



DETERMINANTS OF CAPITAL STRUCTURE OF BANKING SECTOR IN GCC: AN EMPIRICAL INVESTIGATION

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ABSTRACT

This work attempts to identify determinants of capital structure in a sample of commercial banks listed on the Gulf Cooperation Council (GCC) stock markets. To achieve this objective, data about were collected from 47 GCC commercial banks for the period between 2001 and 2010. We find that profitability and liquidity affect banks' capital structure decision. The major contribution of this study is that, the majority of the commercial banks' assets in GCC is financed by debts which represents more than 80 percent of the capital of the banks. This emphasizes the importance of long-term debts in commercial banks' financing in GCC.

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Keywords: Capital structure, Pecking order theory, Static trade-off theory, Banking sector, GCC markets.

Contribution/ Originality

Most empirical studies that examined the determinants of capital structure have been done for specific country and there is little evidence of GCC region. Thus, the current study fills the gap in the literature and provided an evidence, using recent and long data, of determinants of capital structure of banking sector in GCC region

1. INTRODUCTION

Determinants of the firm's capital structure have been subject of growing theoretical and empirical investigations in finance literature. The central issue in this literature is to examine firm's arrangement to reach optimal capital structure using a trade-off between solvency and credibility.

Empirical studies confirmed the relationship between firm's capital structure and its attributes and pointed to several attributes such as size, risk, age, liquidity, market to book value ratio and

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profitability. These findings, however, would be questionable in markets where governments exercise control over major economic activities such as the Gulf Co-operation Council (GCC) countries and no tax paid on dividend and capital gains that play significant role in determining capital structure. This paper aims to present empirically evidence on the determinants of capital structure of banks listed on the GCC stock markets. The GCC Banking sector is of interest since it maintains homogeneous sample industry and this assists in controlling possible unsystematic effects. Moreover, banks concern with both solvency and liquidity and their liabilities are mostly short-term in nature, payable on demand, have few fixed costs and low operating leverage than other counterparts sectors such as manufacturing.

The remainder of the study is organized as follows. The following section presents a brief review of related literature and previous studies. Data collection 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.

2. RELATED LITERATURE AND PREVIOUS STUDIES

Finance theorists have exerted tremendous efforts to identify determinants of capital structure of commercial banks since they operate in a prudential manner against probable shocks. Consequently, three main theories have been developed: Static Trade-Off Theory (STOT), Pecking Order Theory (POH) and The Agency Cost Theory (ACT).

STOT of capital structure compares benefits and costs of issuing debt as an attempt to reach to the optimal point of financial debt ratio that maximizes firm's value (Myers, 2001). The theory considers three main factors: taxes, costs of financial distress or bankruptcy costs and agency conflicts (Modigliani and Miller, 1963). STOT aims to maintain a balance between these three factors to achieve capital optimal structure. According to this theory, taxes play significant role in determining the firm's level of leverage by lowering tax liability and increasing after-tax cash flows. However, when a firm raises excessive debt to finance its operations, it may default on this debt and be subject to bankruptcy. Accordingly, STOT claims there is a positive relationship between the value of the firm and a realistic level of tax (Warner, 1977). STOT explains the organization's optimal capital structure as the mix of financing that links the marginal costs and benefits of debt financing. It is fair to state that STOT can be hold if there is a positive relationship between profitability from one side and financial leverage in the other side.

POT assumes that cost of financing increases with asymmetric information. Corporate finance comes from three sources: internally (retained earnings), debt (borrowing) or equity (shares). According to POT, corporate manager prefers to use retained earnings as the primary source of funds than is debt and debt is a better deal than equity financing (Myers and Majluf, 1984). Hence, this theory maintains that firms follow a hierarchy of financing. POT assumes that organization focuses on internal equity to fund new investment and pay dividends. It ranks internal equity at the top of the pecking order. Accordingly, the organization will finance its projects using retained earnings if possible (Myers, 1984). If there is an insufficient amount of retained earnings, then the

organization will finance its projects by debt. As a consequence, organization will not use equity to finance its deficit. It is fair to state that POT can be hold if there is evidence that there is a negative relationship between profitability from one side and financial leverage in the other side. On other words, it seems that the more profitable organization leads to less debt due to the high levels of profits.

