Global Review of Islamic Economics and Business, Vol. 7, No. 2 (2019) 069-080
Faculty of Islamic Economics and Business-State Islamic University Sunan Kalijaga Yogyakarta
ISSN 2338-7920 (O) / 2338-2619 (P)

# Factors Affecting Capital Structure of Conventional and Islamic Banks: Evidence from MENA Region

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**Abstract:** This study aim is to investigate and compare the factors affecting conventional and Islamic bank's capital structure choice as well as their financial characteristics. According to the best of my knowledge, this is the first paper that mainly concentrated in comparing the determinants of capital structure of conventional and Islamic banks using a cross-country data and for a long period of time (20 years). The study revealed several findings. Firstly, descriptive statistics (equality of means test) showed that conventional banks more leveraged and liquid than Islamic banks. In contrast, Islamic banks are larger and more profitable (ROA) than conventional banks. The results also indicated that Islamic banks are not riskier than conventional banks. Secondly, the regression results showed that all variables, except tax-shield, had the same impact on both banking types capital structure. It been found that profitability, tangibility, business risk and age correlated negatively and significantly with capital structure. In the other direction, size, liquidity and inflation had significant and positive relation with capital structure. Vis-à-vis tax-shield, this variable had a weak impact (positive) on Islamic bank's capital structure but had no effect on conventional banks and this attributed to Islamic banks sample.

**Keywords:** Capital Structure, Financial Characteristics, Conventional Banks, Islamic Banks.

## Introduction

Capital structure or financial leverage is part of a firm financial structure and refers to the mixture of debt (long term loans) and equity (common stock, preferred stock, and retained earnings) used by a firm to finance its assets. Theoretically, Islamic banks differ from conventional banks. Islamic banks in contrary to conventional banks depend on equity rather than debt, financing in strict relation to assets rather than leverage, transparency and information sharing between investor and the manager, and diversification of risk by risk sharing (Tlemsani & Al Suwaidi 2016). Nonetheless, in practice Islamic banks depends on *murabaha* contract which makes about 80 per cent of Islamic banks transaction according to Bitar (2014). Zandi *et al.* (2012) who analyzed the nature of *murabahah* contracts in Iranian and Malaysian banks argued that Islamic banks are still practicing usury in their transactions. Thus, it will be interesting to see if their structural differences between the financial characteristics of Islamic banks and conventional banks especially capital structure.

The first empirical work on the difference between the financial characteristics of conventional and Islamic banks, previous studies were theoretical or used ingenuous methods, conducted by Metwally (1997). The author used three models the probit model, the logit model and the linear discriminant function. Where his sample made of 15 Islamic banks and 15 conventional banks from countries that have a dual banking system, 1992-1994. The variables used to measure leverage is the ratios of total deposits to total assets and equity capital and reserve to asset. The methodology used is Logit model Probit model Descriminant analysis. The results of the study indicated that Islamic banks has a lower leverage in comparison to its counterpart. In addition, he concluded that there is no difference between both banking types in terms of profitability, and conventional and Islamic banks offer their depositors similar returns. In 1999, Al-Sultan investigated the structural difference of conventional and Islamic banks using a sample of 12 Islamic banks and 36 conventional banks from MENA region for the period 1994-1996. He used discrimination analysis as the investigation tool. The study suggested that Islamic bank less leveraged (asset to equity) and more risk averse in comparison to its counterpart. Whereas, conventional banks and Islamic banks cannot be differentiated on the bases of profitability.

Toumi *et al.* (2011) used the same approach as Metwally (1997) to identify the similarity of capital structure between both banking types using a sample of 59 conventional banks and 50 Islamic

