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Financial Internet Quarterly

THE IMPACT OF CAPITAL STRUCTURE ON BANK PERFORMANCE IN EMERGING MARKETS; EMPIRICAL EVIDENCE FROM GCC COUNTRIES

Shoaib Khan[1]

Abstract The current literature is equivocal and provides inconsistent evidence about the relationship between firms' performance and capital structure choices. This study adds the empirical evidence on association between capital structure and bank performance to this inconclusive debate. It uses the data of commercial conventional banks listed on various stock exchanges of six Gulf Cooperation Countries (GCC) i.e. Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The study uses unbalanced panel data of 50 banks operating in these countries during 2012 to 2017, having 299 bank year observations. ROA and ROE are used as performance variables, with total debt ratio as explanatory variables. Bank size, assets tangibility, earnings volatility, growth, GDP growth rate, and inflation rates are employed as control variables. Three regression techniques, pooled OLS, fixed effects and random effects estimations are used to explore the relationship. The results suggest leverage and the control variables have a substantial effect on the performance of banks but are distinctive in nature as per the banking industry compared to non-financial firms.

JEL classification: G21, G32, L25

Keywords: capital structure, banks, performance, Gulf Cooperation Council

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Introduction

One of the primary advantages for a corporation is the availability and access to multiple financing resources. Firms can tap these various choices i.e. debt or equity, and their decision is based on the related costs of these sources i.e. cost of capital. The choice between debt and equity has significant importance for firms' capital structure decisions. Hence, the financing/capital structure could be an important factor for the shareholders' value maximization assumption in contemporary corporations. In perfect capital markets choice between debt or equity has no significant effect on the performance of firms (Modigliani & Miller, 1958). Contrary to this, real-world markets are not perfect and each source has its relevant features and related cost, such as bankruptcy cost, transaction cost, tax related costs or benefits, or asymmetry of information. Therefore, the equity-debt choice becomes the precondition of firm performance. Upon realization of these costs and related factors, Modigliani and Miller, (1963) suggested the use of debt due to tax incentives on interest payments. Hence, a positive impact of debt on firm performance is suggested.

The debate on optimal capital structure resulted in several conditional theories of optimal capital structure. Each theory focuses on its relevant assumption for optimal structure. Kraus and Litzenberger (1973) proposed the trade-off theory by extending the Modigliani and Miller concept, (1963). They suggested the trade-off between interest payments on debt up to an optimal level of debt. Jensen and Meckling (1976), under the assumption of agency theory, supported the use of debt, assuming that debt-related obligations will minimize the agency costs related to the principal-agent conflict. Centered on information asymmetry issues Myers and Majluf (1984) and Myers (1984) proposed pecking order theory, which suggested the use of internally available funds followed by external debt and equity at last to enhance the firms' performance to avoid the information related costs. Most recently, the market timing theory was proposed by Baker and Wurgler (2002) which focuses on the market situation and the timing of the capital needs.

Based on the assumptions of these theories various dimensions of capital structure have been explored. For instance, on determinants of capital structure, (Titman & Wessels, 1988; Harris & Raviv, 1991; Booth et al., 2001; Sheikh & Wang, 2013; Oztekin, 2015) for non-financial firms, the study by Gropp and Heider, (2010) initiated the debate on banks financing structure followed by Sheikh and Qureshi, (2017), and Khan, Bashir and Islam (2020). The ownership and capital structure relationship by, (Grossman & Hart, 1982; Brailsford, Oliver, & Pua 2002; Shoaib & Yasushi, 2016). The studies by (Abdullah, & Tursoy, 2021; Li, Niskanen, & Niskanen, 2018; Detthamrong, Chancharat, & Vithessonthi, 2017; Sheikh & Wang, 2013) explored the impact of capital structure choices on the performance of non-financial firms. Compared to non-financial firms, a handful of studies have examined the effects of capital structure decisions on the performance of banks. However, to the author's knowledge, no study has explored the impact of capital structure on bank performance for banks working in Gulf Cooperation Council (GCC) countries. Hence, this study adds the empirical evidence on the banking industry to fill the gap in the existing body of knowledge.