Agency Cost Theory (ACT) assumes that an optimal capital structure can be determined by minimizing costs arising from the conflicts between the parties involved (Jensen and Meckling, 1976). It plays an important role in financing decisions due to the conflict that may exist among managers, shareholders and debt holders. If companies are approaching financial distress, shareholders push management to take decisions to obtain funds from creditors to equity holders. Creditors, in this case, will ask for higher return for their funds if there is potential for this transfer of wealth. Debt and the accompanying interest payments are likely to reduce agency conflict between shareholders and managers. Creditors have legal redress if management fails to make interest payments when they are due, therefore managers are worried about potential loss of job. Another advantage of debt is that it moderates manager-shareholder agency conflict since managers have the stimulus to waste free cash flow on bad investment (Jensen and Meckling, 1976). They are likely to operate in the firm as efficiently as possible in order to meet the interest payments and achieve the shareholder wealth maximization. In other words, ACT investigates the relationship between the manager of the firm, and the outside equity and debt holders.

The main idea of ACT is separating ownership from control and it also points out possible conflict existing between owners and managers which results in increase in agency cost. The performance of capital structure can be improved by reducing agency cost since it is viewed as being a major player in achieving the optimality of capital structure.

Empirical research about determinants of the capital structure of financial institutions covered various countries (see for example, Australia: Kensington (1995). Taiwan: (Kuo, 2000; Kuo and Lee, 2003). Turkey: (Asarkaya and Ozcan, 2007; Çağlayan and Şak, 2010; Binici and Köksal, 2012). Portugal: Marques and Santos (2003). Germany: Kleff and Weber (2004). Nepal: Baral (2004); Nepal: Basnet (2015). China: (Firth *et al.*, 2008; Qin, 2010; Li, 2011). Hong Kong: Wong *et al.* (2005). India: Sen and Pattanayak (2005; 2009). Jordan: (Siam *et al.*, 2005; Al-Qudah, 2014). Ghana: (Amidu, 2007; Gatsi and Akoto, 2010; Vitor and Badu, 2012). USA and Europe: (Gropp and Heider, 2010). Nigeria: (Iwarereand and Akinleye, 2010; Aremu *et al.*, 2013). Pakistan: (Siddiqui and Shoaib, 2011; Ali *et al.*, 2011a; 2011b; Saeed *et al.*, 2013). The following section offers a brief review of these studies.

Kensington (1995) examined determinants of bank capital structure of Australian trading banks over the period 1967–1988. He found little evidence support trade-off between tax benefit/bankruptcy cost; whereas evidence is broadly consistent with the predictions of POT in the presence of transactions costs and asymmetric information. Kensington observed that institutional factors, including bank deregulation and type of bank, are significant determinants of capital management of Australian trading banks.

Kuo (2000) examined 15 domestic public banks, 15 domestic private banks, and 21 local branches of foreign banks in Taiwan during the period 1989-1994. He found significant differences in their capital structure suggesting that banks adopt different applications of financial leverage. Kuo confirmed positive correlation between bank size and financial leverage, while fixed assets to deposit ratio, fixed assets and variance coefficient of operating incomes are negatively correlated. Another study by Kuo and Lee (2003) examined determinants of capital structure in commercial banks during the period between 1991 and 2000 found both debt from deposit and debt from non-deposit decrease progressively for domestic banks while increased progressively for local branches of foreign banks. Kuo and Lee provided evidence that the traditional activities of banks for deposits and loans are becoming less important in the Taiwan's changing financial market.