banks, 2004-2008. The authors used five ratios: dividends to net income (DIVPAY); total debt to common equity (DEBEQU); long-term debt to common equity (LTDEBEQU); total debt to total asset (DEBASS); size. There results showed that Islamic banks are less leveraged than conventional banks (DEBEQ, LTDEBEQ, and DEBASS) and there is no difference in profitability, measured by ROA and ROE, between them. Moreover, the paper showed that Islamic banks are small. In a recent study, Meero (2015) investigated the capital structure of Islamic and conventional banks in GCC region using a sample of 16 GCC Banks (8 Islamic Banks and 8 Conventional Banks) for the period 2005-2014. The ratios used here are Debt to equity ratio, Debt to total assets, Total equity to total assets, and size. The author used first stage t-test as an analysis tool and reported that there is no statistically significant difference between the capital structure of Islamic and Conventional banks. In addition, he reported that ROA has a significant negative relationship with financial leverage and a positive relationship with equity to assets ratio for both banking types. In the same year, Sghaier and Lahdhiri (2015), investigated the determinants of capital structure of Islamic and conventional banks during the financial crisis (2007-2010). They used a sample of 61 Islamic banks and 141 conventional banks operating in the MENA region. They used the binary logistic regression and discriminated analysis as their investigation tool. The results of the study suggested that profitability (ROA, positive), size (negative) and tangibility (fixed assets to total assets; negative for conventional banks and positive for Islamic banks) are the factors that affect both banking types capital structure choice. The study also showed that Islamic banks are profitable in terms of ROE and NIM, and conventional banks in term of ROA. The size of Islamic banks is smaller, has more tangible assets and they are more capitalized than conventional banks. Moreover, the paper revealed that liquidity (loans to total assets), dividend payout, and risk (total provisions NPLs / loans) are similar for conventional and Islamic banks.

In a more recent study, Alraheb *et al.* (2019) investigated the influence of the institutional environment on bank capital levels using a sample of 187 banks (148 conventional and 39 Islamic banks) from 15 MENA region countries[1] for the period 2004-2014. The study included several variables such as profitability (ROA), risk (loan loss provision to total loans; NPL), size, concentration (CONC), regulatory framework (REG) and real interest rate (RI). They reported that the entire previous variable had a significant relation with conventional banks capital structure ROA (Negative), NPL (positive), size (negative), CONC (positive) and RI (Negative). While for Islamic banks, the results came insignificant except for size (negative) and ROA (positive, significant at 10 %). In the same year, Sheikh & Qureshi (2017) studied the factors affecting the capital choice of Islamic and conventional banks in Pakistan during 2004-2014 period. They used pooled ordinary least squares method, fixed effects and random effects, to estimate the relationship between book leverage and bank-specific variables such as profitability, size, growth, tangibility and earnings volatility. They reported that conventional commercial banks are more levered than Islamic commercial banks and conventional commercial banks are larger, profitable and have relatively safe earnings than Islamic commercial banks. In contrast, Islamic commercial banks have relatively more fixed operating assets and growth in total assets compared to the conventional commercial banks. The regression results indicated that only five variables effected the capital choice of conventional banks: profitability (negative), growth (negative), tangibility (negative) and size (positive). In contrast, only three variables, namely, profitability (negative), bank tangibility (negative) and size (positive), have material effects on capital structure choice of Islamic commercial banks.

There is scarcity of studies that compare the capital structure choice of Islamic and conventional banks as well as the studies that explore the determinants of capital structure of banks in developing countries. So, this study will fill the gap in this area. The remainder of the paper is organized as follows. The following section presents a review of related literature and the theoretical development. Data and study methodology are explained in section three. While empirical results are discussed in the fourth section, a conclusion is offered in the final section.

[1] These countries are Algeria, Bahrain, Egypt, Iraq, Israel, Jordan, Kuwait, Lebanon, Malta, Morocco, Oman, Qatar, Tunisia, United Arab Emirates and Yemen. To be noted that these countries have a dual banking system except for Israel, Malta, and Morocco. In addition, the authors reported that Algeria and Lebanon do not have an Islamic banks and this is not accurate as Algeria has one Islamic banks and Lebanon two. Moreover, Iraq has two Islamic banks not one.

## Literature Review and Theoretical Development

### *Capital Structure Theories*

There are several theories that tried to identify the determinants of capital structure of firms. These theories are discussed below:

*Modigliani-Miller proposition (MM) I, II & III*: The first theory about capital structure proposed by MM in 1958. Their first proposition with the assumption of a fully efficient market states that a firm's value is independent of its capital structure, a firm' value depends on its earnings before interest and taxes in relation to the firm's business risk. In the same year, they presented their second proposition, which states that equity cost increases linearly with the increase of financial leverage. The combination of the two propositions suggests that the benefits gained from using low cost debt will be offset by the increase of bankruptcy cost as investors will increase the required level of profitability corresponding to the increase of risk. In 1963, MM introduced their third proposition where they considered the implication of taxes on debt versus equity in the companies' capital structure. The interest paid on debt will be excluded from the taxes paid, tax-shield, thus companies must use debt over equity to benefit from the tax-shield and the optimal capital can be wholly debt financed.

