



Cogency of Capital Structure Theories to an Islamic Country: Empirical Evidence from the Kuwaiti Banks¹

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ABSTRACT

This study is set out to examine the cogency of capital structure theories in a unique Islamic financial environment where tax shield is irrelevant, paying or receiving interest is undesirable and government exercises control over major economic activities. To achieve this objective, the annual reports of all Kuwaiti banks listed on the Kuwait Stock Exchange for the period between 2010 and 2014 were used to extract internal bank variables. In addition, external macroeconomic data were extracted from World Bank statistics. The results of the pooled regression analysis disclosed that the capital structure of the Kuwaiti banks are influenced by their size measured by total assets, cash dividends paid and the market value/book value of the bank's share. While the result was inconsistent with agency theory, it provides support to the pick-order, trade off and market theories.

Keywords: Capital Structure, Firm Size, Pecking Order Theory, Static Trade-Off Theory, Banking Sector, Kuwait Stock Exchange, Kuwait

JEL Classifications: C42, G21, G32

¹ The opinions expressed in this article are the authors, own and do not reflect the view of their employers.

1. INTRODUCTION

Determinants of corporate capital structure have been the subject of intensive research. Despite the critical role of the capital structure in the banking sector and the association between the level of banks' capital structure and financial crisis, the focus of capital structure research was mainly on non-financial companies. Mooij et al. (2013) indicated that high level of banks' leverage results in banking crisis. It is for this reason regulators monitor and supervise banks closely to ensure stability of the banking sector.

Due to the differences in the nature of activities and operations of banks and non-financial companies, their capital structure tends to be different. Banks capital structure is different than non-financial companies in that it is highly leveraged. In order to protect investors, as well as depositors, in the banks and to maintain banking stability, the capital structure of the bank is subject to specific rules and regulations and the banks ought to adhere to them. For example, banks are required by law to maintain a minimum capital. However, such rules and regulations are not

applied to non-financial companies. Banks capital structure is also different than that of the non-financial companies since the nature of the banks operations force them to rely on deposits to ensure liquidity that allow them to provide less liquid loans. This would result in volatility in the bank' capital structure. In this respect, Diamond and Rajan (2001) indicated that unlike non-financial companies characterized with stable capital structure, the capital structure of the banks is volatile since it relies on deposits to provide illiquid loans. In addition, Nguyen and Kayani (2013) demonstrated that the difference between banks and non-financial company is initiated by investment opportunities and liquidity. Profitable firms with many investment opportunities can invest in profitable projects using their retained earnings. However, banks rely on debts to finance any investment opportunities. Hence, determinants of banks capital structure are expected to be different than non-financial companies.

In this study, the attempt is made to explore the determinants of Kuwaiti banks capital structure. The choice of Kuwaiti banks is stemmed from the fact that Kuwait has one of the well-established

banking sectors in the Middle East. When checking World Development Indicators published by the World Bank and reported in Table 1, it was obvious that the capital structure of the Kuwaiti banks is different than the capital structure of banks operating in Asia and the Middle East. It can be deduced from the Table 1 that the capital to assets ratio of the Kuwaiti banks is higher than other banks. Furthermore, unlike other countries, the Kuwaiti government exercises control over major economic activities. Moreover, corporate tax that plays an active role in corporate capital structure decision is not existed in Kuwait. Hence, Kuwaiti banks offer a unique case and the outcome of the study is expected to add a new dimension to the literature of the determinants of banks capital structure.

2. CORPORATE CAPITAL STRUCTURE THEORIES AND EMPIRICAL RELATED STUDIES

2.1. Capital Structure Theories

There is no consensus in the finance literature on the effect of corporate capital structure on corporate values. Early researchers such as Modigliani and Miller (1958) who put forward their irrelevant theory within a perfect world propose that corporate financing decision does not affect its value. According to them, within a perfect world - with no taxes, no transaction costs, no bankruptcy costs, no agency costs, no symmetry of market information-there is no difference between highly leveraged firms and un-leveraged firms. In other words, under a perfect world the weighted average cost of capital is the same regardless the mix of the capital structure. However, Modigliani and Miller (1963) extended their theory by relaxing the no tax assumption. Interest paid on debt reduces income and reduces tax payment. In this case, the value of a leveraged firm equals the value of unleveraged firm plus the present value of the tax rate times interest expense incurred on debts. This means that the value of highly leveraged firms is higher than the value unleveraged firms. Hence, the firm can maintain an optimal capital structure at 100% debt financing.