Asarkaya and Ozcan (2007) examined determinants of capital structure of Turkish banking sector using data covering the period 2002–2006. They found lagged capital, portfolio risk, economic growth, average capital level of the sector and return on equity to be positively correlated with capital adequacy ratio. They also found share deposits negatively correlated with the capital adequacy ratio. Asarkaya and Zcan recommended banks with higher portfolio risk to carry more capital to provide a buffer against expected and unexpected losses. Another study by Çağlayan and Şak (2010) who examined the determinants of capital structure of banks in Turkey over the period 1992-2007 found size and market to book value have positive impact; whereas tangibility and profitability have negative impacts on the book leverage in all periods. Çağlayan and Şak confirmed the POT except the relationship with tangibility which weakly confirms the agency cost theory. Binici and Köksal (2012) surveyed the relation between leverage and asset growth in the Turkish banking sector. They found that size and profits are the main determinants of leverage. They also found a statistically significant positive relationship between these two variables. Binici and Köksal concluded that lowering the leverage ratio when asset growth of the banks is high, and raising it in the opposite case should contribute to smoothing credit/financial cycles.

Marques and Santos (2003) surveyed the Chief Executive Officers (CEOs) of Portuguese banks to explore determinants of capital structure policy in Portuguese banking industry. They found evidence to support moderate trade-off theories of capital structure and little evidence for the pecking order capital structure policy model. They also found that capital structure policy is likely to be more affected by incentives structure and governance control rights underlying different financing instruments rather than by the aspects related to security design and pricing. They observed that changes in regulatory apparatus are considered as a major external factor affecting CEOs capital structure decisions. Marques and Santos provided evidence that the impact of taxation at the bank level, bankruptcy and financial distress are moderate influence on banks' capital structure.

Kleff and Weber (2004) examined the determinants of capital structure of German banks during the period of 1992 and 2001. They found capitalized banks try to maintain their regulatory buffer capital due to potential regulatory costs. They observed changes in portfolio risk have a positive and significant impact on changes in the capital ratio for savings banks. They further

noticed banks increase capital and decrease portfolio risk to rebuild their capital buffer. Kleff and Weber provided evidence that banks' profitability has a positive and significant impact on the target capital ratio for savings and cooperative banks.

Baral (2004) explored determinants of capital structure of financial institutions in Nepal Stock Exchange as of July 2003. He provided evidence that size of the financial institutions has statistically significant influence on financial leverage which is consistent with the theoretical relation explained by the bankruptcy costs theory. He also found growth rate has positive relationship with leverage ratio suggesting high significant coefficient of relation postulated by pecking order theory. Baral further observed that financial institutions do not care of their debt service capacity but do care about the expansion of their businesses. (Basnet, 2015) explored whether standard determinants of capital structure such as profitability, assets tangibility, size, collateral, business risk dividends, GDP growth and inflation impact the capital structure of Nepalese commercial banks. He concluded that standard determinants of banks' capital structure do affect the market leverage of the banks and capital structure theories-trade-off and pecking order are complementary for the Nepalese commercial banks.

Firth *et al.* (2008) examined leverage and investment under a state-owned bank lending environment in China. They found that there is a negative relation between leverage. The researchers also found that the state-owned banks in China impose fewer restrictions on the capital expenditures of low growth and poorly performing firms and also firms with greater state ownership. Li (2011) added that low capital adequacy requirement has a great influence on the capital structure of commercial banks listed in china. Li further observed growth in Gross Domestic Product (GDP) has great influence on the capital structure of the listed commercial banks. In a similar line of research, Qin (2010) identified five aspects leading to improvement in the capital structure of Chinese commercial banks including promote bank shareholding; establish a moderately concentrated, reasonably control the subsidiary capital ratio; establish a scientific mechanism of internal governance in banks and perfect the capital markets and credit rating system.

Wong *et al.* (2005) examined the capital structure of Hong Kong banks. They found that risk management techniques of banks with large asset size are more developed than those of smaller banks. They provided some advantages to large banks in measuring the risks of borrowers through scale effect, and thus, they require less capital. Wong *et al.*; concluded that the capital adequacy ratio for the banks in Hong Kong banking system is determined in a similar fashion.

Sen and Pattanayak (2005; 2009) examined the capital structure choice of Indian banks. They used on a sample of 82 Indian banks comprising of public sector banks, private and foreign banks for the period 1996 to 2002. They found liquidity, size, efficiency and growth, quality of assets, profitability and service diversification to be the most critical factors influencing the capital structure of Indian banks. They added that the short-term debt elements and long-term borrowings are negatively correlated with profitability, while deposits demonstrate positive and significant

correlation. The researchers also observed positive and significant correlation between all forms of debt and size with the exception of long-term borrowings.

