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THE CAPITAL STRUCTURE CHOICE: EVIDENCE OF DEBT MATURITY SUBSTITUTION BY GCC FIRMS

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ABSTRACT

The objective of this study is to investigate the determinants of the capital structure decision in the face of restricted access to external financing. Based on a sample of 150 listed firms over the period 2000-2009, a two-stage least squares regression is used to test the determinants of capital structure, while controlling for firm-specific and country-specific factors. The results show that size, profitability, tax-shield and collateral have a significant impact on leverage. A country effect is also observed. Firms operating in the United Arab Emirates (UAE) exhibit a significantly higher level of leverage when compared to their peers in the neighboring countries. The results further document a novel finding that highlights the practice of debt-maturity substitution to circumvent the existence of external financing constraints faced by firms operating in the Gulf Cooperation Council (GCC) region.

Contribution/ Originality: The study contributes to the literature in two meaningful ways. First, it expands the body of knowledge that looks at the financing practices of firms operating in GCC markets. Second, it presents a novel finding of firms performing debt maturity substitution while attempting to circumvent funding constraints.

1. INTRODUCTION

The aim of this paper is to explore the determinants of the financing decisions within GCC listed firms. Firms in the GCC countries operate in bank-dominated financial systems with limited access to external funding outside the banking sector. Businesses are mostly family owned, with ownership highly concentrated in the hands of a few family members. Private credit from banks averaged 30% to 60% of total GDP during 2000-2012, while market capitalization to GDP went from below 35% in 2000, to above 180% in 2005, and then down to around 60% in 2008. The bond market, as illustrated in Figure 1, is still underdeveloped and is mostly dominated by sovereign issues. The empirical evidence about the capital structure in the GCC countries is very limited, with a few exceptions (Al-Ajmi et al., 2009; Sbeiti, 2010; Belkhir et al., 2016). The current study contributes to the literature in two meaningful ways. First, it expands the body of knowledge that looks at the financing practices of firms operating in fast developing emerging markets and tests for the portability of the capital structure theories to these countries. In a recent review of the literature, Kumar et al. (2017) report a surge in interest at the turn of the century, with emerging markets enjoying the lion's share in coverage. The same study, however, highlights the dearth of studies about the Middle East and North Africa (MENA) region. Out of ninety studies surveyed, only four covered the region. Second, it presents a novel finding of firms performing debt maturity substitution while attempting to

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circumvent funding constraints. Firms in the MENA region are predominantly using short-term financing to meet their overall funding needs. The practice of maturity switching is induced in most part by loan-tenure restrictions imposed by banks in the region. This finding has important implications for both firms and policy makers. Firms are hindered from achieving their optimum capital mix and may be thwarted from achieving higher values for their shareholders due to their inability to adequately finance growth opportunities. For policy makers, the study highlights the need to foster the development of a regulatory and institutional environment that would diversify the sources of financing for businesses and promote the establishment of alternative institutions alongside the bank-dominated funding industry. This is particularly important at a time when GCC governments strive to diversify their exports and economies away from oil dependency. Evidence from developing countries point to the critical role the private sector plays in job creation and economic growth. No country is expected to achieve sustainable growth without a successful and thriving private sector. And no private sector can flourish without an adequate access to funds.
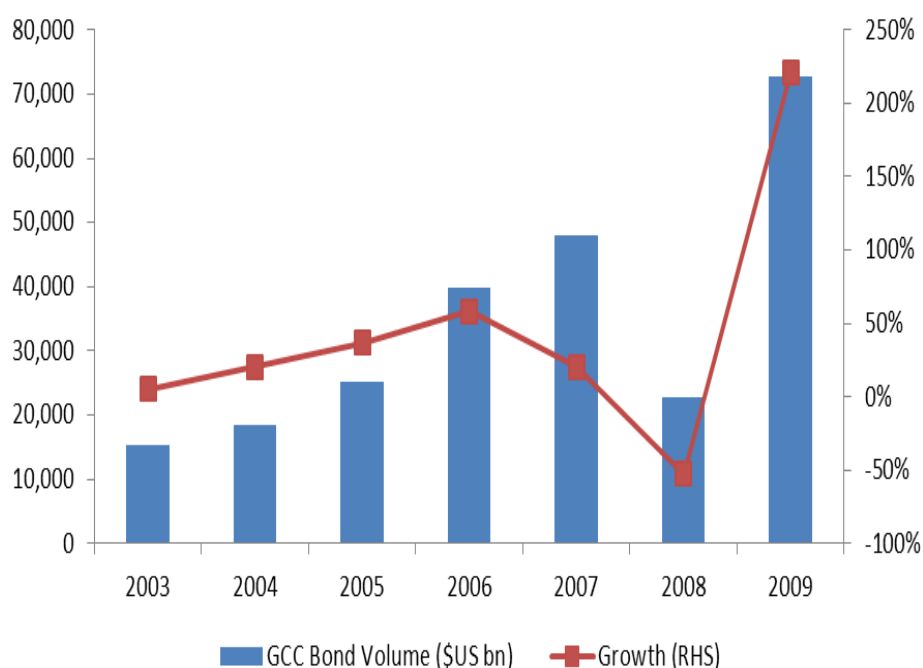

Figure-1. Use of the bond market by GCC countries
Source: Markaz.com. Include sovereign, corporate, conventional and Islamic bonds

The rest of the paper is structured as follows: Section 2 provides a review of the literature on capital structure. Section 3 describes the data set and the methodological framework used in the current study. Section 4 presents a discussion of the present findings in relation to previous studies. Section 5 concludes the paper.

