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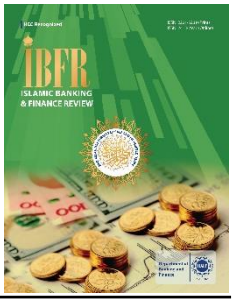

Title: **Empirical Investigation of Factors Affecting the Capital Structure of Islamic Banks (IBs): Evidence from Pakistan**

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Empirical Investigation of Factors Affecting the Capital Structure of Islamic Banks (IBs): Evidence from Pakistan

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Abstract

The current study intends to identify the important factors that affect the capital structure of Islamic Banks (IBs) in Pakistan by applying the Generalized Least Square (GLS) regression model. For this purpose, panel data of major IBs were gathered through their financial statements for the period of 2011-19. Leverage ratio was used as the dependent variable, and profitability, liquidity, NDTS, bank size, tax, solvency, growth, inflation rate, and GDP were used as independent variables. The findings showed that the capital structure of IBs has a positive and significant relationship with profitability, liquidity, and NDTS, while bank size, tax, solvency, inflation rate, and GDP are negatively associated with the leverage ratio.

Keywords: capital structure, Generalized Least Square (GLS) regression, Islamic banks, leverage ratio, Pakistan

Introduction

Capital structure refers to the optimal combination of debt and equity. A fine balance of debt and equity increases the firm value and reduces the cost of capital. Conventional banking institutions are considered as the backbone of any economy. These institutions have progressed rapidly in Pakistan since 2000 by attracting customers through different facilities. They face high competition at the national as well as the international level (Akhtar et al., 2011). The foundation of conventional banks (CBs) is interest, which is prohibited in Islam (Iqbal et al., 1998). Consequently, Islamic financial system was introduced to avoid interest through Islamic banking. Undoubtedly, Islamic Banks (IBs) were established to facilitate Muslims all over the world. Currently, they have also become attractive for non-Muslims and have achieved worldwide acceptance. Indeed, Islamic banking has spread all over the world.

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Globally, Islamic banking is experiencing rapid growth with 400 IBs, having total assets of $1.5 trillion, operating all over the world (World Bank, 2014). World Islamic Competitiveness Report stated that Muslim countries have experienced a high economic growth rate. Pakistan, where the majority of the population is Muslim, has been ranked as the fourth country which has a developed Islamic financial system by having 10.4% total assets of IB (Shaukat et al., 2020). Low penetration rate has been observed in the assets of IBs in Pakistan i.e. 10.4% (Butt et al., 2018). The capital structure decision of a CB plays a vital role in formulating its policies because it includes the flow of liquidity and the composition of the portfolio. The capital structure of IBs comprises the debt and equity of the shareholders, where investment accounts and current accounts are considerable sources of debt (Bukair, 2019). Debt constitutes a major part of the capital structure in Islamic banking and it is collected from the depositors to make an investment. The capital structure decision of IBs differs from the CBs. The trade-off theory states that tax savings are utilized to balance the cost of borrowing. On the other hand, pecking order theory postulates that internal funds are preferred and new equity is considered as a source of funding only in the last resort.

The foremost objective of the current study is to ascertain the elements that influence capital structure in the IBs of Pakistan. Several studies are available regarding the capital structure of CBs but none discusses the capital structure of IBs in Pakistan. There are only a few studies available that focused on the capital structure of IBs, globally (Rajhi & Hassairi, 2012). This study is potentially beneficial for the management of IBs to enhance the quality of their services. The findings of this study are of particular interest to IBs, since it empirically tests the relationship between the factors that are decisive in determining their capital structure. Hence, the findings can help IBs in particular and financial institutions in general while making financing decisions.

The rest of the paper is structured as follows: Section 2 summarizes the literature in this area, Section 3 provides the methodology, Section 4 demonstrates the empirical findings, and lastly, Section 5 presents the conclusion.