Siam *et al.* (2005) examined determinants of 12 Jordanian banks' leverage during the time period 1992-2001. They found bank size (measured by total assets), retained earnings divided by total assets, liquidity ratio and the long and short-term debts to be determinants of leverage. They also found a positive relationship between bank's leverage and its age and the total assets associated with retained earnings divided by total assets. Siam *et al.* also observed a negative relationship between the bank's leverage and the liquidity ratio associated with the long and short-term debts. Al-Qudah (2014) examined determinants of capital structure of banks and showed that size has a positive and significant impact on total liabilities to equity ratio, book leverage and market leverage while it has a positive insignificant impact on deposit leverage and non-deposit leverage. He also showed that market to book ratio has a positive and significant impact on different leverage measures he used in his study except non-deposit leverage.

Amidu (2007) examined determinants of capital structure of 19 banks in Ghana during the period 1998-2003. He found banks' short-term debt is negatively related to their profitability; risk and assets structure are positively related to bank size, growth and tax. He also found banks' long-term debt is positively related to their structure and profitability and inversely related to their risk, growth, size and tax. He observed that more than 85 per cent of the Ghanaian banks' assets are financed by debt and short-term debts appear to constitute more than three quarters of the banks' capital pointing to the importance of short-term debt over the long-term debt in Ghanaian banks' financing. Gatsi and Akoto (2010) added that more than 85 percent of the total capital of banks in Ghana is made up of debt. They observed that of this, 65 percent constitute short-term debts while 22 percent is made up of long-term debts. The researchers observed profitable banks in Ghana use less debt or they depend more on internally generated funds rather than external funds. This lends support to the pecking order theory of firm financing. Vitor and Badu (2012) observed banks listed on the Ghana Stock Exchange are highly geared and this is negatively related to the banks performance. They added, high levels of gearing among listed banks can be attributed to their over dependency on short-term debt. Vitor and Badu concluded that listed banks should increase their efforts to internally generate funds to finance their operational activities.

Iwarereand and Akinleye (2010) used a questionnaire survey to find out factors employed by Nigerian banks to choose appropriate amount of debt and equity capital. They concluded that banks should adopt an appropriate mix source of fund, reduce debt issue and invest in more liquid assets through reduction in tangible assets. Aremu *et al.* (2013) examined the relationship between the level of leverage ratios with banks size, dividend payout, profitability, tangibility, liquidity, growth and tax charge with reference to the capital structure models and theories. They found associations between banks capital and their size, dividend payout, profitability, tangible assets, growth, business risk and tax charges.

Ali *et al.* (2011a; 2011b) studied factors affect the capital structure of 22 commercial banks in Pakistan during the period 2006-2010. They found a positive and significant relationship between

bank's leverage and its size and tangibility. They also found that there is a negative and significant relationship between bank's leverage and both its profitability and liquidity. Ali *et al.* concluded that the banking sector in Pakistan is likely to follow STOT. Similarly, Siddiqui and Shoaib (2011) noticed banks' size play significant role in raising not only their profit efficiency but also their market value. The researchers suggested that there is a need for a policy shift from consumer banking to pro-real sector loaning. It means banks should structure their capital in line with long-term investment trends instead of short term gains from leasing cars or houses. Furthermore, Saeed *et al.* (2013) observed that total debt to capital and firm size experienced a strong optimistic connection with all profitability measures.

Keen and Mooij (2012) studied the effect of corporate tax on bank leverage in a sample of over 14,000 commercial banks in 82 countries over nine years. They found banks favorable treatment of tax associated with debt finance make them highly leveraged than they otherwise would be, notwithstanding the regulatory capital requirements they face. Indeed, banks capital structures are in general about as responsive to tax asymmetries as are those of non-financial firms.

It is evident from above brief review of the literature that few numbers of empirical studies that explore determinants of banks capital structure in the Arab banking industry were undertaken. This suggests the need for empirical testing in different environmental contexts of country and time to enhance our understanding of the capital structure puzzle such as GCC markets, which attributed an oil-based economy. Therefore, the current research is undertaken.