2. LITERATURE REVIEW

How firms choose to raise funds has a profound impact on both the performance and the value of the firm. The seminal work of Modigliani and Miller (1958) forms the basis for modern thinking about capital structure. Their approach advocates the irrelevancy of the capital structure decision in a world of no taxes and perfect capital markets. Several theories challenge their irrelevancy approach. Yet, decades after its introduction, the capital structure puzzle remains unresolved, with no consensus as to which theory best explains the capital structure decision of firms.

The tradeoff theory (TOT), originally introduced by Kraus and Litzenberger (1973) states that capital structure is a balancing act between the cost of bankruptcy and the tax saving benefits of debt. This proposition is fiercely criticized by Myers (1984) on the basis that tax benefits are real and large, whereas the costs of bankruptcy

are remote and small, a view that is also upheld by Warner (1977). In addition, the adoption of the TOT should result in a much higher level of debt than currently observed. Despite such criticisms, the TOT, mainly through its dynamic version, finds wide acceptance among researchers. The dynamic trade-off models assume the existence of an optimum level of leverage firms actively seek to attain and maintain over time (Fischer *et al.* (1989). In support of the TOT, Hovakimian *et al.* (2001) document a positive relationship between profitability and leverage. Profitable firms are more likely to issue debt over equity. They contend that such behavior is consistent with firms trading off the risks of bankruptcy with the tax benefits of debt.

Jensen and Meckling (1976); Jensen (1986) and Hart and Moore (1994) recognize the need to account for agency costs when investigating the determinants of firms' capital structure. One agency cost arises from managers' inclination towards wasteful activities in the presence of free cash flows. Managers would rather invest in negative NPV projects than pay out dividends to shareholders. The issuance of debt is likely to mitigate this agency cost by putting an added pressure on management to generate cash flows toward the repayment of debt, lest face bankruptcy. Such mitigating effects are, however, not likely to persist in the face of elevated levels of leverage. As advanced by Jensen and Meckling (1976) the relationship between agency costs and the benefits of leverage is not a monotonic one. At lower levels, leverage acts to discipline managers and reduce the agency costs associate with free cash flows. Excessive borrowing, however, is likely to give rise to a conflict of interest between shareholders and debtholders. In the face of financial distress, shareholders are likely to attempt to expropriate wealth from debtholders by means of investing in risky projects.. Equity is then viewed as a call option and shareholders, long on the call option, stand to benefit from the project's success. Debtholders are left to experience the downside should the project reveal to be unsuccessful. Friend and Lang (1988) document the significance of agency problems in the determination of firm's capital structure.

The Pecking Order Theory (Myers, 1984; Myers and Majluf, 1984) advances that businesses adhere to a hierarchy of financing sources. They prefer internal financing whenever available and debt is preferred over equity in the case of external financing. The rationale behind such hierarchy arises from managers' unwillingness to dilute existing shareholders' claims. Frank and Goyal (2004) postulate that high growth firms with large financing needs will exhibit high debt ratios as a result of their reluctance to issue equity. Baker and Wurgler (2002) further argue that firms with high market-to-book ratios, a proxy for growth or investment opportunities, may first turn to their internal sources of funds to meet their growth needs. This model implies the existence of information asymmetry between corporate managers and the market, since little information is disclosed in the process. Unlike the TOT, the pecking order theory, does not assume the existence of a target capital structure that firms seek to attain or maintain.

The market timing theory (MTT) implies that firms will issue new shares when they perceive they are overvalued and will repurchase their own shares when they are perceived to be undervalued. Baker and Wurgler (2002) suggest that the observed capital structure is the cumulative outcome of past attempts to time the equity market. Empirical support for such theory has been rather limited. De Bie and de Haan (2004) in their study of Dutch firms, do not report a "strong and persistent effect of market timing on capital structure."(p.183) Similar conclusions are reached by Mahajan and Tartaroglu (2008) in their study of firms within major industrialized (G-7) countries. The impact of equity market timing on leverage is found to be short lived, a finding that is inconsistent with the prediction of the MTT hypothesis and more in line with a dynamic tradeoff model.

The turn of the century records a growing interest in understanding financing decisions of firms operating in emerging markets. Booth *et al.* (2001) look at the determinants of capital structure in ten developing countries, including Jordan, and conclude that the capital structure decision is affected by the same variables observed in developed countries, albeit country-specific differences persist. Later studies (Al-Najjar and Taylor, 2008; Belkhir *et al.*, 2016) find evidence supporting the same conclusions. They postulate that the determinants of the capital structure of firms in the MENA region are in line with those observed in developed markets, namely: profitability,

firm size, growth rate, market-to-book ratio, asset structure and liquidity. Studies about the capital structure of GCC firms offer a unique setting to test the tax-benefit hypothesis associated with the issuance of debt. The absence of a debt-related tax shield would suggest firms in the GCC countries are likely to make more use of equity than firms operating in a tax-paying environment. The empirical evidence seems to suggest otherwise. The capital structure decision does not seem to be affected by taxation.

