INF | lnTA | NI |
|---|---|---|---|---|---|---|---|---|---|
| PG | 1 | | | | | | | | |
| Zscore | - | 1 | | | | | | | |
| EQT | -0.14* | 0.14* | 1 | | | | | | |
| | 0.00 | 0.00 | | | | | | | |
| LLR | 0.30* | -0.35* | 0.17* | 1 | | | | | |
| | 0.00 | 0.00 | 0.00 | | | | | | |
| NLA | -0.16* | -0.06 | -0.37* | -0.40* | 1 | | | | |
| | 0.00 | 0.09 | 0.00 | 0.00 | | | | | |
| GDP | 0.08* | -0.02 | 0.09* | -0.10* | 0.17* | 1 | | | |
| | 0.02 | 0.62 | 0.01 | 0.004 | 0.00 | | | | |
| INF1 | 0.41* | -0.09* | -0.05 | 0.09* | -0.11* | 0.15* | 1 | | |
| | 0.00 | 0.01 | 0.16 | 0.02 | 0.002 | 0.00 | | | |
| lnTA | -0.18* | 0.19* | -0.37* | -0.36* | 0.32* | 0.38* | -0.18* | 1 | |
| | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| NI | -0.21* | 0.26* | -0.19* | -0.33* | 0.18* | 0.39* | -0.09* | 0.82* | 1 |
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | |

Probability ***p<0.1, **p<0.05, *p<0.01

Table 3 represents the descriptive analysis of the data. It reports that the average PD for the whole sample banks is 0.27 multiples with the lowest figure of 1.29 multiples and a maximum value of 2.99 multiples. They are indicating some apparent difference between conventional banks (0.24%) and Islamic banks (0.34%) in terms of probability of default. Similarly, the average stability Zscore for whole sample banks is 3.73 multiples, with responding minimum value of 0.55 multiples and the maximum value of 5.54 multiples. There seem to be minimal differences between conventional banks (3.89) and Islamic banks (3.39) with regards to Zscore stability. In terms of capital adequacy, Islamic banks on average generate more equity as a percentage to total assets (0.22%) when compared to the conventional counterpart banks which generate equity capital of (0.13%). The average provision for loan loss reserve of Islamic banks is (0.03%) higher than conventional banks. However, interims of loan outreach, the conventional banks mobilised more loans as a percentage of assets (0.56%) than its Islamic counterpart with (0.49%). This

outcome indicates that interest-free Islamic banks are more stable and faster to recover from the crunch.

**Table 3 Descriptive Analysis**

| VARIABLE | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| | All Samples | | | | |
| PD | 765 | 0.27 | 0.37 | 1.29 | 2.99 |
| Zscore | 765 | 3.73 | 0.66 | 0.55 | 5.54 |
| EQTA | 765 | 0.16 | 0.14 | -0.06 | 0.99 |
| LLR | 765 | 0.07 | 0.09 | 0 | 1 |
| NLA | 765 | 0.54 | 0.18 | 0 | 1.05 |
| GDP | 765 | 25.5 | 1.10 | 23.8 | 27.4 |
| INF | 765 | 0.04 | 0.04 | -0.05 | 0.18 |
| lnTA | 765 | 15.9 | 1.35 | 11.2 | 19.1 |
| NI | 719 | 11.6 | 1.74 | 0 | 15.0 |
| LCIR | 719 | 3.74 | 0.44 | 2.13 | 6.65 |
| | Conventional Banks | | | | |
| PD | 522 | 0.24 | 0.29 | 0 | 2.47 |
| Zscore | 522 | 3.89 | 0.61 | 0.55 | 5.49 |
| EQTA | 522 | 0.13 | 0.04 | -0.06 | 0.38 |
| LLR | 522 | 0.06 | 0.04 | 0 | 0.28 |
| NLA | 522 | 0.56 | 0.15 | 0.14 | 1.05 |
| GDP | 522 | 25.4 | 1.11 | 23.8 | 27.4 |
| INF | 522 | 0.04 | 0.04 | -0.05 | 0.18 |
| lnTA | 522 | 16.1 | 1.31 | 12.9 | 19.1 |
| NI | 510 | 11.7 | 1.68 | 0 | 15.0 |
| LCIR | 522 | 3.68 | 0.32 | 2.76 | 4.41 |
| | Islamic Banks | | | | |
| PD | 243 | 0.34 | 0.49 | 1.29 | 2.99 |
| Zscore | 243 | 3.39 | 0.65 | 2.18 | 5.54 |
| EQTA | 243 | 0.22 | 0.23 | 0.03 | 0.99 |
| LLR | 243 | 0.09 | 0.16 | 0 | 1 |
| NLA | 243 | 0.49 | 0.24 | 0 | 0.93 |
| GDP | 243 | 25.8 | 0.99 | 23.8 | 27.4 |
| INF | 243 | 0.04 | 0.04 | -0.05 | 0.18 |
| lnTA | 243 | 15.5 | 1.37 | 11.2 | 18.3 |
| NI | 209 | 11.3 | 1.84 | 0 | 14.6 |
| LCIR | 243 | 3.87 | 0.61 | 2.13 | 6.65 |