*Trade-off Theory*: The theory developed by Kraus and Litzenberger (1973) and suggests that the optimal level of capital is achieved when the tax advantage of borrowing is equal to bankruptcy cost.

*The Pecking Order Theory (Information asymmetry theory*): The theory introduced by Donaldson (1961) but it obtained its first rigorous theoretical foundation by Myers and Majluf (1984). They developed the theory based on the information asymmetry concept and it states that firms use external debt when internal financing is not available. In this theory there is no optimal debt ratio.

*Agency Cost Theory*: The concept of agency cost first introduced by Ross (1973) and Mitnick (1973) but it took its ground by the work of Jensen and Meckling (1976), it focuses on the conflict of interest between the manager of the firm, and the outside equity and debt holders. The theory assumes that the optimal capital structure can be determined by minimizing the cost between managers, shareholders and debt holders.

*Market Timing Theory (window of opportunity)*: The theory developed by Baker and Wurgler (2002), they stated, "capital structure is the cumulative outcome of past attempts to time the equity market". According to them, managers exploit their superior inside information to time when to issue equity in relation to markets and economic conditions.

*Life Cycle Theory*: The theory originated in the 1950s in management field and evolved through the years until it employed to understand the changes in firm's capital structure. It been suggested that the capital structure of a firm changes through its life cycle (birth, growth, mature, revival and decline).

### *Theoretical Development*

*Profitability*: The studies related to firm's capital structure considered profitability a significant factor in determining the capital structure choice of a firm. However, the sign of the effect is inconsistent and depends on the theory used. The trade-off theory states that highly profitable firms have more leverage because increased leverage would increase the value of their debt tax shield (Modigliani and Miller 1963).

Besides tax advantage of debt, agency and bankruptcy costs may encourage highly profitable firms to have more debt in their capital structure because they are abler to meet their debt repayment obligation, thus they less subject to bankruptcy risks (Choi 2014). All to all, the trade-off theory predicts a positive relationship between leverage and profitability. Sha'ban *et al.* (2016), Bateni *et al.* (2014), Powell (2013) and Wen (2007) study support this positive relationship.

In contrast, the pecking order theory postulates that high profitable firms prefer internal sources of finance consequently they have lower leverage, negative relation between profitability and leverage ratio. The study conducted by Anarfo (2015), Al-Mutairi and Naser (2015), Papagianni (2013), Gropp and Heider (2010), and Rajan and Zingales (1995) is in line with this.

Considering the above I hypothesis a positive relationship between conventional and Islamic banks profitability and leverage.

*Size*: The trade-off theory suggests a positive relationship between firms' size and debt. This explained by the bankruptcy cost concept that state that the larger the firm the lower the risk of bankruptcy (Titman and Wessels 1988). Thus, Large-sized firms attract more debt. Previous studies revealed a positive correlation between bank's size and capital structure Papagianni (2013), Jucá *et al.* (2012), Gropp and Heider (2010), and Octavia and Brown (2010).

Nonetheless, the relationship between size and debt could be negative. Rajan and Zingales (1995), with respect to the Pecking order theory, argued that because large firms are less subject to asymmetric information in comparison to small firms they are abler to issue equity that is more sensitive to information asymmetry and thus have lower debt. Alraheb *et al.* (2019) and Al-Mutairi and Naser (2015) found a negative link between leverage and size.

Based on the aforementioned theoretical development I expect a positive correlation between bank's size and leverage.

*Tangibility*: Collateral assets are those assets that creditors can accept as security for issuing the debt, fixed assets. The trade-off theory predicts a positive relation between tangibility and debt levels. This because firms with a large amount of fixed assets can easily raise debt at cheaper rates because of the collateral value of those fixed assets (tangibility; fixed assets are important in case of bankruptcy as it is easy to collateralize them). The results of Al-Mutairi and Naser (2015), Gropp and Heider (2010) and Octavia and Brown (2010) confirms the positive association between tangibility and debt.