What becomes clear is that no unique set of determinants can be identified or expected to hold true for all regions. Further, the period covered by these studies does not seem to have an observable impact on the determinants, except perhaps during the time of a financial crisis. It is likely that other non-observable factors such as the firm's internal politics and/or operating complexities, government implicit guarantees of funding, degree of financial inclusion, cronyism, etc. have a significant impact on the capital structure decision in emerging markets.

The current study aims at filling the gap in the body of literature looking at the capital structure decisions of GCC-listed firms in a world of restricted access to external financing. The current study documents debt-maturity substitution by firms when faced with restricted access to external financing.

3. DATA AND METHODOLOGY

3.1. Data Sample

Firm-specific data are collected using the Zawya database[1]. Zawya is unique in its focus on the business activities of firms operating in the Middle East and the GCC region. The sample in the study includes 150 non-financial GCC-listed firms from Bahrain, Qatar, Saudi Arabia (S.A), and the United Arab Emirates (UAE). The data are then merged with country-specific data extracted from the World Bank World Development Indicators database. Whenever the data are missing, the central bank website for the respective country is used. The period covered is 2000-2009. The sample has 16 firms listed on the Bahrain Stock Exchange, 24 on the Doha Stock Market, 25 between the Dubai Financial Markets and the Abu Dhabi Stock Exchange, and 85 on the Saudi stock exchange.

3.2. Dependent Variables

3.2.1. Capital Structure

The model is tested using four measures of capital structure: total debt to total assets (*tdta*), long-term debt to total assets (*ltdta*), short-term debt to total assets (*stdta*), and total debt to total equity (*bde*). The choice of leverage ratios is guided, for the most part, by earlier empirical studies (Antoniou *et al.*, 2008; Frank and Goyal, 2009). But unlike previous studies, a measure of short-term leverage is introduced. A closer look at the data shows a preponderance of short-term debt in the capital structure of GCC firms that could be dictated by either the reluctance of banks to extend long-term loans in general, the difficulty of accessing finance in general, or the outright avoidance of interest-bearing debt by resorting to short-term loans to raise funds. The GCC region is the hub of Islamic finance, and it is reported that several firms seek Shariah-compliant financing by seeking non-interest-bearing financing products.

3.2.2. Performance Measurement (Independent Variables)

Five factors are used to test the determinants of capital structure. They are: profitability, growth opportunities, size, asset structure, and risk. The list of independent variables is an adaptation of Frank and Goyal (2009) 'core factors'. Table 1 provides definitions of the variables.

- Profitability

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[1] Zawya has recently been acquired by Thomson Reuters.

There is no agreement in the literature on the relationship between leverage and profitability. The trade-off model suggests that firms with higher profitability are likely to exhibit higher levels of leverage (Brealey *et al.*, 2007) a proposition that is also shared by the agency theory model (Jensen and Meckling (1976). The pecking order theory, on the other hand, suggests that profitable firms will make less use of leverage and prefer to use internal funds, after which they use debt, then ultimately issue equity (Brealey *et al.*, 2007). In the case of developing economies, empirical studies (Chen, 2003; Delcoure, 2007) suggest the existence of a modified pecking order theory. Firms are likely to make use of retained earnings, equity, and lastly debt, possibly because of their limited access to debt financing. The profitability measure that is used in this research is net operating income over total assets.

- Growth opportunities

The market-to-book ratio of total assets is widely used as a proxy for growth opportunities. According to Jensen and Meckling (1976); Myers (2003); Frank and Goyal (2009) and Cole (2013) firms with higher growth opportunities are likely to use less debt. This is mainly explained by the agency model of capital structure whereby managers in high growth firms will use less debt in order to reduce agency cost. This assumption, however, is strongly disputed by Chen and Zhao (2006) who document a significantly positive relationship of growth opportunities to leverage for more than 88% of the firms on COMPUSTAT.

- Size

Most of the empirical evidence points to a positive correlation of size to leverage (Rajan and Zingales, 1995; Antoniou *et al.*, 2008; Al-Ajmi *et al.*, 2009; Belkhir *et al.*, 2016). This can be attributed to the fact that firms that are large in size are well diversified and thus exhibit lower bankruptcy risk. Banks are known to be reluctant to extend loans to small- and medium-sized businesses. The expectation is that larger firms have easier access to financing than their smaller counterparts, and hence, exhibit a higher level of leveraging. Size is measured as the natural logarithm of total assets.

- Collateral/Tangibility

Myers and Majluf (1984); Antoniou *et al.* (2008) and Belkhir *et al.* (2016) suggest that firms with assets that can be used as collateral are likely to have more debt. Collateral plays an important role in banks' decision to extend credit since it decreases the amount of loan loss provisioning required in the case of default. Whether a firm has collateral depends on its asset structure. It is expected that firms with higher level of tangible assets deploy more debt than those with lower levels of tangible assets. The same relation is expected to hold in the case of firms operating in the GCC countries. Tangibility is measured as net fixed assets over total assets.