Therefore, the objective of this study is to examine the impact of financing choices on the performance of the banks, compared to earlier studies that only surveyed non-financial firms. The omission of the banks from the empirical studies was based on the distinct regulatory framework and of a business nature in contrast to non-financial firms. However, there exists a greater similarity between non-financial and financial firms' capital structure (Gropp & Heider, 2010). According to the optimal capital structure theories, the financing decision does affect the financial performance and firm's value. Hence, this study explores the said effect in banks operating in the GCC region that includes, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. GCC is one of the emerging regions in the global economy, where most of the economies are diversifying their economic activities by reducing their dependence on oil exports. According to IMF policy papers (2018)[2] financial development is still in progress in the region and most of the development has relied on banks compared to other non-bank financial companies. Therefore, the banks' role as a supplier of capital in the economy is more inevitable which will be dependent on their financial performance to meet the market needs.

Hence, this study explores the influence of capital structure on bank performance for banks operating in GCC regions. The findings of the study will lend a hand to the policymakers to formulate a policy that could enhance the financial development and contribution of the financial sector to the economic diversification of the region. Moreover, it will help the managers to choose the optimal structure that will improve bank performance and contribute to the value maximization of shares.

[2] https:www.imf.orgenPublicationsPolicyPapersIssues/2018/12/04pp120618gcc-how-developed-and-inclusive-are-financial-systems-in-the-gcc.

The rest of the paper is arranged as below. The following section provides the literature review. Data, variables, and methodology are presented in the next section. The later sections present empirical results, followed by a discussion on these results. Conclusion of the study along with future research recommendations is given in the final section.

Literature review

The debate on the role of capital structure decisions on firm value is still inconclusive even though theoretical and empirical evidence has been produced since the Modigliani and Miller (1958) debt irrelevance theorem, which states that capital structure has no material effect on firm value. The agency theory framework by Jensen and Meckling (1976), considers debt as a disciplinary tool that can force the managers to meet their contractual obligations, this could minimize the managerial opportunism and can mitigate the principal-agent conflict. Later on, empirical studies reported mixed results on the impact of capital structure on firm performance under the agency theory framework. Free cash flow hypothesis by Jensen (1986) also suggested that debt related payments can reduce the cash available for manager discretion which could also reduce agency costs. Similarly, Grossman and Hart (1982) suggested that creditors' monitoring could reduce the principal-agent conflict, while the leverage could increase the return on shareholders' investment.

Most of the studies explored the association of leverage with different performance measures, such as return on assets (ROA), return on equity (ROE), and profitability for non-financial firms. For instance, Sheikh and Wang, (2013) reported a negative association between capital structure measurements and return on assets. Likewise, Abor (2007) found a negative association between the capital structure measures and financial performance of small-medium enterprises (SMEs) of Ghana and South Africa. It further suggested that SMEs aspire to higher leverage to address the agency problems. The study on Vietnamese firms by Le and Phan, (2017) found a negative and significant association between firms' debt ratios and performance measures. They further stated that these findings are contradictory to the results reported on developed economies, however, they are consistent with other studies on developing economies.

On the contrary, several studies have reported positive association among proxies of capital structure and performance measures. For instance, Abor (2005), explored a positive relationship between the total debt ratio and return on equity of 22 listed companies on the Ghana stock exchange. Similarly, Gill, Biger, and Mathur, (2011) reported a positive and significant relationship between debt ratios and performance measures in American manufacturing and services firms. However, like Modigliani and Miller (1958) a few studies found no association between capital structure and firm performance. For instance, the study by Phillips and Sipahioglu, (2004) on 43 UK companies that own an interest in managing hotels found no significant relationship between debt level and firm performance.