On the other hand, pecking-order theory postulates a negative link between tangibility and leverage due to the negative affect of information asymmetric on the firm's value. Anarfo (2015), Papagianni (2013), Rajan and Zingales (1995) and Morellec (2001) reported a negative relation between tangibility and leverage.

Adopting the viewpoint of the later I presume a negative link between tangibility and leverage.

*Tax-shield:* Modigliani and Miller (1963) argued that firms with high profit must use debt to reduce tax payment, which will reflect on firms' capital structure. Keen de Mooij (2012) reported a positive relation between tax-shield and leverage.

Lewellen and Lewellen (2004) argued, on the bases of the trade-off theory, that firms have an optimal debt ratio as the increase of debt ratio will eventually be offset by bankruptcy cost and the optimal debt ratio depends on internal cash flows. Their study did not find a significant relation between tax-shield and capital structure choice. Also, Anarfo (2015) who studied the determinants of banks capital structure in sub-Sahara Africa found insignificant relation between tax-shield and banks' leverage. He suggested that banks in Sub-Sahara Africa make financing choices according to the cash available to them and the degree of external financing constraints.

Based on the aforementioned arguments I hypothesis a positive relation between banks leverage and tax-shield.

*Liquidity:* The trade-off theory predicts a positive relation between liquidity and debt because firms with high level of liquidity prefer debt because they can pay interest even in the periods of low profitability. Fama and French (2002), Ozkan (2001), and Yu (2000) found a positive correlation between leverage and liquidity.

The pecking order theory assumes that the relation between liquidity and debt is negative because firms with high liquidity borrow less. The notion behind this that firms with high liquidity rely on their internal funds. Shah *et al.* (2017) study reported a negative relation between liquidity and leverage.

On the basis of the above arguments I expect a negative relationship between liquidity and leverage.

*Business risk:* The trade-off theory predicts a negative relationship between firms' level of risk and debt because the higher the risk the greater the probability of bankruptcy. From another prospective, Furlong and Keeley (1989) predict that the well-capitalized banks are less willing to increase risk leading to a negative relationship between risk and capital structure. Papagianni (2013) found a negative relation between asset quality (loan loss provision to total assets) and banks leverage.

Relatively, Frank and Goyal (2009) argued that, under pecking order theory, firms with volatile cash flow need to periodically access the external capital markets thus, leverage and risk will be positively correlated. Wen (2007) study confirms this[2].

*Age*: The financial needs of a firm changes over its life cycle. In on hand, mature firms are larger and more profitable thus they will depend on the internal sources of funds, negative relationship between leverage and age as suggested by pecking order theory. Forte *et al.* (2013) and Solmon (2012) outcome consists with this. In the other hand, young firms depend on debt to sustain its growth and based on the trade-off theory the relationship between leverage and age will be positive. Al-Mutairi and Naser (2015) and Anarfo (2015) results are supporting the positive affect of age on leverage. Berger and Udell (1995) argued, on the basis of their study findings, that firms rely more on debt financing in their early life and this reliance decreases as firms become mature.

*Inflation rate*: During high inflation periods firms use more debt which will increase their tax-shield leading to a positive relation between inflation and leverage as suggested by trade-off theory. The results of Lemma (2012) confirms this positive relation.

The market-timing theory suggest that firms favor internal sources of fund in high inflation periods due to the increase of external debt cost. Jõeveer (2013) reported a negative relation between inflation and capital structure. This study predicts a positive relationship between leverage and inflation rate.

## Methods

### *Data*

The paper selected countries in MENA region that have a dual banking system in addition to Iran and Sudan who Islamized their financial systems and included all the banks on those countries (139 conventional banks and 79 Islamic banks), see Table 1. The data drawn from BankScope database for the period 1989-2008.