In this segment of the paper we are comparing the existing stability difference between conventional interest banks and interest free Islamic banks, from the period of Global financial crunch and the period after (2008-2016), to assess whether the consequence of financial predicament and speed of recovery have a significant difference among the dual banking system, which is the primary target of this research work. To attain our objective, we control for some meaningful specific factors such as bank size, diversity and managerial efficiency.

It is observable from the short run analysis in table 4 that the lag of the dependent variable PD is positively and

significantly affecting the stability of two sub-sample bank clusters, specifically on the whole sample and Islamic banks. The table presents that a percentage increase in the financial stability of the banks last year leads to the upsurge in banking stability by 0.58 percent and 0.19 percent in the current year in whole sample and Islamic banks sub-groups, nevertheless conventional banks recorded a decrease of financial stability position by 0.64 percent. More so, the table 4 also shows that the equity capital of the sub-samples as significant and improving the stability of the banking sector measured through PD, this is so because bank customer attached special trust to well-capitalized banks. The result of adequate capital improves banking stability corroborates with literature as in (Alqahtani et al., 2017; Ghosh, 2015; Korbi & Bougatef, 2017).

The coefficient of the asset quality shows a negative and significant relation with PD of the whole sample and Islamic banks, suggesting that the stability of the two sub-samples is improving. While the coefficient of conventional appeared insignificant, the lack of this variable to be significant on the stability of conventional banks could be due to the inability of the market measurement to explain conventional banks stability better as also found in (Kabir et al., 2015).

Similarly, the variable of bank liquidity has a significant and negative effect with PD in the whole sample, conventional and Islamic banks sub-groups. However, the outcomes displayed that Islamic banks are more resilient than conventional banks as they concentrated on less risky investments and their operations are more attached to market conditions which are strictly anchored in the actual economy.

**Table 4 System GMM estimation for PD**

| VARIABLES | Whole Sample Banks | Conventional Banks | Islamic Banks |
|---|---|---|---|
| PD | | | |
| L1. | - 0.581* | 0.639* | -0.188** |
| | (0.000) | (0.000) | (0.018) |
| EQTA | -0.496* | -0.757* | -2.541* |
| | (0.000) | (0.000) | (0.000) |
| LLR | -0.160* | 0.046 | -1.269* |
| | (0.000) | (0.874) | (0.000) |
| NLA | -0.323* | -0.269* | -3.419* |
| | (0.000) | (0.000) | (0.000) |
| GDP | 0.087* | 0.657* | 0.316* |
| | (0.000) | (0.000) | (0.003) |
| INF | 0.086* | 0.036* | 0.888** |
| | (0.000) | (0.000) | (0.040) |
| lnTA | -0.059* | -0.069* | -0.114 |
| | (0.000) | (0.001) | (0.346) |
| CIR | -0.234* | -0.271* | -0.276 |
| | (0.000) | (0.000) | (0.263) |
| NI | -0.023* | -0.021 | -0.097* |
| | (0.000) | (0.134) | (0.000) |
| _cons | 0.228 | 0.919* | -2.977 |
| | (0.466) | (0.000) | (0.272) |
| Statistics | Coefficient and Probability | | |
| Wald Chi2 (16) | 30155.31 | 14769.57 | 14918.04 |
| | (0.000) | (0.000) | (0.000) |
| Ar2 | 0.150 | 0.599 | 0.134 |
| Hansan J | 0.228 | 0.419 | 0.508 |
| Year Dummy | Yes | Yes | Yes |
| Obs. | 576 | 404 | 172 |
| Groups | 85 | 58 | 27 |
| Instruments | 71 | 57 | 25 |

Probability ***p<0.1, **p<0.05, *p<0.01

For the Zscore stability measurement, it can be shown from table 5 that the lag of the dependent variable indicates a percentage increase of stability in the previous year leads to an upturn of stability Zscore by 0.94 percent, 0.88 percent and 0.9 percent in the current year in the whole sample, conventional and Islamic banks. However, the coefficient of capital base indicates a positive and significant relation with stability measurement in the whole sample and conventional banks samples, while Islamic bank shows a negative and significant relationship with the Zscore stability model. Indicating that conventional banks generate more equity to asset ratio to attain a high level of stability. Therefore, the findings settle on the business reputation hypothesis were customers consider a bank with higher capital a wealthy partner.