3. DATA COLLECTION AND METHODOLOGY

3.1. Data Collection

As mentioned earlier the attempt is made in this study to determine factors that underlie capital structure of the banking sector in GCC. To reach this aim, annual data about GCC banks for the period 2001-2010 were used. The number of banks included in our analysis is 47. Since this study focuses on commercial banks, Islamic banks have been excluded from our sample. Excluding Islamic banks was mainly due to the fact they embark on different financial activities than commercial banks and since they don't deal with interest paying or receiving, they are expected not to use debt as a source of financing.

3.2. Methodology

The main variable of interest in this study (dependent variable) used to measure bank's capital structure is leverage ratio, defined as total liabilities over total assets. To identify the underlying drivers of changes in the leverage ratio, a number of independent variables were employed. These variables were mainly drawn from studies reviewed and reflect the nature of the banking sector in the GCC countries. The dependent and independent variables are put together in the following regression model.

$$LEV = \alpha_0 + \alpha_1 ROA + \alpha_2 LIQ + \alpha_3 TANG + \alpha_4 RISK + \alpha_5 AGE + \alpha_6 GRW + \alpha_7 SIZE + \varepsilon$$

<i>LEV</i>	=	Leverage = Total Liabilities/ Total Assets
α_0	=	Intercept
<i>ROA</i>	=	Return on Assets = Net profit/ Total Assets
<i>LIQ</i>	=	Liquidity = Liquid Assets/ Deposits.
<i>TANG</i>	=	Tangibility= Fixed Assets/ Total Assets
<i>RISK</i>	=	Risk= Profit(x) – Profit(x-1)/ Profit(x-1)
<i>AGE</i>	=	Number of years the firm being working
<i>GRW</i>	=	Assets growth = (Assets(x) – Assets(x-1))/ Assets(x-1)
<i>SIZE</i>	=	Size measure by natural logarithm of total assets
<i>E</i>	=	Standard Error
$\alpha_1- \alpha_7$	=	Parameters of the model

4. FINDINGS

4.1. Descriptive Statistics of Dependent and Explanatory Variables

As mentioned earlier, the study examines the determinants of capital structure for 47 banks over the period 2001 to 2010. Relevant statistics of the dependent and explanatory variables of the sample banks are summarized in Table 1.

Table-1. Descriptive Statistics of Dependent and Explanatory Variables

	N	Mean	Median	SD	Min.	Max.
LEV	406	84.066	86.425	7.592	46.260	99.230
AGE	406	32.414	31.000	9.335	14.000	61.000
ROA	406	2.724	2.230	5.604	-7.270	79.970
LIQ	406	13.267	10.155	14.012	1.020	150.660
RISK	406	1.704	0.201	17.190	-8.040	271.566
TANG	406	0.978	0.845	0.594	0.040	3.790
SIZE	406	10154.4	5039.42	12792.62	334.79	76901.24
GRW	406	0.252	0.142	0.842	-0.836	10.908

The total observations of the dependent and explanatory variables are 406. The table shows the mean, standard deviation, minimum, median and maximum values for the dependent and independent variables. The mean leverage (total debt to total asset) of banks is 84 percent with 7.6 percent standard deviation. This means that more than 84 percent of the banks in GCC are financed by debts. This highlights that debt ratio is relatively high in the sample banks. Leverage for the sample period ranges between 46 percent and 99 percent.

Table 1 also showed that the average age of the sample banks used in the current study is more than 32 years and 31 years median. The sample banks age ranges between 14 years and 61 years.

Profitability, measured by return on assets ratio (ROA), registered a mean value of 2.72 percent, median of 2.32 percent with 5.6 percent standard deviation. Profitability of the sample ranges between -7.3 percent and 79.97 percent. This demonstrates existence of great variation in profit among the GCC banks.

As for liquidity, it showed a mean of 13.3 percent and a median of 10.2 percent with 14 percent standard deviation. This indicates that there is high variation in the level of liquidity among GCC banks; for the sample, liquidity ranges between 1.02 percent and 150.7 percent.