Static trade-off is another theory used to explain firm's capital structure. This theory agrees that tax is an important factor in identifying a firm's leverage ratio since it reduces income and increases after tax cash flows. It, however, argues that excessive debt financing would result in default on debt and this would lead to bankruptcy. Hence, this theory refutes no bankruptcy cost assumption and maintains high levels of leverage increases the probability of bankruptcy. In this respect, Warner (1977) believes that there is a positive relationship between the firm's value and the desired level of tax. It is for this reason the theory questions the

optimal capital structure proposed by Modigliani and Miller (1963) at 100% debt. It assumes that a firm's attempts to reach optimal leverage debt ratio that maximizes firm's value by the benefits and costs of increasing debt (Myers, 2001). Kraus and Litzenberger (1973) came with a different theory of optimal leverage ratio where he traded off the benefits and costs of tax. At low levels of debt associated with low level of bankruptcy, the firm is expected to save from tax. The firm continues to use debt until reaching a point where the benefit from tax equals to the bankruptcy cost. The firm stops debt financing when the bankruptcy cost outweighs tax benefits. Hence, the firm is expected to borrow up to a certain point where the marginal benefits from tax equals the marginal bankruptcy costs. As for the firm's capital structure, static trade-off theory assumes positive association between the level of leverage and firm's profitability and size. Large and profitable firms have low probability of bankruptcy. They can then rely on debt financing and benefit from tax. This can be linked to agency theory in that profitable firms are more likely to incur high agency costs since high levels of profits motivate managers to use them to their personal benefits. In attempt to assure shareholders, managers may voluntary opt for high levels of borrowings to invite a third party to monitor their behavior.

Picking order is another theory used to explain corporate capital structure. Picking order theory advocates using financing according to the hierarchy of their costs; retained earnings, debt and equity. Since retained earnings have the lowest cost, the firm should use it first to finance its investments followed by debt and equity at last (Myers and Majluf, 1984). According to this theory, firms leverage is inversely related to profitability. This theory, however, does not propose an optimal leverage ratio. Debt is only used when the firm does not have sufficient retained earnings and equity financing is used as the last resort. In this regards, Heaton (2002) illustrated that the pecking order preferences are associated with managers' levels of optimism. Similarly, Yueh-Hsiang et al. (2005) believe that the sensitivity of the optimistic managers to debt financing is higher than the sensitivity of less optimistic ones. Yet, Baker and Wurgler (2002) believe that the picking order is influenced by the market conditions. Increase or decrease in market interest rate and decrease or increase if he firm's share prices are very likely to influence the timing of the picking order. However, there is no strong empirical evidence to support the proposal that a negative relationship exists between high levels of profitability and high levels of firm's leverage. It is possible see profitable firms with high leverage levels and *viz*.

Corporate capital structure is also explained by agency theory. Agency theory considers the relationship between shareholders and management as an agency one. Management acts as shareholders

Table 1: Comparison between Kuwait banks capital structure and banks operating in a similar region

Capital structure	Country/Region name	2010	2011	2012	2013	2014	Average
Bank capital to assets ratio (%)	Kuwait	12.6	12.4	12.6	12.2	11.3	12.1
	East Asia and Pacific (all income levels)	8.7	8.1	8.5	8.3	8.4	8.4
	Europe and Central Asia (developing only)	10.3	10.1	10.4	10.0	10.1	10.3
	Middle East and North Africa (all income levels)	10.0	10.9	10.8	10.0	10.5	10.1
	Middle East and North Africa (developing only)	6.5	6.3	6.6	7.0	7.3	6.7

Sources: Data from database: World development indicators, last updated 2015 July 28

agent in utilizing their resources and take full responsibility to maximize their wealth. In return, management generates profit but cannot claim it. Management, however, attempts to maximize its benefits by asking for high compensation. This will reduce firm's profit and affect shareholders wealth maximization. According to Jensen and Meckling (1976), this conflict of interest between management and shareholders forces shareholders to monitor management behavior and this results in agency cost. An optimal capital structure can be determined by minimizing agency cost. Jensen (1986) contends that debt can be used to minimize agency cost. Highly leveraged firm is expected to make regular interest payments. This will reduce firm's income and cash available for managers to use it for their own benefits. In addition, by opting to debt financing, the manager is inviting a third professional party to monitor his/her behavior. This move by the manager assures shareholders and minimizes agency cost.

In addition to the conflict of interest between management and shareholders, a highly leveraged firm incurs additional agency cost resulting from the conflict of interest between shareholders and debt holders. Myers (1977) indicated that highly leveraged firm will find it difficult to finance a profitable investment opportunity from equity since equity financing presents default risk debt. This will insure debt holders interest at the expense of shareholders and reduce firm's profit leaving managers with less cash available to use for their own benefit. Managers are expected to run the firm as efficiently as possible in order to meet interest payments on debts and maximize shareholders wealth. Thus, agency theory safeguards the relationship between shareholders, debt holders and management.

Market timing is another theory used in the finance literature to explain firm's capital structure. According to this theory, a firm tends to issue more of its shares when their market price is overvalued; whereas, a firm with undervalued shares tends to buy its shares. Hence, managers can use the relationship between the market price and the book value M/B of the shares to decide whether to issue more shares or to repurchase their own shares. If the ratio is less than one, they purchase their shares. On the other hand, the ratio is more than one, they make new issues of shares. In this regards, Baker and Wurgler (2002) illustrate that a firm's manager chooses the right time to make use of their mispriced share. Hence, the manager creates his/her timing opportunities. This theory has been empirically supported by a survey undertaken by Graham and Campbell in 2001.