A negative and significant association is established between asset quality and Zscore stability indicator in the conventional sample, indicating that conventional bank provision for loan loss has a negative effect on short term bank solvency, while the relationship on the part of Islamic banks sample is insignificant.

Although the net loan to asset ratio shows a positive and significant relation with stability indicator in the whole sample and conventional banks sub-sample sets, indicating that bank with high liquidity position can easily overcome the effect of adversaries. While on the aspect of Islamic bank total loan to asset ratio is not significant. This shows the explanatory power of the Zscore model to explain conventional banks stability better.

There is, however, a growing concern that the financial stability of banks may differ due to different countries exhibit different macroeconomic conditions. We employed inflation and GDP-growth to capture the disparity between MENA countries. However, the regression in table 4 revealed a positive and significant condition of both GDP and inflation on PD stability of the whole sample, conventional and Islamic banks groups. This reaffirms that market condition is affected by macroeconomic cycles, by reducing the stability level of all the sub-sample groups. This result is in line with the discovery of Monnin and Jokipii (2013) and at the same time is consistent with a view from (Kabir et al., 2015). Additionally, in table 5 the coefficient of GDP-growth is affecting the financial stability of banks negatively and significantly in the whole sample and conventional sub-samples. A one percentage increase in GDP growth generates a 0.05 percent decrease in stability of whole sample and 0.03 percent in conventional banks while a one percent increase in GDP growth generates an increase in bank stability by 0.13 percent.

In table 5 a negative and significant relationship is found between inflation and banking stability Zscore. However, a one percent increase in inflation will lead to a decrease in banking stability by 0.15 percent. Our result is found consistent with the proposition of (Ibrahim & Rizvi, 2017).

**Table 5 System GMM estimation for Zscore**

| VARIABLES | Whole Sample Banks | Conventional Banks | Islamic Banks |
|---|---|---|---|
| Zscore | | | |
| L1. | 0.935* | 0.879* | 0.903* |
| | (0.000) | (0.000) | (0.000) |
| EQTA | 0.169* | 1.152* | -0.449** |
| | (0.000) | (0.000) | (0.034) |
| LLR | 0.290* | -1.282* | 0.074 |
| | (0.000) | (0.000) | (0.683) |
| NLA | 0.196* | 0.327* | -0.171 |
| | (0.000) | (0.000) | (0.456) |
| GDP | -0.049* | -0.030* | 0.133* |
| | (0.000) | (0.000) | (0.000) |
| INF | 0.022* | -0.002 | -0.152* |
| | (0.000) | (0.635) | (0.007) |
| lnTA | -0.018** | -0.019 | -0.167* |
| | (0.014) | (0.154) | (0.000) |
| CIR | -0.019 | 0.139* | -0.071 |
| | (0.123) | (0.000) | (0.116) |
| NI | -0.037* | 0.056* | 0.044* |
| | (0.000) | (0.000) | (0.001) |
| _cons | 1.268* | 0.120 | -0.883 |
| | (0.000) | (0.648) | (0.307) |
| Statistics | Coefficient and Probability | | |
| Wald Chi2 (16) | 56125.96 | 570926.64 | 4304.71 |
| | (0.000) | (0.000) | (0.000) |
| Ar2 | 0.251 | 0.529 | 0.654 |
| Hansan J | 0.498 | 0.136 | 0.570 |
| Year Dummy | Yes | Yes | Yes |
| Obs. | 576 | 404 | 175 |
| Groups | 85 | 58 | 27 |
| Instruments | 71 | 57 | 25 |

**Probability ***p<0.1, **p<0.05, *p<0.01**

## 5. SUMMARY AND CONCLUSION

This pie of paper had the primary target to empirically examine the stability difference between conventional interest and Islamic interest-free banks of MENA countries; the study concentrated on stability difference in terms of banks specific factors under the roof of CAMEL taxonomy and cyclical macroeconomic factors over the period from 2008 to 2016. We control for the bank size, management efficiency and business

diversification. We found that the market-based stability measurement PD has reflected useful evidence of explaining the financial stability of Islamic banks better in the MENA sub-region, though the historical accounting base measurement Zscore explains the stability position of conventional banks better. Based on the two measurements, we found that Islamic bank is more stable when its stability is measured with market-based stability and can recover from the crunch faster, while conventional banks appear to be more stable when measuring with accounting measure.

Thus, to address the question where conventional banks are more stable and resilient than Islamic counterpart, the answer here is Islamic banks or more stable when measuring with market indicator and conventional is more stable when measured with accounting indicators. So the policymaker on using multiple measurements to assess both conventional and Islamic banks. Similarly, regulators should improve capital adequacy stringency and bank liquidity quality to further bring up more resilient and stable banking environment. Meanwhile credit quality should be enhancing to help in the reduction of loan provisions made by the management.

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