Banks' risk is represented by the standard deviation of operating income (volatility of earning). The mean and median of risk variable are 170 percent and 0.20 percent respectively with 17.2 percent standard deviation. Banks risk ranges between -8.040 percent and 271.57 percent.

Tangibility, measured by fixed asset to total asset, shows that on average, 0.98 percent of the banks' assets are fixed. The ratio of fixed assets to total asset for the sample ranges between 0.04 percent and 3.8 percent with standard deviation of 0.594 percent.

Size presented by total assets registered a mean value of 10,154.4 million and median 5,039.42 million with a standard deviation of 12,792.62. Bank size of the sample ranges between 334.79 million and 76,901.24 million. Once again, this reveals existence of great variation in the size of GCC banks.

Growth measured by the annual percentage change in total asset shows a mean of 0.252 percent and 0.14 median. Growth in total asset for the sample period ranges between -0.84 percent and 10.91 percent with 0.84 percent standard deviation. This further asserts that the existence of high variation in growth rate among GCC banks.

4.2. Correlations among Variables Employed In the Current Study

Table 2 shows correlation among the explanatory variables used to estimate the regression model. As noted by [Amidu \(2007\)](#) correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the leverage, Pearson of correlation coefficient is employed. Values of the correlation coefficient are always in the range between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that two variables are statistically independent.

Table-2. Correlation Matrix between Explanatory Variables

	Y	AGE	ROA	LIQ	RISK	TANG	ASSETS	GRW
Y	1.000							
AGE	-.136**	1.000						
ROA	.163**	-.143**	1.000					
LIQ	.221**	-.076	.198**	1.000				
RISK	.058	-.077	-.155**	.048	1.000			
TANG	.025	-.041	.161**	.026	.020	1.000		
ASSETS	.433**	.125*	.117*	.119*	.087	.046	1.000	
GRW	-.070	-.025	.136**	.019	-.067	-.007	.163**	1.000

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

The correlation matrix presented in Table 2 illustrates that leverage (dependent variable) is negatively and significantly correlated with bank age. It indicates that banks with higher leverage have less working experience. The table exhibits positive and significant correlation between

leverage and ROA, liquidity and bank size. The table shows further that leverage is insignificant correlated with growth (-0.70), tangibility (0.025), and risk (0.058).

To detect the presence of autocorrelation between values, Durbin-Watson (DW) measure has been performed. It is reported that DW statistic is 1.641, and $(4-d_U, \alpha) = (1.841, 0.05)$ for $k=7$ (k is the number of regressors excluding the intercept. $4-d_L = 4 - 1.641 = 2.358$. Since $(4-d_L) > d_U, \alpha$, there is no statistical evidence that the error terms are negatively autocorrelated.

4.3. Regression Analysis

Table 3 shows the regression analysis of leverage as dependent variable and the seven explanatory variables. It appears that there is a positive relationship between bank's age and leverage. The result shows that the older banks seem to create client confidence and have some experience to build proper funding combination and create wider prospects for geographical expansion on local and international levels. The possible explanation for this finding is attributed to the fact that old banks can improve client-banking services by identifying the quality of those clients. These findings are consistent with previous studies such as [Siam et al. \(2005\)](#) in Jordanian commercial banks.

Moreover, there is a positive and statistically significant association between bank's leverage and banks' growth. The possible explanation for this finding is attributed to the fact that the internal funds for growing banks are insufficient to finance their positive investment opportunities and, hence, they need external funding. It also confirms the concept that growing banks have a good opportunity to obtain funds easily due to the high reputation or the lowly- perceived risk through high level of diversification. This finding is inconsistent with results reached by [Amidu \(2007\)](#) who observed that there is a negative relationship between bank growth and leverage in Ghanaian banks. The findings are in line with the trade-off theory that assumes banks tend to borrow less than firms holding more tangible assets because growth opportunities cannot be collateralized.