**Table 1. Number of Banks by Country**

| No. | Country | Islamic Banks | Conventional Banks |
|---|---|---|---|
| 1 | Algeria | 1 | 12 |
| 2 | Bahrain | 6 | 6 |
| 3 | Egypt | 2 | 18 |
| 4 | Iran | 16 | |
| 5 | Iraq | 2 | 7 |
| 6 | Jordan | 2 | 12 |
| 7 | Kuwait | 3 | 7 |
| 8 | Lebanon | 2 | 44 |
| 9 | Palestine | 1 | 2 |
| 10 | Qatar | 3 | 5 |
| 11 | Saudi Arabia | 3 | 7 |
| 13 | Sudan | 24 | |
| 14 | Syria | 2 | 9 |
| 15 | UAE | 5 | 18 |
| 16 | Yemen | 4 | 4 |
| | Total | 76 | 139 |
| Total Number of Banks 215 | | | |

Furthermore, the data cleaned as only pure Islamic and conventional banks included in the study. To elaborate, Bankscope database misclassifies banks as the reported some conventional banks as Islamic banks and vice versa. Also, the database misclassifies investment banks as commercial banks. Furthermore, there are some conventional banks that converted to Islamic banking. Moreover, the database classifies some Islamic financial firms as Islamic banks. This study took these issues into account and used different sources to check Bankscoped data. In addition, the sample is

[2] Loan loss provision to total loans used as proxy for risk.

consistent through the whole period as merged and dissolved banks not comprised. The sample produced unbalanced panel data.

***Methodology***

The empirical analysis carried out using dynamic panel data model (two-way fixed effect), specifically Arellano and Bover (1995) GMM method (orthogonal deviations), due to the dynamic nature of banks' capital structure. This estimation technique, system-GMM, has several advantages: more efficient when there are few time periods and many individual units; more efficient even in the presence endogeneity, serial correlation and heteroscedasticity within individuals; tackles the problem of fixed individual effects; the system-GMM of orthogonal deviations estimator is more efficient than difference GMM as combines regressions of levels and first differences; more efficient when the data are unbalanced; more efficient if the dependent variable depending on its own past realizations. Besides, Hayakawa (2009) proved that GMM estimator of orthogonal deviations model outperform GMM estimator of first difference. In order to account for any cross-sectional dependence in the data, time fixed effects are used.

The estimation model used in this study developed by Somaini and Wolak (2016):

$$y_{it} = x_{it}\beta + e_i + h_t + u_{it} \qquad (t \in \{1, ..., T\} ; i \in \{1, ..., N\})$$

Where $y_{it}$ is the dependent variable where i = entity and t = time; $x_{it}$ is a K × 1 vector of included variables; $h_t$ is a time fixed effect; $e_i$ is a group/entity fixed effect; $u_{it}$ is the error term.

Table 2 and 3 illustrates the correlation matrix of the variables of the study for conventional and Islamic banks respectively. The Tables revealed that collinearity problem is weak or not existent.

**Table 2. Pearson's Correlation Matrix of Islamic Banks**

| Variables | ROA | RIS | TAX | TAN | LNA | AGE | LIQ | INF |
|---|---|---|---|---|---|---|---|---|
| ROA | 1 | | | | | | | |
| RIS | 0.043 | 1 | | | | | | |
| TAX | -0.195*** | -0.000 | 1 | | | | | |
| TAN | -0.092* | 0.146*** | 0.234*** | 1 | | | | |
| LNA | 0.013 | -0.120*** | 0.014 | -0.108** | 1 | | | |
| AGE | -0.087 | -0.087 | 0.068 | 0.074 | 0.326*** | 1 | | |
| LIQ | -0.074 | -0.106 | -0.073 | -0.261*** | 0.255*** | | 1 | |
| INF | -0.035 | 0.136** | 0.378*** | 0.318*** | 0.002 | -0.020 | -0.048 | 1 |

***, **, * indicating significance at the 1%, 5%, 10% levels, respectively.

**Table 3. Pearson's Correlation Matrix of Conventional Banks**

| Variables | ROA | RIS | TAX | TAN | LNA | AGE | LIQ | INF |
|---|---|---|---|---|---|---|---|---|
| ROA | 1 | | | | | | | |
| RIS | -0.111** | 1 | | | | | | |
| TAX | 0.138*** | -0.058** | 1 | | | | | |
| TAN | -0.049* | 0.041 | 1 | | | | | |
| LNA | -0.113*** | 0.022 | -0.290*** | -0.015 | 1 | | | |
| AGE | 0.002 | -0.023 | -0.159 | -0.038 | 0.194*** | 1 | | |
| LIQ | 0.072** | -0.024 | 0.043 | -0.029 | -0.131*** | 0.136*** | 1 | |
| INF | -0.123*** | 0.135*** | -0.158*** | 0.159*** | -0.037 | -0.027 | 0.023 | 1 |