2.2. Empirical Studies

Several empirical studies on the determinants of firm's capital structure have been undertaken in developed countries² as well as developing countries³. These studies are briefly reviewed in chronological order.

2 Among these studies: Kensington (1995), Marques and Santos (2003), Kleff and Weber (2008), Gropp and Heider (2009), Roerink (2014), Serrasqueiro et al. (2014).

3 Among these studies: Yang (2005), Li (2011), Amidu (2007), Vitor and Badu (2012), Wong et al. (2005), Sen and Pattanayak (2005), Siam et al. (2005), Alkhazaleh and Almsafir (2015), Iwarere and Akinleye (2010), Ali et al. (2011), Siddiqui and Shoaib (2011), Butt et al. (2013), Saeed et al. (2013), Kuo (2000), Kuo and Lee (2003); Asarkaya and Ozcan (2007), Çağlayan and Şak (2010), Binici and Köksal (2012), Baltac and Ayaydin (2014); Nguyen and Kayani (2013), Céspedes et al. (2010), Aktas et al. (2015).

Sharpe (1995) used pooled data of Australian trading banks over the period between 1967 and 1988 to identify the determinants of banks' capital structure. He found evidence to support the pecking order theory in the presence of information asymmetry and transactions costs. He also found banks capital structure significantly influenced by the level of their deregulation and their type. The researcher, however, found no evidence to support the trade-off between tax benefit and bankruptcy costs.

Kuo (2000) explored the capital structure of 15 domestic public banks, 15 domestic private banks, and 21 local branches of foreign banks in Taiwan during the period between 1989 and 1994. He identified substantial differences in their capital structure. He concluded that banks have different applications of financial leverage. He, however, pointed to positive association between banks' size and their leverage; whereas, a negative relationship appeared between the banks' leverage and their fixed assets to deposits ratio, fixed assets and variance coefficient of operating income. An additional study undertaken by Kuo and Lee (2003) investigated capital structure in commercial banks in Taiwan during the period between 1991 and 2000 noticed progressive decrease in domestic banks' debt from deposits and debt from non-deposits. They, however, noticed progressive increase in local branches of foreign banks debt from deposits and debt from non-deposits. They concluded that the traditional activities of banks for deposits and loans are becoming less important in changing financial market in Taiwan.

Marques and Santos (2003) surveyed the capital structure Chief Executive Officers of Portuguese banks during the period between 1989 and 1998 period. They noticed Portuguese banks' pay attention to their capital structure with preference to the trade-off theory. They also concluded that determinants of Portuguese capital structure are not different than that of non-financial firms. Portuguese banks capital structure is influenced by debt tax-shield, agency theory and information asymmetry.

Kleff and Weber (2008) analyzed whether the determinants of German banks capital structure found in previous research are applied to the special German banking system. They used data for the period between 1992 and 2001 extracted from three different banking groups: Savings banks, cooperative banks and other banks. They reported evidence to support the buffer theory of capital for the three groups of German banks. They, however, reported significant differences in the way the three banking groups determine their capital structure since they had different characteristics.

Wong et al. (2005) have undertaken a qualitative analysis of licensed banks behavior in Hong Kong towards their capital adequacy decisions. The qualitative analysis was based on the results of a survey that seek banks' opinions about their desired capital structure. They found 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. The researchers concluded that the capital adequacy ratio of the banks in Hong Kong banking system is determined in a similar fashion.

Sen and Pattanayak (2005; 2009) studied the capital structure in a sample of 82 Indian banks for the period between 1996 and 2002. They pointed to factors such as profitability, size, liquidity, quality of assets, service diversification, efficiency and growth to be the most vital determinants of the capital structure of Indian banks.

Siam et al. (2005) investigated determinants of capital structure of Jordanian banks during the period between 1992 and 2001. They observed that bank's capital structure is influenced by their size, profitability, liquidity together with short-term and long-term debt. They further observed positive association between banks' capital structure and their age. In a similar line of research, Alkhazaleh and Almsafir (2015) tested the applicability of pecking order theory in a sample of Jordanian banks for the period between 1999 and 2013. They found dividends and tangibility to be significantly related to the banks' capital structure. While dividends appeared to affect capital structure negatively, tangibility impacts capital structure positively. They further found bank size does not moderate the effects of growth, dividends and tangibility on the capital structure. They concluded that the results of their study are somewhat and relatively in line with the pecking order theory.