- Non-debt tax shield

The capital structure theory postulates the significance the tax-benefit of debt. The assumption is that at higher tax rates, firms will employ more debt. Firms in GCC countries operate in a tax-free environment. The absence of a tax shield may explain why GCC firms are conservative in their use of leverage. Alternatively, the non-debt tax shield, *ndts*, can act as an alternative to debt in the face of underdeveloped financial markets and bank loan constraints. The deductibility of depreciation and amortization will reduce the amount of cash outflow, and hence, the need for external financing in the form of debt. Then non-debt tax shield is measured as the sum of depreciation and amortization over total assets.

- Risk

The trade-off theory suggests that the capital structure decision is a balancing act between the cost of financial distress and the tax-saving benefits of debt. Managers are expected to borrow less whenever the cost of financial distress outweighs the leverage tax-shield benefit. The implication is that firms with higher levels of risk are likely to report lower levels of leverage. The empirical evidence provides mixed

support for such claims and the results often depend on the measure of risk that is being used (Rajan and Zingales, 1995; Booth *et al.*, 2001; Chang *et al.*, 2009). In the current study, the volatility of operating income is used as a proxy for risk.

Following in the footsteps of Belkhir *et al.* (2016) control variables for macroeconomic factors are also included. The current study controls for inflation rate (*inflation*), real GDP growth rate (*gdp*), and growth rate of the money supply (*m2*).

Table-1. Variables, definitions

Variable	Definition	Expected Sign	Selected Studies on Capital Structure
Capital Structure Measures – The dependent variables			
tdta	Book value of total debt to total assets		
bltta	Book value of long-term debt to total assets		
stdta	Book value of short-term debt to total assets		
bde	Book value of total debt to total equity		
M2	The residuals from regressing M2 growth on GDP and INFLATION in the two-stage least square.	+	
Capital Structure Determinants –Firm specific variables			
lassets	Natural logarithm of assets	+	Frank and Goyal (2009); Antoniou *et al.* (2008); Flannery and Rangan (2006); Hovakimian *et al.* (2004)
ndts	Non-debt tax shield= (Depreciation + amortization)/total assets	+/-	(+) Antoniou *et al.* (2008); Titman and Wessels (1988) (-) Hovakimian *et al.* (2004)
fata	A measure of tangibility. Fixed asset ratio = Net fixed assets/total assets	+/-	(+) Frank and Goyal (2009); Flannery and Rangan (2006) (-) Hovakimian *et al.* (2004)
risk	Standard deviation of operating profits/total assets	-/+	Inconsistent results by Booth *et al.* (2001), Rajan and Zingales (1995), Chang *et al.* (2009)
mbr	Measure of growth opportunity. MBR= (Total assets - book value of shareholders equity + market capitalization)/total assets	+/-	(+) Frank and Goyal (2009); MacKay and Phillips (2005) (-) Antoniou *et al.* (2008); Flannery and Rangan (2006); Hovakimian *et al.* (2004); Berens and Cuny (1995).
profit	Net operating income/total assets	-	Frank and Goyal (2009); Antoniou *et al.* (2008); Flannery and Rangan (2006)
Control variables: Country-specific variables			
gdp	Growth rate of real GDP	-	Belkhir *et al.* (2016)
m2	Growth rate of money supply	-	
inflation	Price change, %	+	(+) Frank and Goyal (2009)
country dummies:	Dummy variables that take the value of 1 if listed on the stock market of a particular country, 0 otherwise. Used to test for country effect.		

3.3. The Model

Based on the set of the firm-specific and country-specific variables defined in Table 1, the capital structure decision is modeled as follows:

$$Y_{it} = \alpha + \sum \beta_K X_{Kit} + \eta_t + \epsilon_{it} \quad (1)$$

Where Y_{it} is a measure of the leverage of firm i at time t, and X is the vector of the explanatory variables. These are the measures of size, profitability, growth opportunity, risk, and tangibility. η_t represents the country-specific macroeconomic factors, in this case, real GDP growth rate, money supply growth rate, and inflation. Country dummies, S.A, Qatar, and UAE, are also added to account for any country-effect on the capital structure of GCC listed firms.

Because of the expected endogeneity between the macroeconomic variables *gdp*, *inflation*, and *m2*, the assumption of independence of the explanatory variables with the error terms is not met. To overcome the problem of endogeneity, the 2SLS method is used and *m2* is used as an instrumental variable. In a first stage, *m2* is regressed on the variables *gdp* and *inflation* (equation 3). In a second stage, the predicted values of *m2* are used as the instrument for *m2* in equation 2. The model specification then becomes:

$$Y_{it} = \alpha_0 + \sum \beta_K X_{Kit} + m2_{it} + \epsilon_{it} \quad (2)$$

$$m2_{it} = \alpha_1 + \lambda_1 gdp_{it} + \lambda_{2i} inflation_{it} + \omega_{it} \quad (3)$$

4. FINDINGS

4.1. Descriptive Statistics

The definition of the dependent variables (DVs) and independent variables (IVs) is presented in Table1. Summary statistics for the DVs and IVs are presented in Table 2 and Table 3, respectively. The correlation matrix is presented in Table 4. The correlation coefficients between the IVs are reasonably low, an indication that multicollinearity is not a major concern for the current study. Table 3 shows that the listed firms in the GCC region have a rather low level of leverage. These averages are comparable to the levels reported by Fan *et al.* (2012) and Belkhir *et al.* (2016). Firms in the UAE use more leverage than their GCC counterparts, followed by Qatar. Bahraini firms are the least leveraged.