***, **, * indicating significance at the 1%, 5%, 10% levels, respectively.

**Table 4. Descriptive Statistics and t-test Results of The Variables of The Study and ROE**

| | LAB | | ROA | | ROE | | LIQ | | TAN | | RIS | | LNA | | AGE | | TAX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IBs | CBs | IB | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs |
| Mean | 85.071 | 90.102*** | 1.704*** | 1.122 | 12.648 | 12.648 | 66.568 | 81.074*** | 3.567*** | 1.959 | 1.641 | 1.597 | 8.024*** | 7.651 | 21.176 | 37.141 | 39.331*** | 21.715 |
| Max. | 99.485 | 188.710 | 12.552 | 15.607 | 66.667 | 230.049 | 93.649 | 107.779 | 25.662 | 33.186 | 29.060 | 47.821 | 17.966 | 14.682 | 96.000 | 132.000 | 474.194 | 268.703 |
| Min. | 16.320 | 9.393 | -4.058 | -66.129 | -83.357 | -176.400 | 7.238 | 0.000 | 0.000 | -0.590 | -0.610 | -8.795 | 2.470 | -0.478 | 1.000 | 1.000 | -250.655 | -73.986 |
| SD. | 12.880 | 7.833 | 1.756 | 2.373 | 13.412 | 20.467 | 20.504 | 10.943 | 3.064 | 2.255 | 3.124 | 3.015 | 2.982 | 2.099 | 15.182 | 22.630 | 70.371 | 28.325 |

***, **, * indicating significance at the 1%, 5%, 10% levels, respectively.

**Table 5. Descriptive Statistics and t-test Results of The Variables of The Study and ROE (Dual Banking System)**

| | LAB | | ROA | | ROE | | LIQ | | TAN | | RIS | | LNA | | AGE | | TAX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IBs | CBs | IB | CBs |
| Mean | 81.650 | 90.102*** | 1.7487*** | 1.122 | 11.473 | 12.694 | 70.590 | 81.074*** | 2.376 | 1.959 | 1.363 | 1.597** | 7.846** | 7.651 | 16.025 | 37.141** | 19.016 | 21.715 |
| Max. | 97.035 | 188.710 | 12.552 | 15.607 | 46.406 | 230.049 | 92.974 | 107.779 | 25.662 | 33.186 | 23.077 | 47.821 | 12.528 | 14.682 | 132.00 | 132.000 | 320.833 | 268.703 |
| Min. | 16.320 | 9.393 | -4.0583 | -66.129 | -20.017 | -176.400 | 7.238 | 0.000 | 0.000 | -0.590 | -0.610 | -8.795 | 2.470 | -0.478 | 1.000 | 1.000 | -117.339 | -73.986 |
| SD. | 11.300 | 7.833 | 1.8445 | 2.373 | 9.305 | 20.467 | 20.486 | 10.943 | 3.210 | 2.255 | 2.529 | 3.015 | 2.384 | 2.099 | 22.630 | 22.630 | 39.655 | 28.325 |

***, **, * indicating significance at the 1%, 5%, 10% levels, respectively.

**Table 6. The Study Variables**

| Variables | Definition | Measurement | Hypothesized Sign |
|---|---|---|---|
| *Dependent variables* | | | |
| LAB | Leverage | Total liabilities to total assets | |
| *Independent variable* | | | |
| ROA | Profitability | Net income to total assets | Negative |
| RIS | Business Risk | Loan loss provision to total loans | Negative |
| LNA | Size | Natural logarithm of total assets | Positive |
| TAX | TAX-Shield | Tax paid to net income | Positive |
| TAN | Tangibility | Fixed assets to total assets | Negative |
| AGE | Age | Number of years in operation | Negative |
| LIQ | Liquidity | Deposits to and short term funding to total assets | Negative |
| INF | Inflation | Annual inflation rate | Positive |

Lastly, t-test used to compare the financial characteristics of conventional and Islamic banks (Table 4 and 5).

### *Variables*

Leverage (LAB) used to proxies the capital structure measured as liability to total asset ratio. This study used book value as a measure of capital structure over market value for several reasons as highlighted by Mireku *et al.* (2014). The book value is more closely related to the cost of the financial distress of a firm, the tax-shield advantage not affected by the market value of debt, and firm's managers perceive issues from the viewpoint of book value because market value usually higher than book value (book value is a conservative measure of firm's capital structure).