Unlike non-financial firms, empirical evidence on financial firms, particularly banks' capital structure and performance, is very limited. It has been assumed that capital structure decisions for banks are binary products of a different regulatory framework. However, Gropp and Heider, (P.5, 2010) stated that the similarity between the capital structure of banks and non-financial firms is more than previously thought. The empirical evidence on bank capital structure and performance are also inconclusive as with non-financial firms. Berger and Di Patti, (2006) did a study on the US banking industry which used profit efficiency to measure performance. The study found that a higher debt ratio is related to higher profit efficiency. It further reported the 6% increase in profit efficiency with 1% increase in debt, and suggested the use of debt to minimize the agency cost of equity (see: Le & Phan, 2017).

Likewise, Zafar, Zeeshan and Ahmed (2016) reported a positive impact of leverage on ROA, ROE, and earnings per share (EPS) of Pakistani banks. Amidu's (2007) study on Ghana banks reported that operating assets are negatively related to total leverage, however, dividing the leverage into short-term and long-term debt showed different results. The long-term is positively while short-term debt was negatively related to the profitability of Ghanaian banks. The study by Siddik, Alam, Kabiraj, and Joghee, (2017) found a negative and significant relationship between all the measures of leverage and ROE and ROA in the case of Bangladeshi banks. Similarly, Gohar and Rehman (2016) reported a negative association between capital structure and bank performance of Pakistani listed banks.

In conclusion, the existing empirical literature is not only equivocal but also reporting inconsistent and inconclusive findings. Therefore, the limitation of the existing research to provide a systematic conclusive or consistent association between the capital structure and financial performance of banks also encourages this study.

Data, variables, and research methodology

Data

The study employs the data of conventional commercial banks listed on various stock exchanges of six GCC economies i.e. Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. All the banks with complete financial data as per variables of the study have been taken from Bank Scope. The study uses unbalanced data of 50 available banks operating in the six GCC countries during the period of 2012-2017, having 299 bank year observations. In order to control for macroeconomic indicators, macroeconomic data i.e. GDP growth rate and the inflation rate of each country, have been taken from the World Bank.

Variables

The study uses return on assets (ROA) and returns on equity (ROE) proxies of bank performance as dependent variables, total debt ratio (leverage) a proxy of capital structure as the explanatory variable. To control for bank-specific factors, bank size, assets tangibility, earnings volatility, and growth are used as control variables. Moreover, to control for macroeconomic factors GDP growth rate and inflation are also used as control variables. The study has adopted the variables from earlier studies such as (Sheikh & Wang, 2013; Siddik et al., 2017) for meaningful comparison. The explanation of each variable is given in Table 1.

Table 1: Explanation of variables

Variables	Measure
Dependent Variable	
Return on Assets (ROA_{it})	Computed as net income$_t$ divided by total assets$_t$
Return on Equity (ROE_{it})	Computed as net income$_t$ divided by total equity$_t$
Explanatory Variables	
Total Debt Ratio (TDR_{it})	Computed as total liabilities$_t$ divided by total assets$_t$
Control variables	
Bank size (SZ_{it})	Computed as taking the natural logarithm of total assets$_t$
Tangibility (AT_{it})	Computed as fixed assets$_t$ divided by total assets$_t$
Earnings volatility (EV_{it})	Computed as (Net income$_t$ – net income$_{t-1}$) divided by net income$_{t-1}$
Growth (GR_{it})	Computed as (total assets$_t$ –total assets$_{t-1}$) divided by total assets$_{t-1}$
Macroeconomic effects	
GDP growth (GDG_t)	Gross Domestic Product annual growth rate
Inflation ($INFL_t$)	Inflation rate annual

Source: Author's calculations, based on bank scope data and data from the World Bank (Sheikh & Wang, 2013; Siddik et al., 2017).