Table-2. Descriptive statistics – independent variables, by country.

country		*lassets*	*ndts*	*fata*	*Risk*	*mbr*	*profit*	*gdp*	*inflation*	*m2*
Bahrain	mean	11.35	1.57	26.11	7.00	142.90	5.12	6.31	2.55	16.01
	sd	1.15	1.94	21.84	11.65	73.94	11.52	1.66	0.74	11.56
	skewness	0.87	1.17	1.04	4.88	1.62	-1.95	-0.98	-1.05	0.92
	kurtosis	3.76	3.38	3.08	33.63	6.33	10.60	2.99	5.98	2.80
S.A	mean	12.60	3.76	43.84	4.75	253.28	7.49	11.95	3.26	16.12
	sd	1.63	3.48	23.60	5.34	188.10	8.75	4.18	3.23	5.51
	skewness	0.89	4.44	-0.16	4.06	3.19	0.45	-0.31	1.00	-0.09
	kurtosis	4.16	35.07	2.07	26.44	17.60	3.44	1.90	2.85	1.44
Qatar	mean	13.13	1.96	31.55	7.34	274.74	5.13	12.39	7.74	26.69
	sd	1.68	1.80	25.19	11.18	277.28	9.13	3.84	6.91	10.20
	skewness	-0.18	0.83	0.72	2.99	3.71	0.22	-0.34	-0.75	0.39
	kurtosis	2.45	2.68	2.48	12.75	20.03	6.34	1.84	2.23	1.53
UAE	mean	12.44	2.92	30.95	6.28	184.01	6.40	6.80	6.71	23.25
	sd	1.94	2.81	21.43	6.22	161.41	6.62	3.69	3.81	10.29
	skewness	0.25	2.02	0.47	2.45	2.55	0.80	-0.71	0.01	0.57
	kurtosis	2.59	9.54	2.44	10.94	9.67	6.35	2.78	1.57	2.17
Overall	mean	12.51	3.11	37.83	5.64	232.10	6.69	10.47	4.43	18.88
	sd	1.71	3.14	24.29	7.55	194.52	8.87	4.56	4.35	9.12
	skewness	0.58	4.03	0.19	4.71	3.64	-0.18	-0.11	0.65	0.93
	kurtosis	3.35	34.29	1.97	36.91	22.92	6.98	2.20	2.77	3.58

It also shows that leverage is predominantly in the form of short-term debt, as the ratio of *stdta* is consistently higher than that of *ltdta* for all countries in the study. Anecdotal evidence indicates that some bankers in the region impose shorter tenures on several types of business loans. Furthermore, a closer look at the financial statements of the listed companies reveals that several Saudi firms do not report any long-term debt. This is most likely dictated by the Shariah requirement of interest-free financing. Firms will avoid interest-bearing financing and may opt to use different forms of Shariah-compliant modes of financing. Given these constraints, it can be assumed that firms are mostly recurring first to internal funds and then to short-term debt in line with the 'modified' pecking order theory.

Table-3. Descriptive statistics – dependent variables, by country.

country	Stats	*tdta*	*ltdta*	*stdta*	*bde*
Bahrain	mean	17.03	1.30	13.90	27.62
	sd	16.07	3.22	13.38	39.54
	skewness	1.33	3.59	1.55	3.19
	kurtosis	3.95	18.06	5.10	16.99
S.A	mean	33.17	8.59	19.37	69.30
	sd	19.82	12.28	14.62	73.34
	skewness	0.41	1.86	1.17	2.28
	kurtosis	2.17	6.22	3.82	10.63
Qatar	mean	34.29	15.86	15.93	-3145.74
	sd	22.77	19.48	13.25	39232.65
	skewness	0.78	1.63	1.16	-12.00
	kurtosis	2.88	5.58	3.58	145.00
UAE	mean	37.23	10.66	23.16	90.53
	sd	21.68	14.97	14.58	109.17
	skewness	0.23	1.50	0.75	3.11
	kurtosis	2.12	4.17	3.58	16.38
Total	mean	32.24	9.18	18.94	-390.92
	sd	20.96	13.93	14.52	14828.15
	skewness	0.52	2.08	1.10	-32.03
	kurtosis	2.38	7.77	3.76	1026.92

Notes: **tdta** is book value of total debt to total assets. **ltdta** is long-term debt to total assets. **stdta** is book value of short-term debt to total assets. **bde** is the book value of total debt to total equity.