The independent variables chosen based on previous studies, eight variables. Table 6 summarizes the variables used in this study, its measurements and the hypothesized sign of the independent variables.

## Results and Discussion

### *Descriptive Statistics*

Table 4 represents the descriptive statistics and the equality of means test, *t*-test, of the variables used in the study and ROE for both of the banking types. According to the table Islamic banks are less levered (mean = 85.071) than conventional banks (mean = 90.102) with 1% significance which comes in line with many of the studies listed above (e.g. Metwally 1997, Al-Sultan 1999, Toumi *et al.* 2011). The standard deviation (SD) of the leverage variable is higher for Islamic banks (12.880) indicating a slightly high difference between countries. The result of profitability (ROA) showed that Islamic banks are more profitable than conventional banks, $p < 0.01$. But in term of ROE there are no difference. These results contradict the findings of Metwally (1997), Al-Sultan (1999), Toumi *et al.* (2011), and Sghaier and Lahdhiri (2015).

Concerning liquidity, Islamic banks are less liquid (mean = 66.568) than conventional banks (mean = 81.074) at 1 % significance. The difference in liquidity between Islamic banks is high, SD equal 20.504. In contrast Islamic banks are larger in comparison to its counterparts and this mainly attributed to the fact that Islamic banks in GCC countries and Iran are bigger than medium and small conventional banks in the region, $p < 0.01$. Islamic banks as well have more tangible asset (mean = 3.567) than conventional banks (mean = 1.959), $p < 0.01$. The results also imply that Islamic banks are not risker than conventional banks and this in synch with Sghaier and Lahdhiri (2015) however contradicts Al-Sultan (1999) findings.

The average age of Islamic banks is 21 years and that of conventional banks is 37 years. About the tax-shield variable is higher for Islamic banks (mean = 39.331) compared to conventional banks (mean = 21.715), $p < 0.01$. However, the variation between countries is very high specially in the case of Islamic banks, SD equal 70.371. Table 5 shows the descriptive statistics of Islamic banks and conventional banks in a dual banking system. The outcomes of leverage, profitability (ROA and ROE), size and liquidity do not change even though the Islamic banks sample reduced to include only Islamic banks in a dual banking system, significant at 1% level. However, the results showed that Islamic banks in dual banking system are less risker than conventional banks, $p < 0.05$. In addition, we cannot differentiate between both banking types on the bases of tax-shield and tangibility in a dual banking system.

### *Regression Results*

The regression results show that all variables are significant except for tax-shield in case of conventional banks, Table 7. The table shows that profitability of both banking types as predicted correlated negatively and significantly with leverage ($p < 0.01$). This implies that profitable banks prefer internal financing to debt, which is consistent with pecking order theory. The results also indicated that profitability is very important factor in determining the capital structure choice for conventional and Islamic banks expressly for the former as can be seen from the value of t-statistic.

The results are in accord with Anarfo (2015), Al-Mutairi and Naser (2015), Papagianni (2013), Gropp and Heider (2010), Rajan and Zingales (1995), and Sheikh and Qureshi (2017). Nevertheless, contradicts Sghaier and Lahdhiri (2015) and Alraheb *et al.* (2019) conclusion.

**Table 7. Results of The Regression**

| Variable | Coefficient | | t-Statistic | |
|---|---|---|---|---|
| | IBs | CBs | IBs | CBs |
| ROA | -1.266 | -1.840 | -2.799*** | -4.703*** |
| LNA | 1.416 | 1.676 | 2.377** | 3.008*** |
| LIQ | 0.093 | 0.303 | 2.803*** | 2.832*** |
| RIS | -0.227 | -0.194 | -1.767* | -1.951* |
| AGE | -0.555 | -0.517 | -2.003** | -4.963*** |
| TAN | -0.645 | -0.745 | -2.768*** | -3.171*** |
| TAX | 0.012 | -0.009 | 1.732* | -1.197 |
| INF | 0.048 | 0.057 | 2.614*** | 2.589*** |

***, **, * indicating significance at the 1%, 5%, 10% levels, respectively.

Also, the tangibility variable has the same sign and significance as profitability with stronger effect on conventional banks as well. This supports the pecking-order theory as firms with high tangible assets become less prone to information asymmetric problem. These results confirm Anarfo (2015), Papagianni (2013) and Rajan and Zingales (1995), Morellec (2001) and Sheikh and Qureshi (2017) findings but then again contradict Sghaier and Lahdhiri (2015) conclusion.