Table 3 further shows that there is a negative relationship between profitability represented by ROA and leverage. It means that every one percent change (increase or decrease) in bank's profitability, other things remaining constant, has a following change of 5 percent on the leverage in the opposite direction. This result also shows that, higher profits increase the level of internal financing in the GCC banking industry. It can be argued that profitable banks accumulate internal reserves and this enables them to depend less on external funds. In other words, although profitable banks have good opportunities to use external financing, the need for debt finance is likely to be low if new investments can be financed from accumulated reserves. The possible explanation for this finding is attributed to the fact that banks generate profit and build up internal reserves that enable them to rely less on external funds. This outcome is in line with Pecking Order Theory that assumes profitable banks prefer internal financing more than external financing. It is also consistent with previous studies ([Titman and Wessels, 1988](#); [Barton et al., 1989](#)). This finding is consistent

with results reached by [Amidu \(2007\)](#) who observed that there was a negative relationship between profitability and leverage in Ghanaian banks.

Table 3 also demonstrates a negative and significant relationship between assets tangibility and leverage. The possible explanation for this finding is attributed to the fact that there is a conflict between debtholders and shareholders. This finding is consistent with results reached by [Çağlayan and Şak \(2010\)](#) who observed that there was a negative relationship between assets tangibility and leverage in Turkish banks. However, there is a negative relationship between bank size and leverage. This may suggest that the smaller the bank in terms of total assets, the more external funds it will use. Possible explanation for this finding is attributed to the fact that small banks have lower variance of earnings, and the suppliers of debt capital seems to be willing to lend to smaller banks as they are perceived to have lower risk levels. It also confirms the concept that small banks have a good opportunity to obtain funds easily due to the high growing rate and the low (perceived) risk through high level of diversification.

There is negative relationship between leverage with liquidity and risk, but this relation is not statistically significant. The possible explanation for this finding is attributed to the fact that earning volatility reduces investors' ability to predict future performance and earnings (if the sign is negative); secondly, higher volatility lead to higher probability of default (if the sign is positive). Negative relationship between risk and leverage confirms that risky banks are expected to have less leverage ratio which is consistent with Pecking Order Theory and trade-off theory. This finding is important and raises an interesting question as to whether risk is important in the capital structure of GCC banks. This finding is consistent with results reached by [Amidu \(2007\)](#) who observed that there was a statistically insignificant relationship between risk and leverage in Ghanaian banks. The negative relationship with liquidity might be due to the fact that banks with higher LQ use that LQ to pay off loans. It is fair to say that the more liquid the bank in GCC is, the less the resort to borrowing.

Table-3. Regression model results (dependent variable: Leverage)

	Coefficient	t-Statistic	Prob.
C	88.528	96.675	0.000
AGE	172.545	3.444	0.001
ROA	-5.230	-2.180	0.030
LIQ	-3.786	-1.114	0.266
RISK	-0.053	-1.309	0.191
TANG	-4.320	-2.283	0.023
ASSEST	-7622.210	-8.599	0.000
GRW	1.028	2.490	0.013

Notes: $R^2 = 0.418657$; Adjusted $R^2 = 0.406942$; F-statistic = 40.9; and Prob (F-statistics) = 0.0000

5. CONCLUSION

In this study, an attempt is made to investigate the relationship between the leverage level and a set of explanatory variables of capital structure of GCC banks over the period of 2001-2010. The main purpose is to explore whether the main theories of bank financing can explain the bank capital

structure. The following determinants of capital structure are obtained from previous studies namely tangibility, risk, liquidity, size, profitability, bank's age and growth.

The main findings showed negative and statistically significant relationship between GCC banks' capital structure and their profitability, represented by ROA, tangibility and size. Positive and statistically significant relationship appeared between capital structure and GCC banks growth and age. These results fairly support the Pecking Order Theory except the relationship with tangibility. The results also partially support Agency Cost Theory.

The findings of this study have conveyed some insights on the capital structure of GCC banks. It is expected to be appreciated by both policy-makers and investors. For the former, it would indicate necessary factors required to develop economic planning as well as determining the factors behind borrowing decisions in order to manipulate the size of the funds required from the creditors. For the later, it can be used to determine the market price of the company's stock.

Although the study presents some useful information for the important role of profitability in leverage, it leaves a room for future research to find out the relationship between leverage and the performance of the GCC banks.

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