Table-4. Correlation coefficients

	tdta	*ltdta*	*stdta*	*bde*	*lassets*	*ndts*	*fata*	*risk*	*mbr*	*profit*	*gdp*	*m2*
tdta	1											
ltdta	0.66*	1										
stdta	0.69*	-0.05	1									
bde	-0.1*	-0.2*	0.04	1								
lassets	0.38*	0.43*	0.08*	-0.06	1							
ndts	0.13*	-0.09*	0.21*	0.03	-0.08*	1						
fata	0.17*	0.31*	-0.1*	-0.06	0.08*	0.38*	1					
risk	-0.05	-0.11*	0.06	0.01	-0.04	0.02	-0.08*	1				
mbr	-0.06	-0.08*	-0.01	-0.09*	-0.09*	0.14*	0.08*	0.44*	1			
profit	0.04	-0.1*	0.16*	0.02	0.26*	0.18*	0.1*	0.15*	0.21*	1		
gdp	0.03	0.03	-0.01	-0.04	0.11*	0.05	0.08*	-0.09*	0.03	0.08*	1	
m2	0.01	0.05	-0.01	0	0.08*	-0.12*	-0.15*	-0.06	-0.06	-0.03	0.3*	1

Notes: This table provides the correlation coefficients, with significance at the 5% level, of the variables used in the main regressions.

4.2. Empirical results

The empirical results, presented in Tables 5a to 5d and summarized in Table 6, provide evidence that leverage in the GCC countries is influenced by size (*lassets*), profitability (*profit*), collateral (*fata*) and non-debt tax shield (*ndts*). These factors are significant irrespective of the leverage measure used.

The effects of *size* and *collateral* are more pronounced when total leverage, *tdta*, is used as the DV. The effects are still significant when using short-term leverage (*stdta*) as the DV, but the coefficient for *collateral* is lower in this case, which can be justified by the fact that the collateral is not required in the case of short-term debt. The results concur with previous studies documenting a significant positive impact of firm size on leverage (Rajan and Zingales (1995); Booth *et al.* (2001); Al-Ajmi *et al.* (2009); Sbeiti (2010); Ali (2011); Barakat and Rao (2012) and Belkhir *et al.* (2016)). These results are in line with the trade-off theory, which postulates that large firms are likely to be more diversified and are less likely to face financial distress. This, in return, leads to lower bankruptcy costs.

Table5a. Determinants of capital structure using the book value of total debt/total assets as the DV.

tdta	Coef.	Coef.	Coef.	Coef.
_cons	-34.827***	-40.463***	-36.567***	-37.745***
	(-7.24)	(-7.56)	(-7.67)	(-6.89)
lassets	5.072***	5.119***	4.561***	4.716***
	(-13.54)	(-13.22)	-11.76	(-11.98)
ndts	0.952***	1.0079***	0.814***	0.821***
	(-4.51)	(-4.67)	(-3.85)	(-3.84)
fata	0.0714***	0.079***	0.078***	0.0716***
	(-2.65)	(-2.78)	(-2.89)	(-2.59)
risk	-0.015	0.021	0.019	0.037
	(-0.17)	(-0.22)	(-0.21)	(-0.39)
mbr	-0.002	-0.002	-0.004	-0.004
	(-0.63)	(-0.48)	(-1.22)	(-1.10)
profit	-0.224***	-0.24***	-0.192***	-0.204***
	(-3.04)	(-3.19)	(-2.62)	(-2.81)
m2		0.236*		-0.031
		(-1.79)		(-0.21)
S.A			8.222***	8.276***
			(-3.9)	(-3.91)
Qatar			9.177***	9.304***
			(-3.64)	(-3.09)
UAE			14.16***	14.149***
			(-6.04)	(-5.47)
R²	18.75%	18.33%	21.65%	22.16%
No. of Obs.	1008	984	1008	984

Note: The associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The current findings further document a negative impact of profitability (*profit*) on leverage, when using *tdta*, *ltdta*, and *bde* as measures of leverage as reported in Tables 5a, 5b, and 5d, respectively. A similar finding is reported by Antoniou *et al.* (2008); Frank and Goyal (2009); Sbeiti (2010); Belkhir *et al.* (2016) and M'ng *et al.* (2017) among others. The coefficient for profitability changes sign, however, when short-term leverage (*stdta*) is used as the DV. Since short-term debt is mostly in the form of trade finance, creditors are more likely to value performance over size or collateral in this case, which explains the positive relationship between *stdta* and profitability in Table 5c.

The variable non-debt tax shield, *ndts*, is a positive and a significant determinant of capital structure when using total leverage, *tdta*, and short-term leverage, *stdta*, as the DVs. The effect is most pronounced when considering short-term debt. Barakat and Rao (2012) report that in a non-tax environment, firms with higher depreciation and amortization are likely to use more debt, as this is construed as a proxy for collateral. The

coefficient sign for *ndts* reverts to negative when considering long-term debt. This is in line with the findings presented by Akhtar and Oliver (2009) and M'ng *et al.* (2017).

The coefficient of collateral (*fata*) is positive and significant. As expected, collateral improves access to external financing. Similar results are reported by Myers (1984), Antoniou *et al.* (2008), Ali (2011), Belkhir *et al.* (2016) and M'ng *et al.* (2017). Just as is the case with profitability, the collateral coefficient changes sign when the short-term leverage DV, *stdta*, is considered. This again is an indication that trade finance is not about the asset structure of firms, but rather, about their ability to generate profits.