Yang (2005) attempted to identify determinants of commercial banks capital structure in China using data for the period between 2001 and 2005. The researcher pointed to a positive association between the banks' capital structure and each of bank scale, possibility of growth, cost of financial distress, income tax, and capital cost. He further pointed to negative association between banks' capital structure their profitability and non-debt tax shield. Another study conducted in China by Li (2011) who tested the determinants of the capital structure of commercial banks' listed by combining the influence factors of capital structural standard with the lowest capital adequacy requirement. He noticed that the lowest capital adequacy requirement has significant impact on the capital structure; whereas, other determinants explain the leverage level. He also tested whether macroeconomic factors influence the capital structure of the Chinese banks and noticed that gross domestic product (GDP) growth has substantial influence.

Amidu (2007) looked into the determination of capital structure of banks in Ghana. He noticed capital structure decisions by Ghana's banks are influenced by profitability, corporate tax, growth, asset structure and size. Vitor and Badu (2012) also considered the relationship between capital structure and performance of listed bank in Ghana for the period between 2000 and 2010. The result demonstrated that the banks are highly leveraged and negatively affected the banks' performance. Hence, the banks' capital structure is inversely related to their performance.

Asarkaya and Ozcan (2007) analyzed the determinants of capital structure of the Turkish banks by using data for the period between 2002 and 2006. They found positive association between the banks' capital adequacy ratio and their lagged capital, portfolio risk, economic growth, average capital level and return on equity. They, however, observed negative association between the banks' capital adequacy ratio and their share of deposits. In the same fashion, Çağlayan and Şak (2010) researched the determinants of capital structure of banks in Turkey over the period between

1992 and 2007. They witnessed positive relationship between banks capital structure and their size and market to book value (MV/BV). They, however, detected negative relationship between the banks' capital structure and their tangibility and profitability. They concluded that their result is consistent with the pick order theory; whereas the relationship with tangibility seemed to weakly support agency theory. An additional study covered Turkish banks was undertaken by Binici and Köksal (2012) who studied the relationship between capital structure and asset growth. They established that banks' capital structure is determined by their size and profits. In a recent study, Baltac and Ayaydın (2014) explored the effect of the Turkish banks specifics, country, and macroeconomic factors on their capital structure. The researchers used quarterly data for the period between 2002 and 2012. They noticed that banks leverage is significantly and positively related to average industry leverage, firm size and GDP growth. They also noticed negative and significant association between the banks' capital structure and their tangibility, profitability, inflation and financial risk. They concluded tangibility, profitability and GDP growth are consistent with the predictions of the pecking order theory, while firm size is consistent with the predictions of the trade-off theory.

Gropp and Heider (2009) explored the capital structure of largest listed banks from US and European Union members for the period between 1991 and 2004. They found most of the banks covered in their study optimize their capital structure in the same way as other firms except that banks are required to maintain minimum capital. Their findings, however, were not in support of the view that buffers in excess of the regulatory minimum explain variation in banks capital structure. They further found deposit insurance has insignificant effect on the banks' capital structure.

Iwarere and Akinleye (2010) utilized a questionnaire to identify factors influencing the capital structure of Nigeria banks. They concluded that banks should adopt an appropriate mix source of fund, reduce debt issue and invest in more liquid assets through a reduction in tangible assets.

Ali et al. (2011) explored determinants of the capital structure of 22 Pakistani banks during the period between 2006 and 2010. They observed a significant positive relationship between the capital structure of the banks and their size and tangibility. A significant negative relationship also observed between the banks' capital structure and their profitability and liquidity. The researchers concluded that the banking sector in Pakistan is likely to follow static trade-off theory. In the same country, Siddiqui and Shoaib (2011) detected that banks' size play a significant role in raising not only their profit efficiently but also their MV. They asked for policy change from consumer banking to pro-real sector lending. They imply that banks need to structure their capital in line with long-term investment trends instead of short-term gains from leasing cars or houses. Similarly, Saeed et al. (2013) noticed capital structure and firm size have a strong positive connection with all profitability measures.

Nguyen and Kayani (2013) examined the determinants of banks' capital structure in Asian countries. They used banks data from

10 Asian countries over the period between 2000 and 2012. They observed statistically significant differences in the banks' capital structure across countries. They believe that these differences are resulted from the level of the economic growth of the country within which the bank operates. They further observe that collateral to be a significant determinant of capital mix of banks of developed countries. On the other hand, profit appeared to be an important determinant of the banks' capital structure in the developing countries. They concluded, macroeconomic factors effect on banks' capital structures varies from one country to another.

Roerink (2014) tested static trade-off and pecking order capital structure theories in a sample of Dutch firms. He reported moderate support to both theories. The researchers used two different leverage ratios, long-term liabilities total assets and total liabilities to total asset. He found firm's size and asset tangibility significantly explain part of the long-term liabilities ratio; whereas, firm's size, asset tangibility, profitability and liquidity were found to significantly account for a part of the total liabilities ratio.