Literature Review

Modigliani and Miller presented the theory of capital structure in 1958 (Modigliani & Miller, 1958). There are many studies available about the factors affecting it. Capital structure refers to the preferred optimal combination of debt and equity. The factors affecting capital structure might be internal or external. Most studies on capital structure analyze profitability and other key metrics, such as size and tangibility, as determinants of leverage. Modigliani and Miller (MM) proposed that under the assumptions of perfect markets and no tax, debt-equity is independent of the firm value. Their landmark research paved the way to analyze further the financing patterns and contributing factors in deciding the optimal capital structure. Modigliani and Miller later included the corporate tax assumption in their discussion. Jenson and Meckling (1976) suggested the agency cost hypothesis which states that conflict of interest arises when managers, as agents, prioritize their benefits as opposed to maximizing shareholders' wealth. Subsequent research suggested monitoring and control statistics, normally referred to as agency cost. Myers and Majluf (1984) and Myers (1984) made a significant addition to the literature on capital structure by presenting the pecking order theory and static trade-off hypothesis, respectively. Baral (1996) also found evidence in support of the hypothesis which states that due to tax concessions, a change in leverage positions changes the cost of capital or firm value.

Bukair (2019) investigated the factors influencing the capital structure of IBs operating in Gulf Cooperation Council (GCC) countries by using the Generalized Least Square (GLS) regression model. The study found that liquidity, bank size, and corporate tax influence the leverage ratio of IBs (Al-Deehani et al., 1999). Al-Kayed et al. (2014) were of the view that the top-tier management of IBs should decide their capital structure mix, carefully. Amidu (2007) employed panel regression to assess the determinants of capital structure and found that the capital structure of a bank is affected by profitability, asset structure, and corporate tax. Korajczyk and Levy (2003) argued that capital structure tends to vary across time. Lemmon et al. (2008) identified that capital structure tends to remain stable over a long period of time. Indeed, capital structure is one of the key determinants of the market value of a firm.

The proportion of leverage rises with firm size and fixed assets. However, with an increase in profitability ratios and tax shields, leverage

ratio tends to decrease. Huang and Song (2004) also reached the same conclusion. Moreover, they also concluded that state or institutional ownership has no substantial influence on capital structure, whatsoever. However, Huang and Song (2004) collected the evidence only from China, even though most of their findings apply to other countries as well. The only real difference they found was that Chinese firms generally have much smaller long-term debt as compared to the firms of other countries.

Several studies were conducted to examine the impact of country specific dynamics on financing structure (Bancel & Mittoo, 2004; Beck et al., 2008; De Jong et al., 2008). These studies mainly checked the impact of macroeconomic factors and institutional factors, such as GDP, levels of investor protection, and maturity of capital markets on capital structure. A preference for the pecking order theory and static trade-off hypothesis is also found in the literature. The pecking order yields a specific order according to which a firm's assets are financed. Firstly, retained earnings are used, then debt is employed, and if funds are still required then capital equity is consumed (Myers & Majluf, 1984). The trade-off hypothesis asks the firms to weigh the cost and benefits of debt-equity. This analysis of the cost of debt leads the firms to form an optimal capital structure (Mayers, 1984).

Moreover, Chen et al. (1997) and Desai et al. (2004) studied the global factors that affect the capital structure of domestic firms. They identified that global factors influence the leverage position of domestic firms. Recently, Al-Hunnayan (2020) examined the capital structure determinants of the IBs of GCC countries by applying multivariate regression on 12 IBs through the period 2005-2014. He concluded that size and growth are positively related to leverage ratio, whereas profitability and tangibility are adversely linked with the capital structure of IBs. Furthermore, Sheikh and Qureshi (2017) investigated the factors affecting the capital structure of IBs and CBs in Pakistan and found that profitability and tangibility are negatively related to the leverage ratio of IBs.

Methodology

Panel data of the five IBs of Pakistan, namely Al-Baraka Bank (Pakistan) Limited, Meezan Bank Limited, Bank Islami (Pakistan) Limited, Dubai Islamic Bank (Pakistan) Limited, and Faysal Bank Limited was collected for the years 2011-2019 through their financial statements. Leverage ratio

was used as the dependent variable and the independent variables were bank size, tangibility, growth, profitability, non-debt tax shield, tax, solvency, inflation, liquidity, and GDP per capita.