Table 5b. Determinants of capital structure using the book value of long-term debt/total assets as the DV.

ltdta	Coef.	Coef.	Coef.	Coef.
_cons	-38.42***	-37.98***	-42.47***	-38.4***
	(-13.44)	(-13.54)	(-13.60)	(-12.07)
lassets	3.56***	3.25***	3.6***	3.37***
	(-15.98)	(-14.24)	(-15.95)	(-14.74)
ndts	-0.61***	-0.58***	-0.6***	-0.6***
	(-4.85)	(-4.64)	(-4.73)	(-4.79)
fata	0.19***	0.21***	0.2***	0.21***
	(-12)	(-13.11)	(-12.28)	(-13.02)
risk	-0.07	-0.1*	-0.06	-0.1*
	(-1.27)	(-1.81)	(-1.00)	(-1.74)
mbr	0.002	0.001	0.002	0.001
	(-0.75)	(-0.48)	(-0.89)	(-0.48)
profit	-0.35***	-0.31***	-0.35***	-0.31***
	(-7.95)	(-7.25)	(-7.97)	(-7.16)
m2			0.16**	-0.06
			(-2.02)	(-0.73)
S.A		1.19		1.08
		(0.96)		(-0.88)
Qatar		7.43***		7.94***
		(-5.01)		(-4.54)
UAE		6.23***		6.37***
		(-4.52)		(-4.24)
R²	32.58%	36.20%	34.20%	37.75%
No. of Obs.	1008	984	1008	984

Notes: The associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Short-term leverage is not the traditional measure of leverage, but it is being introduced in this case given the predominance of short-term debt in the balance sheets of Saudi and Bahraini firms. Looking back at the summary statistics in Table 3, firms in Bahrain, Saudi Arabia, and to a lesser degree, Qatar, have a strong inclination to use short-term debt and are using it as the main source of funds for their operations. The explanation for the heavy reliance on short term financing could be two-fold: Firms are constrained in their access to long-term debt and use short-term debt as a substitute. Lenders typically have more relaxed eligibility requirements for short-term loans. In return, this source of financing is likely to be less stable and to carry a higher cost of financing. This, in turn, places limitations on the borrower's ability to grow and expand. There has been anecdotal evidence about banks restricting the maturity of business loans, leaving firms with no option but to borrow short-term. The second explanation, which is unique to the GCC area, is the need for many firms to seek Shariah-compliant funding means. This entails the use of non-interest-bearing sources of funds, which are rather limited. These firms, mostly in Saudi Arabia, are likely to have fewer funding options, and hence, rely mostly on trade financing and/or internal sources of funds.

The empirical evidence further provides for a significant positive country effect, mostly in the case of Qatar and the UAE. The country effect for Saudi Arabia is not significant when *ltdta* is used as a measure of leverage. Such an

outcome is expected. Saudi firms make little use external financing in general, and long-term debt in particular. Many Saudi firms use short-term debt as their main source of financing in their attempt to comply with Shariah law that bans the use of interest-bearing sources of funds.

Table 5c. Determinants of capital structure using the book value of short-term debt/total assets as the DV.

stdta	Coef.	Coef.	Coef.	Coef.
_cons	9.059***	7.052*	7.362**	6.591*
	(-2.58)	(-1.81)	(-2.11)	(-1.64)
lassets	0.809***	0.791***	0.628**	0.65**
	(-2.96)	(-2.81)	(-2.21)	(-2.25)
ndts	1.277***	1.33***	1.166***	1.198***
	(-8.31)	(-8.48)	(-7.52)	(-7.63)
fata	-0.128***	-0.13***	-0.129***	-0.136***
	(-6.51)	(-6.30)	(-6.50)	(-6.70)
risk	0.072	0.101	0.104	0.13*
	(-1.1)	(-1.46)	(-1.58)	(-1.84)
mbr	-0.42*	-0.43	-0.50*	-0.51*
	(-1.64)	(-1.60)	(-1.88)	(-1.83)
profit	0.180***	0.169***	0.183***	0.168***
	(-3.34)	(-3.1)	(-3.41)	(-3.07)
m2		0.111		0.036
		(-1.15)		(-0.33)
S.A			4.767***	4.93***
			(3.08)	(-3.17)
Qatar			2.155	1.822
			(1.17)	(-0.82)
UAE			7.508***	7.323***
			(4.37)	(-3.86)
R²	10.42%	10.09%	12.46%	12.70%
No. of Obs.	1008	984	1008	984

Notes: The associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5d. Determinants of capital structure using the book value of total debt to total equity ratio as the DV.

bde	Coef.	Coef.	Coef.	Coef.
_cons	-196.74***	-212.23***	-199.32***	-198.95***
	(-9.11)	(-8.81)	(-9.24)	(-7.99)
lassets	21.71***	22***	20.26***	20.84***
	(-12.91)	(-12.62)	(-11.55)	(-11.63)
ndts	1.63*	1.81*	1.52	1.55
	(-1.72)	(-1.86)	(-1.59)	(-1.60)
fata	0.17	0.19	0.24*	0.22*
	(-1.42)	(-1.52)	(-1.94)	(-1.73)
risk	-0.21	-0.14	-0.26	-0.26
	(-0.53)	(-0.33)	(-0.65)	(-0.60)
mbr	-0.01	-0.01	-0.01	-0.01
	(-0.66)	(-0.57)	(-0.79)	(-0.76)
profit	-1.68***	-1.73***	-1.54***	-1.58***
	(-5.07)	(-5.11)	(-4.66)	(-4.65)
m2		0.56		-0.39
		(-0.94)		(-0.58)
S.A			13.2	13.24
			(-1.38)	(-1.37)
Qatar			30.33***	33.77**
			(-2.66)	(-2.46)
UAE			40.31***	42.48***
			(-3.8)	(-3.61)
R²	15.82%	15.82%	17.52%	18.12%
No. of Obs.	1008	984	1008	984