Serrasqueiro et al. (2014) studied the determinants of capital structure of high-tech small- and medium-sized enterprises (SMEs) and non-high-tech SMEs. They found that the capital structure decisions of high-tech SMEs are almost consistent with the pecking order theory. They, however, unveiled that the high-tech SMEs that have relied on venture capital adopt a modified version of the pecking order theory. High-tech SMEs prefer equity to debt when they exhaust their internal finance. The researchers also observed that information asymmetry together with technological and market uncertainties influence the capital structure decisions of high-tech SMEs.

3. DATA COLLECTION AND STUDY METHODOLOGY

3.1. Data Collection

In August 2015, 12 banks were listed on the Kuwait Stock Exchange (KSE). Data were collected from all listed banks for the period between 2010 and 2014 except for one bank. This bank has been recently listed on KSE and data were only available for the period between 2012 and 2014. The annual reports were utilized to extract internal data about the Kuwaiti banks. *DATABANK* of World Bank was used to obtain macroeconomic data about Kuwait.

3.2. Study Methodology

As mentioned earlier, this study is set out to examine the determinants of capital structure of all Kuwaiti banks listed on KSE. In this study, the capital structure is measured by the total liabilities over total assets. To pinpoint factors impact the capital structure of the Kuwaiti banks, a number of variables that appeared in previous research as determinants of banks capital structure will employed. These variables together with the dependent variable are reflected in the following regression model.

$$CAPS_t = \alpha_0 + \alpha_1 AGE + \alpha_2 DIV + \alpha_3 Ln(TA) + \alpha_4 LRA + \alpha_5 MVTV + \alpha_6 ASG + \alpha_7 ROC + \alpha_8 LIR + \alpha_9 CPI + \alpha_{10} REG + \varepsilon$$

$CAPS_t$: Capital structure = Total liabilities/Total assets,

α_0 : Intercept

AGE : Age = Fiscal year – years of establishment,

DIV : Cash dividends paid,

$Ln(TA)$: Natural logarithm of total assets,

LRA : Least risky assets,

$MVTV$: Market value per share/book value per share,

ASG : Assets growth = (Total Assets_(t) - Assets_(t-1)) / Assets_(t-1)

ROC : Return on capital = Net profit/Capital,

LRI : Lending interest rate,

CPI : Consumer price index,

REG : Real economic growth,

ε : Standard error,

$\alpha_1 - \alpha_{10}$: Parameters of the model

4. FINDINGS

4.1. Descriptive Statistics of Dependent and Explanatory Variables

The regression model contains independent variables employed in previous research as determinants of the banks' capital structure. Descriptive statistics of the independent and dependent variables are summarized in Table 2.

Table 2 shows that the average level of leverage of the Kuwaiti banks is 88%. In other words, 12% of the banks' assets are financed by equity. This result is close to the World Bank Statistics. The slight difference might be due to some approximations. The capital ratio of the Kuwaiti banks is still higher than the capital ratio of banks operating in the same regions such the Middle East or North Africa, East Asia and Pacific and Central Asia. The relatively low reported standard deviation implies there is insignificant differences among the banks' leverage ratio.

Table 1 demonstrates also that the average age of the Kuwaiti banks more than 35 years with a median of 39 years. The banks age ranges between 2 and 62 years. This implies that most of the Kuwaiti banks have been operating for a relatively long period.

Cash dividends paid by the Kuwaiti banks during the period covered in the study seem to vary significantly among these banks

Table 2: Descriptive statistics of the dependent and independent variables

Variables	N	Mean	Median	Standard deviation	Minimum	Maximum
<i>LEV</i>	58	0.88	0.88	0.05	0.57	0.93
<i>AGE</i>	58	35.33	39.00	17.45	2.00	62.00
<i>DIV</i>	58	34.61	6.00	59.09	0.00	252.00
<i>Ln(TA)</i>	58	8.32	8.20	1.14	5.41	10.42
<i>LRA</i>	58	0.37	0.28	0.22	0.10	0.95
<i>MV/BV</i>	58	5.46	5.40	2.96	0.15	14.20
<i>ASG</i>	58	0.14	0.09	0.31	-0.61	1.82
<i>ROC</i>	58	0.22	0.20	0.21	-0.21	0.84
<i>LIR</i>	58	4.92	4.98	0.23	4.56	5.19
<i>CPI</i>	58	3.53	3.20	0.96	2.53	4.91
<i>REG</i>	58	3.97	6.63	4.63	-2.37	9.63

LRA: Least risky assets, MV/BV: Market to book value, ROC: Return on capital, CPI: Consumer price index

as reflected by high standard deviation. In addition, some banks used to pay high levels of cash dividends while others paid nothing. This explains the low median appeared in the Table 1.

Although the total assets of the Kuwaiti banks were converted into natural logarithms but these banks are characterized by significant variations in their size. While the total assets of the largest and oldest bank in Kuwait, National Bank of Kuwait, exceeds 21 billion Kuwait Dinar (around \$74 billion), the smallest and the youngest bank in Kuwait, Warba Bank, total assets are just about 0.5 billion Kuwaiti Dinar.