The regression model was formulated as follows:

$$\text{Leverageratio}it = \alpha + \Sigma\beta\text{i}\text{X}\varepsilon it \quad (1)$$

where

α = the intercept of the model

βi = the coefficient

X *it* = the independent variables

The GLS regression model after incorporating various independent variables is described as follows:

$$\text{Leverageratio}it = \alpha + \beta 1\ \text{Banksize}it + \beta 2\ \text{Liquidity}it + \beta 3\text{rowth}\ \ it + \beta 4\text{Tangibility}it + \beta 5\ \text{Profitability}it + \beta 6\ \text{Nondebttaxshields}it + \beta 7\ \text{Inflationrate}it + \beta 8\ \text{Solvency}it + \beta 9\ \text{Tax}it + \beta 10\ \text{DPpercapita}\ \ it + \varepsilon it \quad (2)$$

Variables	Measurements
Leverage Ratio	Sum of investment accounts and current accounts divided by total assets
Bank Size	Logarithm of total assets
Profitability	Net income before tax and zakat to total assets
Tangibility	Amount of tangible assets to total assets
Growth	Annual change in total assets
Liquidity	Ratio of cash and cash equivalents to total assets
Non-Debt Tax Shield	Annual depreciation of total assets
Tax	Total tax expenses divided by earnings before tax
Solvency	Total liabilities to outsiders to the total assets
Inflation Rate	Annual rate of inflation
GDP per Capita	Annual growth of GDP per capita

Empirical Findings

Table 1 lists the descriptive statistics of all the variables. It incorporates the number of observations, mean, standard deviation, variance, and range. It is evident from Table 1 that bank size has the highest mean value. The central

tendency of other variables is also reported in Table 1. Inflation has the highest dispersion around the mean. Tax and growth have much heavier tails and leptokurtic distribution as compared to other variables.

Table 2 demonstrates the findings of the unit root of all variables. The first step while analyzing time series was to check their stationary properties via the unit root test. Nelson and Plosser (1982) stated that most macroeconomic series are non-stationary. However, in the current case, the order of integration was determined using the Augmented Dickey–Fuller (Dickey & Fuller, 1979) and Phillips–Perron (Phillips & Perron, 1988) (PP) tests, as well as comparatively more robust Generalized Least Squares (GLS)-detrended Dickey–Fuller (DFGLS) unit root test. The *t*-statistics and *p*-values are reported in Table 2. All series are stationary at levels. The *p*-values are less than 5% for all series.

Table 1

Descriptive Statistics

Variables	Obs	Mean	S.D	Variance	Kurtosis	Min.	Max.
Bank Size	128	24.521	2.116	4.478	2.356	19.195	27.628
Profitability	128	0.006	0.017	0.0003	14.248	-0.099	0.0317
Tangibility	128	0.998	0.004	0.0001	21.796	0.969	1
Growth	128	0.336	1.48	2.214	113.14	-0.160	16.591
Liquidity	128	0.138	0.137	0.018	14.959	0.0387	0.903
Non-Debt Tax	128	0.002	0.003	0.00095	5.952	0	0.014
Tax	128	0.349	0.807	0.651	101.534	-0.543	8.933
Solvency	128	0.919	0.261	0.068	8.949	0.286	1.958
Inflation	128	6.181	3.599	12.958	8.561	-0.762	19.64
GDP/ Capita	128	0.062	0.074	0.005	2.909	-0.150	0.256
Leverage Ratio	128	0.499	0.291	0.085	1.451	0.049	0.992

In Table 3, the correlation matrix between all series is presented. The positive and negative correlations are mentioned along with their magnitude, respectively. The greater the bank size, the slower the growth and the lesser the liquidity due to the greater number of fixed assets.

Similarly, growth is negatively correlated with tangibility. While, leverage is positively and significantly associated with liquidity and non-debt tax shield. Table 3 gives a fair idea regarding the direction in which these series move together.

GLS regression was employed to check the link between the leverage ratio and the explanatory variables of IBs. Table 4 exhibits the outcomes of GLS regression. According to the table, the model is statistically substantial with a *p*-value of 0.000. Profitability, liquidity, NDTS, solvency, inflation rate, and GDP are the factors that affect the capital structure of IBs in Pakistan. The results showed that the coefficient of profitability (2.8684) has a major influence on the leverage ratio of IBs, which is inconsistent with the Islamic perspective. It indicates that there exists a conflict between the debt holder and shareholder, while deciding the debt funding. These results are inconsistent with the findings of Shoaib (2011) regarding the Pakistani perspective.