Notes: The associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 6. Summary of findings across different model specifications

		Expected Sign	*tdta*	*ltdta*	*stdta*	bde
cst	Significance level		1%	1%	1%	1%
	Sign		(-)	(-)	(+)	(-)
lassets	Significance level		1%	1%	1%	1%
	Sign	+	(+)	(+)	(+)	(+)
ndts	Significance level		1%	1%	1%	10%[1]
	Sign	+/-	(+)	(-)	(+)	(+)
fata	Significance level		1%	1%	1%	10%[2]
	Sign	+/-	(+)	(+)	(+)	(+)
risk	Significance level		.	10%[2]	10%[3]	.
	Sign	-	(+)	(-)	(+)	(+)
mbr	Significance level		.	.	10%[4]	.
	Sign	+/-	(-)	(+)	(-)	(-)
profit	Significance level		1%	1%	1%	1%
	Sign	-	(-)	(-)	(+)	(-)
m2	Significance level		10%[1]	5%[1]	.	.
	Sign	+	(+)	(+)/(-)[5]	(+)	(+)/(-)[5]
S.A	Significance level		1%	.	1%	.
	Sign		(+)	(+)	(+)	(+)
Qatar	Significance level		1%	1%	.	1%
	Sign		(+)	(+)	(+)	(+)
UAE	Significance level		1%	1%	1%	1%
	Sign		(+)	(+)	(+)	(+)

Notes:
1. Significant in the absence of country dummies.
2. Significant only in the presence of country dummies.
3. Significant only when country dummies are present, and m2 is not included in the model.
4. Significant only when country dummies are present.
5. Negative when country dummies are introduced.

The coefficient for growth opportunities, *mbr*, is barely significant, positive when considering long-term leverage, and negative otherwise. Berens and Cuny (1995) argue that the existence of growth opportunities leads to higher levels of equity financing and lower levels of debt, hence a negative relation of leverage to growth. This finding is validated by Rajan and Zingales (1995) and Frank and Goyal (2009) in the case of US and other developed countries, and Belkhir *et al.* (2016) in the case of MENA countries. The lack of significance in the current study is an indication that higher growth firms in the GCC area are unable to take advantage of equity markets. The financial systems in the GCC countries are bank-dominated, and their equity markets have yet to mature and become more mainstream when seeking to finance growth. A similar observation is reported in the case of Vietnamese firms (Vo, 2017).

The variable risk was negatively significant at the 10% level when long-term leverage, *ltdta*, is considered. That leverage is negatively correlated with risk is expected. The variable risk is not significant when other measures of leverage are used.

The results also indicate a significant inverse relation between *profit* and leverage, except when short-term leverage is used. This inverse relation is consistent with the pecking order hypothesis that internal funding is preferred to the more expensive external sources. Higher profitability reduces the need for external financing, as reported by Antoniou *et al.* (2008) and Flannery and Rangan (2006).

5. CONCLUSION

The financial systems in the GCC countries are bank dominated. Firms' access to bank credit is limited when measured against their countries' GDP. The bond market, still underdeveloped, is dominated by sovereign entities. The stock markets have lost their appeal after the downturn they have witnessed in recent years. This greatly constrains GCC firms in their ability to raise funds. Against this background, the determinants of the capital structure decisions for GCC firms are investigated. The findings suggest that firm size, profitability, tangibility,

and the non-debt tax shield are significant factors in their capital structure decisions. They also indicate that the overall leverage ratios are similar to those reported in other studies. The findings further reveal a unique trait of the capital structure of GCC firms. Short-term debt is the dominant form leverage. Around 25% of firms in the sample have no long-term debt, an indication of the maturity constraints imposed by funding institutions, namely banks. The preponderance of short-term debt in their capital structure is an indication of loan tenure substitution in a world of financing with constraints, and this substitution is likely to hinder their ability to grow and expand. Moreover, the lack of significance of *growth opportunities* indicates that GCC firms are also constrained in their access to the equity markets for finance growth. The findings offer a more refined form of a 'modified' pecking order that applies to GCC firms. Firms will first make use of internal funds. Once depleted, they will resort to short-term debt, longer-term bank debt, the equity market, and to a lesser degree, the bond market.

The current study makes two meaningful contributions. First, it expands the literature regarding the capital structure of firms operating in emerging markets in general, and in the GCC region in particular. Second, it highlights some unique funding practices whereby firms resort to loan maturity substitution to secure funding. The practice is motivated by their constrained access to long-term debt on the one hand, and the limited usage of the equity market on the other hand. These findings have important policy implications. Funding constraints may turn growth opportunities into lost opportunities, as they may be forced to give up positive NPV projects due to the lack of funding. To policy makers, the findings highlight the need to consider the promotion of a regulatory and institutional environment that would diversify the sources of financing for businesses and promote alternative institutions alongside the bank-dominated funding industry. The private sector plays a critical role in nations' economic development. This role may be curtailed by the absence of proper funding.

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