Least risky assets (*LRA*) are mainly cash available to the bank, deposits with other banks, treasury bonds, central bank bonds and fixed tangible assets. The proportion of these assets to the total assets reported in Table 1 showed variations among the Kuwaiti banks as reflected by the minimum and maximum value. Similarly, the ratio of the MV of the bank share to its BV showed significant difference among the Kuwaiti banks as reflected by the standard deviation and the minimum and maximum value of the ratio. Yet, the mean of the MV of the banks is more than 5 times of their BV. In the same fashion, the banks' profitability measured by net profit over total capital pointed to major variations among the banks.

As for growth in the Kuwaiti banks total assets, the table pointed to 14% average growth. The relatively high mean together with the minimum and maximum values of the growth rate demonstrates considerable differences among the banks.

The macroeconomic variables adopted in this study showed relatively small variations in the annual lending interest rate (*LRI*) and inflation rate since these two variables are highly correlated. The real growth in the Kuwaiti GDP, however, showed significant changes -2.37% up to 9.63%.

Descriptive statistics relating to the banks pointed to considerable variations among them. Likewise, macroeconomic external variables showed also relatively major variations during the period covered in the current study. Such variations provide good base for the regression analysis.

4.2. Correlations among Explanatory Variables Employed in the Current Study

Correlations among all variables included in the regression model are presented in Table 3. Correlations are used to measure the level of linear association between two variables and to identify possible collinearity problem. Correlation coefficient ranges between +1 and -1. A correlation coefficient of +1 means perfect positive association between the two variables; while a correlation coefficient of -1 signifies perfect negative association between the two variables. A zero correlation coefficient, however, indicates that the two variables are totally independent.

The correlation matrix presented in Table 3 demonstrates that the dependent variable is positively and significantly correlated with the banks size measured by total assets. This implies that large banks are more likely to have high levels of leverage than small sized banks. The Table 3 also showed number of significant correlations between the independent variables. For example, bank age showed significant and positive association with bank size, *LRA*, *MB/BV* and profitability measured by return on capital (*ROC*). Cash dividends paid showed also positive and significant correlation with bank size, *LRA*, *MV/BV* and *ROC*. Similarly, bank size appeared to be positively and significantly associated with *MV/BV* of the share and *ROC*. However, bank size demonstrated negative and significant association with the bank growth measured by changes in total assets. Negative and significant association registered between the *LRA* and *MV/BV* of the bank share and *ROC*. Finally, the table pointed to positive

Table 3: Correlation matrix between all variables included in the regression model

Variables	LEV	AGE	DIV	LnTA	LRA	MV/BV	ASG	ROC	LIR	CPI	REG
LEV	1.000										
AGE	0.188	1.000									
DIV	0.046	-0.016	1.000								
Ln(TA)	0.399**	0.265*	0.757**	1.000							
LRA	-0.165	-0.580**	0.268*	-0.148	1.000						
MV/BV	0.214	0.000	0.042	0.268	0.000	1.000					
ASG	-0.113	0.438**	0.274*	0.450**	-0.566**	0.000	1.000				
ROC	0.399	0.001	0.038	0.000	0.000	0.000	-0.151	1.000			
LIR	-0.238	-0.212	-0.102	-0.331*	0.264	0.315	0.000	-0.148	1.000		
CPI	0.111	0.157	0.498	0.025	0.076	0.701**	-0.148	0.000	0.325	1.000	
REG	-0.014	0.457**	0.627**	0.667**	-0.294*	0.025	0.000	0.325	0.000	0.000	1.000
	0.918	0.000	0.000	0.000	0.025	0.000	0.000	0.325	0.000	0.000	0.000
	-0.180	-0.004	0.012	-0.046	0.012	0.041	-0.213	-0.006	1.000		
	0.227	0.980	0.939	0.757	0.935	0.783	0.156	0.970	0.000	1.000	
	-0.034	0.000	-0.037	0.004	-0.100	0.189	-0.310*	-0.011	0.677**	0.000	1.000
	0.799	0.998	0.783	0.979	0.456	0.154	0.036	0.934	0.000	0.000	0.000
	-0.155	-0.042	0.058	-0.067	0.097	-0.115	-0.011	-0.016	0.616**	0.151	1.000
	0.299	0.780	0.697	0.654	0.519	0.442	0.943	0.915	0.000	0.311	0.000

**Correlation is significant at the 0.01 level (two-tailed), *Correlation is significant at the 0.05 level (two-tailed). LRA: Least risky assets, MV/BV: Market to book value, ROC: Return on capital, CPI: Consumer price index