Methodology

The final data sample is unbalanced panel data, therefore, the study employs the pooled ordinary least squares (OLS) estimation technique. BPLM (Breusch & Pagan Lagrangian, 1980) multiplier test is employed to choose among panel regressions. Fixed and random effects estimation have been used along with OLS based on BPLM results. Finally, Hausman test (1978) has been used to select either fixed effects results or random effects results that are appropriate for discussion. Following is the regression equation,

$$y_{it} = \alpha + X_{it}\beta + \mu_{it}$$

The dependent variable is represented by yit, i stands for cross-sections of the sample, time-series of the sample is t, is the y-intercept. Xit is 1xK vector of a sample of K independent variables for ith bank in the

period of time. β is indicating the factors of vector 1xK, represents the disturbance and is calculated as:

$$\mu_{it} = \mu_i + v_{it}$$

While signifies the unnoticeable single effects, residual disturbance is denoted by. The study uses, pooled OLS (equation i), fixed effects (equation ii), and random effects (equation iii) panel estimations.

$$PERF_{it} = \beta_0 + \beta_1 TDR_{it} + \beta_2 \sum_{J=0}^{n} Control_{ijt} + \varepsilon_{it} \dots (i)$$

$$PERF_{it} = \beta_{0i} + \beta_1 TDR_{it} + \beta_2 \sum_{J=0}^{n} Control_{ijt} + \mu_{it} \dots (ii)$$

$$PERF_{it} = \beta_0 + \beta_1 TDR_{it} + \beta_2 \sum_{J=0}^{n} Control_{ijt} + \varepsilon_i + \mu_{it} \dots (iii)$$

debt ratio (leverage) a proxy of capital structure for ith bank at time t. Controlijt denotes the jth control variable ith bank at time t. The intercept is and is the random error term for ith bank at time t., and are the intercept, random error, and the error component respectively for ith bank at time t.

Empirical findings and discussion

Empirical findings

The descriptive statistics of the variables are presented in Table 2. The mean value of return on assets is 1.50 percent while returns on equity is 10.28 percent. The average of total debt ratio is 84.58 percent, which is quite high compared to other studies' findings on non-financial firms. The high percentage depicts the depository type of banking business. The bank size mean is 16.71, whereas the asset structure fixed to total assets is 0.91 percent which also endorses the banking industry nature where the majority of the assets are intangible assets i.e. bank loans or investments in various securities. Earnings volatility and growth have the mean value of 11.45% and 11.52 percent respectively. The average GDP growth during the period was 3.21 percent while inflation was 2.19 percent.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA_{it}	299	0.0150	0.0100	-0.0354	0.0539
ROE_{it}	299	0.1028	0.0602	-0.2504	0.2463
TDR_{it}	299	0.8458	0.0647	0.4491	0.9189
SZ_{it}	299	16.7100	1.9840	10.9199	20.5130
AT_{it}	299	0.0091	0.0055	0.0002	0.0380
EV_{it}	299	0.1145	2.1420	-26.5770	19.5440
GR_{it}	299	0.1152	0.2089	-0.7737	2.0670
GDG_t	6	3.2195	2.4888	-4.7120	13.3750
INF_t	6	2.1946	1.0511	-0.8381	4.0699

Source: Author's analysis.

Table 3: Pair wise correlation matrix

Variables	ROA_{it}	ROE_{it}	TDR_{it}	SZ_{it}	AT_{it}	EV_{it}	GR_{it}	GDG_t	INF_t
ROA_{it}	1.000								
ROE_{it}	0.847***	1.000							
TDR_{it}	-0.351***	0.088	1.000						
SZ_{it}	0.280***	0.401***	0.252***	1.000					
AT_{it}	0.0519	-0.102*	-0.162***	-0.036	1.0000				
EV_{it}	0.217***	0.213***	0.022	0.025	-0.0770	1.000			
GR_{it}	-0.266***	-0.186***	0.102*	-0.123**	-0.0008	-0.053	1.000		
GDG_t	0.111**	0.103*	-0.112**	-0.010	-0.0680	-0.083	0.152***	1.000	
INF_t	-0.120**	-0.116*	-0.025	-0.127**	-0.0080	-0.048	0.165***	0.254***	1.000

***, **, *, denote significant at 1, 5 and 10% levels respectively.

Source: Author's analysis.