In the same vein, the results of age that in line with my prediction show a negative and significant relation with leverage ($p < 0.01$). The results are prevailing for conventional banks, t-statistic > 4. This negative relationship can be explained by the combination of life cycle and pecking-order theory, mature firms are larger and profitable thus they depend on their internal sources of fund. These results reinforced by Forte *et al.* (2013) and Slmon (2012) study. The results of business risk revealed that there is a weak negative link between risk and leverage, $p < 0.10$. The negative effect supports the trade-off theory and implies that banks with higher risk use less debt. Papagianni (2013) came to the same conclusion unlike Alraheb *et al.* (2019) study.

The evidence also shows that size significantly and positively correlated with leverage for conventional banks ($p < 0.01$) and Islamic banks ($p < 0.05$), inferring that large banks utilize more debt because they are less risky (trade-off theory). These results contradict Sghaier and Lahdhiri (2015) and Alraheb *et al.* (2019) findings but in line with Sheikh and Qureshi (2017). Furthermore, the analysis revealed that liquidity linked positively and significantly with leverage for conventional and Islamic banks, ($p < 0.01$). The findings are backing Fama and French (2002), Ozkan (2001), and Yu (2000) deduction. In case of Islamic banks, the results oppose the findings of Shah *et al* (2017).

In contrast to the above findings, the effect of tax-shied is diverse. In one hand, the effect on Islamic banks is positive but weak, $p < 0.10$. On the other hand, the effect on conventional banks are insignificant with a negative sign. The insignificant effect can be explained that low tax rate reduces the weight of the tax-shield. This difference between the two banking types related to the sample of Islamic banks as Iran and Sudan had a high tax rate during the study period, 39.50 and 31 respectively. Meanwhile, GCC countries have a very low tax rate and the rest of the countries had almost a moderate tax rate during the study period, see Table 4 and 5.

Finally, inflation as predicted had a positive and significant relationship with capital structure, $p < 0.01$. The results supported by Lemmya (2012) findings but again oppose Shah *et al.* (2017) outcome. This study empirically provided evidence that the capital structure of conventional and Islamic banks is similar which is consistent with Meero (2015) study who investigated the capital structure of conventional and Islamic banks in a dual banking system (GCC countries).

## Conclusion

This study contributed to the literature of capital structure especially in Islamic finance area as its not investigated thoroughly. This study provided evidence that conventional banks and Islamic banks have different financial characteristics but have the same capital structure by employing data from all conventional and Islamic banks in MENA region for the period 1989 to 2008. The methodology implemented is system-GMM due to the nature of firms' capital structure and t-test. The study revealed that Islamic banks are less leverage and liquid and they are not risker than conventional banks.

Meanwhile, Islamic banks are larger and more profitable (ROA) than conventional banks. The regression results revealed that profitability (ROA), risk, tangibility and age affected leverage negatively and significantly. Inversely, size, liquidity and inflation correlated positively and significantly with leverage.

Moreover, the tax-shield had a diverse impact on the capital structure of conventional and Islamic banks. The result of the later is positive and significance at 10% level, weak relation. Meanwhile, tax-shield had no effect on conventional banks leverage. This difference related to the sample of Islamic banks not to the dissimilarity in their capital structure choice. These results suggest that there is no common theory that explain the capital structure decisions of firms. Here, I quote Myers (2001, p. 81) 'there is no universal theory of the debt-equity choice, and no reason to expect one.'

The findings of this empirical study will be in great value to researchers, policy makers, regulators and practitioners. For example, investors and shareholders can exploit the outcome of this study to determine the fair market price of a bank's stock. In addition, bank's mangers could consider the findings of this study to make apposite financial decisions to meet the financial requirements of their banks.

The limitation of this study it did not include data beyond 2008, even though the study period spanned from 1989 to 2008, and it did not include variables that may have an impact on bank's capital structure such as discloser laws (information asymmetry). This will open the door to researchers to investigate and compare the factors that affect conventional and Islamic bank's capital structure taken this study as a base.

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