Table 4: Backward regression results

Model 1					Model 2						
F=4.20		Significant F=0.001		Adjusted R ² =0.416		F=4.80		Significant F=0.000		Adjusted R ² =0.432	
Variables	Beta	T	Significant	VIF	Variables	Beta	T	Significant	VIF		
(Constant)		2.57	0.014		(Constant)		3.306	0.002			
AGE	0.133	0.83	0.415	1.862	AGE	0.128	0.84	0.408	1.862		
DIV	-0.432	-1.56	0.128	5.905	DIV	-0.432	-1.59	0.121	5.834		
Ln (TA)	0.986	4.43	0.000	3.820	Ln (TA)	0.986	4.49	0.000	3.820		
LRA	-0.177	-0.86	0.397	3.290	LRA	-0.178	-0.89	0.381	3.178		
MV/BV	-0.465	-2.33	0.026	3.071	MV/BV	-0.466	-2.42	0.021	2.935		
LIR	0.038	0.28	0.780	1.420	ASG	0.038	0.289	0.775	1.401		
CPI	-0.151	-0.62	0.539	4.588	ROC	-0.151	-0.63	0.534	4.586		
REG	-0.171	-0.74	0.462	4.087	LIR	-0.170	-1.06	0.295	2.035		
ASG	0.160	0.89	0.379	2.478	CPI	0.159	1.00	0.323	2.005		
ROC	0.001	0.007	0.995	2.195							
Model 3					Model 4						
F=5.23		Significant F=0.000		Adjusted R ² =0.446		F=6.36		Significant F=0.000		Adjusted R ² =0.455	
Variables	Beta	T	Significant	VIF	Variables	Beta	T	Significant	VIF		
(Constant)		3.58	0.001		(Constant)		3.62	0.001			
AGE	0.126	0.84	0.409	1.858	AGE	0.090	0.65	0.520	1.585		
DIV	-0.427	-1.60	0.119	5.811	DIV	-0.522	-2.39	0.022	3.941		
Ln (TA)	0.966	4.69	0.000	3.453	Ln (TA)	0.978	4.80	0.000	3.424		
LRA	-0.168	-0.86	0.395	3.081	LRA	-0.154	-0.80	0.427	3.044		
MV/BV	-0.459	-2.43	0.020	2.888	MV/BV	-0.517	-3.19	0.003	2.173		
ROC	-0.149	-0.63	0.535	4.581	LIR	-0.181	-1.17	0.251	1.979		
LIR	-0.178	-1.14	0.263	1.981	CPI	0.162	1.05	0.301	1.961		
CPI	0.154	0.99	0.331	1.975							
Model 5					Model 6						
F=7.46		Significant F=0.000		Adjusted R ² =0.463		F=8.75		Significant F=0.000		Adjusted R ² =0.463	
Variables	Beta	T	Significant	VIF	Variables	Beta	T	Significant	VIF		
(Constant)		3.67	0.001		(Constant)		3.71	0.001			
DIV	-0.520	-2.40	0.021	3.940	DIV	-0.542	-2.512	0.016	3.900		
Ln (TA)	0.992	4.94	0.000	3.387	Ln (TA)	1.025	5.17	0.000	3.296		
LRA	-0.204	-1.16	0.252	2.568	LRA	-0.218	-1.25	0.219	2.551		
MV/BV	-0.513	-3.19	0.003	2.169	MV/BV	-0.508	-3.16	0.003	2.167		
LIR	-0.175	-1.14	0.261	1.973	LIR	-0.069	-0.62	0.541	1.036		
CPI	0.153	1.01	0.321	1.948							
Model 7					Model 8						
F=11.01		Significant F=0.000		Adjusted R ² =0.471		F=13.86		Significant F=0.000		Adjusted R ² =0.462	
Variables	Beta	T	Significant	VIF	Variables	Beta	T	Significant	VIF		
(Constant)		6.27	0.000		(Constant)		7.02	0.000			
DIV	-0.548	-2.56	0.014		DIV	-0.722	-4.26	0.000	2.398		
Ln (TA)	1.040	5.32	0.000		Ln (TA)	1.145	6.36	0.000	2.709		
LRA	-0.227	-1.32	0.195		MV/BV	-0.381	-3.14	0.003	1.232		
MV/BV	-0.518	-3.260	0.002								

LRA: Least risky assets, MV/BV: Market to book value, ROC: Return on capital, CPI: Consumer price index, VIF: Variance inflation factor

and significant association between *LRI* and each of inflation rate and economic growth. It is important to point out that although the table flagged-up a number of statistically significant association among the independent variables, none of these correlations appeared to present a serious collinearity problem since none of the coefficients exceeded 0.80. Yet, an addition collinearity diagnostic (variance inflation factor) test was undertaken and presented in the regression results to detect possible collinearity problem.

4.3. Regression Analysis

To identify the significant determinants of Kuwaiti banks capital structure from the list of variables used in previous research and included in the regression model, backward regression was undertaken. Backward regression begins with all independent

variables employed in the regression model. In each subsequent step, the regression removes the variable with least significance in explaining the dependent variable until the remaining variables are statistically significant. The results of the backward regression are reported in Table 4.