The pairwise-correlation matrix is presented in Table 3. The pairwise correlation helps to understand the multicollinearity phenomenon among variables. The correlation values among variables are so small that the issue of multicollinearity is of no concern. The regression estimation results for OLS, fixed effects, and random-effects are for dependent variable ROA which are given in Table 4, while for ROE they are presented in Table 5. Each table also reports the Hausman test (1978) values for both of the dependent variables. The test suggests the use of fixed effects estimations results for interpretation.

The proxy of capital structure i.e. total debt ratio has a negative relationship with return on assets in all three regressions, the relationship is highly significant in OLS regression and random effects, while it is insignificant in fixed effects estimations. Bank size is significantly associated with ROA in OLS and random effects estimations and negative and insignificant in fixed effects regression. Asset tangibility is negatively and significantly related to return on assets. Earnings volatility has a positive and significant association with ROA. Growth has a negative and significant relationship with ROA.

Table 4: The effect of total debt ratio on return on assets

Variables	M1	M2	M3
TDR_{it}	-0.0635	-0.0229	-0.0501
	[0.0077]***	[0.0144]	[0.0096]***
SZ_{it}	0.0017	-0.0023	0.0016
	[0.0002]***	[0.0023]	[0.0004]***
AT_{it}	0.0425	-0.2839	-0.0923
	[0.0865]	[0.1449]**	[0.1114]
EV_{it}	0.0010	0.0011	0.0011
	[0.0001]***	[0.0001]***	[0.0001]***
GR_{it}	-0.0085	-0.0065	-0.0068
	[0.0023]***	[0.0020]**	[0.0020]***
GDG_t	0.0005	0.0001	0.0003
	[0.0002]***	[0.0002]	[0.0001]**
INF_t	-0.0007	-0.0002	-0.0003
	[0.0004]*	[0.0004]	[0.0004]
C	0.0397	0.0774	0.0306
	[0.0071]***	[0.0332]**	[0.0096]***
Adj R^2	0.3473	0.2346	0.3458
(F-stat)-Probability	0.0000	0.0000	0.0000
Hausman test Chi-Sq. (Probability)		19.9400 (0.0050)	
BPLM test Chibar sq. (Probability)	109.3600 (0.0000)		
Observations	299	299	299
Groups	50	50	50

Note: ***, **,* denotes significance at p < 1%, p < 5 % & p < 10%. Standard Errors are given in parenthesis, M1 is OLS, M2 is Fixed Effects and M3 is Random Effects regression models.

Source: Author's calculations.

The explanatory variable shows a positive but statistically insignificant association with ROE. Banks' size is negatively and significantly related to ROE. Assets tangibility and earnings volatility are positively associated with ROE and the relationships are highly significant. Growth has a negative but insignificant relationship with ROE. GDP growth and inflation rate have positive and negative associations respectively but are insignificant. In short, explanatory and control variables show somehow similar results with each dependent variable in all regression models.

Discussion of results

The empirical results presented in Table 5 show that leverage has a negative impact on return on assets but the relationship is insignificant. The negative association suggests that debt returns on assets do not exist in the GCC banking industry. This is in line with the findings of Musah (2018), Le and Phan, (2017), Sheikh and Wang (2013), and Abor (2007) studies on non-financial firms. These findings are consistent also with Adeniyi et al. (2020), Siddik et al. (2017), Gohar and Rehman (2016), and Amidu (2007), studies on banks. Meanwhile, it is in contradiction to the findings of Zafar et al. (2016) study on Pakistani banks.