Table 2
Unit Root Test

Variables	*t*-Statistics	*p*-values
Bank Size	-9.4178	0.0000
Profitability	-9.5715	0.0000
Tangibility	-2.1051	0.0177
Growth	-9.2116	0.0000
Liquidity	-6.0726	0.0000
Non-Debt Tax Shields	-4.7518	0.0000
Tax	-2.4832	0.0065
Solvency	-3.5816	0.0002
Inflation Rate	-6.9367	0.0000
GDP per Capita	-4.3274	0.0000
Leverage Ratio	-5.4615	0.0000

Table 3

Correlation Metrics

Variables	Bank size	Profitability	Tangibility	Growth	Liquidity	Non-Debt Tax Shields	Tax	Solvency	Inflation Rate	GDP/ Capita	Leverage
Bank size	1.0000										
Profitability	0.2713	1.0000									
Tangibility	0.1548	0.0065	1.0000								
Growth	-0.2251	0.0423	-0.3432	1.0000							
Liquidity	-0.4534	0.0042	-0.0302	0.0515	1.0000						
Non-Debt Tax Shields	-0.0254	-0.3342	-0.0721	0.0421	0.0224	1.0000					
Tax	0.1515	0.1214	0.0131	-0.0200	-0.0821	0.0931	1.0000				
Solvency	0.1410	-0.5813	0.0663	-0.1031	-0.2523	0.1631	-0.0521	1.0000			
Inflation Rate	0.0321	-0.0142	0.0815	0.1363	-0.1014	0.1342	-0.0631	0.0045	1.0000		
GDP/ Capita	0.2045	-0.1713	0.1331	-0.0124	-0.0621	0.0126	-0.0031	0.3032	0.3421	1.0000	
Leverage	-0.1724	0.0452	0.0317	0.0724	0.2931	0.3182	0.0431	-0.2014	-0.0942	-0.2542	1.0000

The coefficient of liquidity (0.3028) implies its positive and statistically significant impact on the capital structure of IBs, which indicates that high liquidity enables the management to protect the interest of shareholders. The results depicted that NDTS has a significant impact on the capital structure of IBs. This is inconsistent with the Islamic perspective of avoiding depreciation as a tool for debt

Table 4
GLS Regression

	Coef.	Std. Err.	*t*-values	*p*-values
Constant	-1.5633	0.531	-2.52	0.003
Bank Size	-0.010672	0.007521	-1.42	0.156
Profitability	2.868428	1.409893	2.03	0.042
Tangibility	5.008151	2.883715	1.74	0.082
Growth	0.0093587	0.0053703	4.79	0.081
Liquidity	0.3028821	0.0631933	6.68	0.000
Non-Debt Tax shields	31.50147	4.717578	-0.42	0.000
Tax	-0.023505	0.056475	-2.63	0.677
Solvency	-0.189840	0.0722089	-3.33	0.009
Inflation Rate	-0.011034	0.0033095	-3.87	0.001
GDP per Capita	-0.434497	0.112209	-1.41	0.000
Observations	128			
Wald Chi2	331.76			
Prob> chi 2	0.0000			
Log Likelihood	-16.022			

Conclusion

The foremost objective of this study was to identify the important elements influencing the capital structure of IBs in Pakistan. It focused on bank specific variables which may alter the capital structure of the said IBs. GLS regression model was employed to analyze the panel data of the five

IBs operating in Pakistan for the period 2011-2019. It was concluded that profitability, liquidity, and NDTS significantly and positively alter the capital structure of IBs in Pakistan, although mixed results were obtained regarding bank compliance with the Islamic perspective. On the contrary, bank size, tax, solvency, inflation rate, and GDP were found to be negatively associated with leverage ratio. The capital structure decision of IBs seemingly follows the trade-off theory. Moreover, the study found that the management of IBs seeks to raise their capital through debt financing despite equity. This finding implies that these factors are necessary to constitute the capital structure of IBs in Pakistan.

Implications

The current study potentially aids managers in formulating the capital structure of IBs. In this regard, it is suggested that bank size is irrelevant while determining capital structure. Moreover, IBs with more tangible assets prefer a high debt ratio because it reduces their bankruptcy. On the other hand, IBs enjoying high growth prefer equity financing, rather than debt financing. Nevertheless, a negative relationship between solvency and leverage ratio was found, which is surprising. The current study recommends that the government should provide a favorable environment for IBs to compete with CBs. Furthermore, regulatory bodies should also formulate favorable regulations and policies to facilitate the IBs operating in Pakistan.

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