Models 1 and 2 appeared in Table 4 revealed that real economic growth rate is an insignificant determinant of the capital structure of the Kuwaiti companies since it was the first variable to be eliminated from the regression model. The second variable eliminated by the backward regression was the variable growth in total assets. *ROC* and age also appeared to be weak determinants of the capital structure of the Kuwaiti banks since these variables were eliminated in Models 4 and 5 respectively. What attracts attention is Model 7 since it

registered the highest adjusted R^2 followed by Model 7. This implies that the variable appeared in these two models are the most important determinants of the capital structure of the Kuwaiti banks. Yet, variables such as *LRA* and *LRI* that appeared in Models 6 and 7 as important determinants of the capital structure of the Kuwaiti banks, the strength of their effect was statistically insignificant. Thus, variables appeared to be significant determinants of capital structure of the Kuwaiti banks were banks size measured by total assets, cash dividends paid and the ratio of the MV/BV of the banks share. While the bank size was positively and significantly associated with capital structure, negative and significant association registered with the cash dividends and MV/BV per share. These three variables were responsible for 46% of variations in the Kuwaiti banks capital structure.

The result of the analysis demonstrates that large size banks tend to have higher leverage than small banks. This result is consistent with the findings of previous research. Researchers such as Titman and Wessels (1988) and Fama and French (2002) were among others reported positive relationship between size and leverage in USA. Similar findings are reported by Rajan and Zinglas (1995) in developed countries and by Booth et al. (2001) in developing countries.

This result is not surprising since the positive relationship between size and capital structure is widely documented in previous research⁴. Large size banks would take advantage of the economies of scale and issue long-term debt while small banks might take short- or medium-term debt. The probability of large size banks going bust is lower than small size banks. Hence, they are expected to have a bargaining power over their creditors, to have easy access to cheaper external financing and to diversify their sources of finance. They further have the resources and capabilities to compile and disclose more information to creditors than small banks. The scope of growth in large size banks is less than that in small banks and this would subject them to less volatility. Moreover, large banks are noticeable and they are closely monitored by the public eye. They are, therefore, expected to have lower levels of information asymmetry than small banks. Thus, this finding is consistent with trade-off theory in that large banks face less danger of bankruptcy. Hence, they can rely more on debt financing.

The second variable appeared to be negatively and significantly related to the Kuwaiti banks capital structure is MV/BV of the bank's share. This implies that as the level of leverage decreases as the MV/BV increases. This result is consistent with findings in previous research (Rajan and Zingales, 1995; Aggarwal and Jamdee, 2003; Frank and Goyal, 2009; Nguyen and Kayani, 2013). This can be explained on the grounds that when the MV per share increases the cost of raising equity fund becomes less and the banks tend to hold more capital. Drawing from the pecking-order theory, a bank with high MV/BV ratio has high financial operation capacity and can rely more on equity rather than debt. The market timing theory also contends that banks

experiencing increase in their share prices are more likely to issue more shares as a source financing and this explains the negative and significant relationship between leverage and MV/BV ratio. High MV/BV ratio means that the share is highly valued and in this case the bank will issue more share to take advantage of the mispricing and result in decrease in level of leverage. Thus, this result lends support to pecking-order and the market timing theories.

Finally, negative and significant association between the Kuwaiti banks capital structure and cash dividends is explained by Groppe and Hieder (2007) who contended that large banks would have high dividends payout as they expect to have low cost of issuing equity since they are known to investors. Large and reputable banks can rely on their stand to raise external funding. This finding is, however, inconsistent with agency theory as it proposes a positive relationship between leverage and dividend payout. Agency theory suggests positive association between leverage and dividend payout. By opting to high leverage, management is inviting a third professional party to monitor its behavior and to prove that it working to the best interest of the shareholders. Thus, this result is consistent with trade-off theory.

5. CONCLUSION

Different theories have been advanced in the finance literature to explain determinants of the firm's capital structure. In this study, these theories are tested on banks operating in a unique economy like Kuwait where firms are exempted from income tax, paying or receiving interest is undesirable and government exercises control on many of the essential economic activities. Leverage was used as a proxy of the bank's capital structure and several internal bank related variables and external macroeconomic variable employed in previous research were used to form a regression model. Backward regression analysis was undertaken to identify significant variables that impact capital structure of the Kuwaiti banks. The results of the analysis pointed to three variables as being the most significant determinants of the capital structure of the Kuwaiti banks. Out of these three variables size measured by total assets exhibited positive and significant association with capital structure; whereas, the other two variables cash dividends paid and the MV/BV of the bank's share showed negative and significant association with the bank's capital structure. Hence, the outcome of the study lends support to the pecking-order, trade-off and market timing theories of capital structure. However, the outcome of the study was inconsistent with agency theory.

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