Table 5: The effect of total debt ratio on return on equity

Variables	M1	M2	M3
TDR_{it}	0.0117	0.1545	0.0089
	[0.0505]	[0.0976]	[0.0631]
SZ_{it}	0.0110	-0.0286	0.0107
	[0.0016]***	[0.0157]*	[0.0027]***
AT_{it}	-0.6595	-3.3452	-1.6612
	[0.5625]	[0.9821]***	[0.7293]**
EV_{it}	0.0056	0.0057	0.0059
	[0.0014]***	[0.0012]***	[0.0012]***
GR_{it}	-0.0413	-0.0210	-0.0274
	[0.0152]***	[0.0139]	[0.0135]**
GDG_t	0.0039	0.0006	0.0026
	[0.0013]***	[0.0013]	[0.0012]**
INF_t	-0.0044	-0.0007	-0.0016
	[0.0030]	[0.0029]	[0.0028]
C	-0.0851	0.4831	-0.0712
	[0.0463]*	[0.2254]**	[0.0620]
Adjusted R^2	0.2315	0.1576	0.2350
Prob. (F-stat)	0.0000	0.0000	0.0000
Hausman test Chi-Sq. (Probability)		20.2400 (0.0051)	
BPLM test Chibar sq. (Probability)	83.0500 (0.0000)		
No. of Obs.	299	299	299
No. of groups	50	50	50

Note: ***, **,* denotes significance at $p < 1\%$, $p < 5\ \%$ & $p < 1\ 0\%$. Standard Errors are given in parenthesis, M1 is OLS, M2 is Fixed Effects and M3 is Random Effects, regression models.

Source: Author's calculations.

The insignificant relationship may be due to the business nature of the banking industry. Banks as financial intermediaries are designed to take deposits and make loans in the economy. Therefore, the weaker performance may not prevent the depositors from depositing their money with banks. Moreover, it is assumed that banks are taking deposits, but are not utilizing them efficiently or loans issued by banks are becoming non-performing loans that need further investigation in future studies. Meanwhile other performance measures such as ROE have a positive but insignificant relationship with the total debt ratio. The statistically insignificant relationship with ROE is in line with findings on Hasan et al. (2014) and Ebaid (2009).

For control variables bank size is negatively related to bank performance, suggesting the larger banks may lose operational efficiency and most of the profits may drain out into the expenses of branches, employees' salaries, and so forth. Significant negative relationship of assets tangibility suggests that unlike non-financial firms banks do not need physical tangible assets. These statistically significant results are in line with the findings of Siddik et al. (2017) and Sheikh and Wang (2013). Earnings volatility has a significant and positive impact on banks' ROA and ROE respectively. Growth has a negative and significant relationship with ROA, which is congruent with the findings of Siddik et al. (2017) findings on Bangladeshi commercial banks.

Conclusion

This study explores the impact of capital structure on the financial performance of listed commercial conventional banks operating in the GCC region. The study used pooled OLS, fixed effects and random effects estimation techniques to explore the relationship between dependent and explanatory variables. Empirical findings suggest that the total debt ratio has a material effect on bank performance. However, the leverage is negatively related to the return on assets and positively related to the return on equity. The fixed effects results chosen based on the Hausman (1978) test suggest the relationship is statistically insignificant. These findings are contradictory to the findings of studies on non-financial firms. Moreover, the control variables, such as bank size, assets tangibility, earnings volatility, and growth also have a material effect on bank performance.

The negative relationship between bank size and growth is due to the nature of bank business. The larger banks in the region are either not efficiently using the deposits or the banks may have higher non-performing loans, therefore banks fail to translate more deposits into profits. The earning volatility's positive and significant association also suggests that depositors are not concerned about the variation in the banks' earnings while they are making the deposits. As the study uses conventional banks and Islamic banks are excluded from the analysis, it is assumed that the depositors with the conventional banks are also not concerned about the interest income on deposits due to their religious beliefs.

In summary, the findings of the study suggest that capital structure choices do affect the performance of banks operating in the GCC regions but not in a similar way as in the case of non-financial firms. Moreover, based on the findings of this study it is suggested to further explore the performance with non-performing loans of the banks operating in the region. In addition, a comparative study of conventional banks and Islamic banks operating in the region is also recommended.

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