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**Article**

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## Article

# Debt Maturity and Institutions: Does Creditor Protection Matter?

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**Abstract:** This study aims to investigate the relationship between creditor protection and the debt maturity structure of corporations in the Gulf Cooperation Council (GCC) countries. The GCC countries enjoy large GDPs, growing capital markets, especially the Islamic bonds (Sukuk) market, and negligible tax environments. Nonetheless, the GCC countries' financial systems are still dominated by banks, and their private investments are held by concentrated investors. The study utilizes firm-level financial data and country-level institutional data obtained from the World Bank Governance Indicators and Doing Business databases and applies the two-stage least square estimator to test its hypotheses. The findings indicate that stronger regulatory effectiveness is associated with long debt maturities, while better creditor protection is associated with short debt maturities. The latter finding suggests that managers and owners have incentives to utilize short-term debt in economies characterized by stronger liquidation and insolvency rules to avoid the loss of control in the case of a firm default. This finding has policy implications in terms of the importance of considering the dual influence of institutional reforms on the supply of and demand for long-term capital.

**Keywords:** debt maturity; long-term debt; institutions; creditor protection; GCC countries

## 1. Introduction

Previous research on debt financing has extensively examined the firm-level determinants of debt maturity. For example, theoretical research on debt maturity predicts that firms subject to agency problems utilize short-term debt to reduce the underinvestment problem (Diamond and He 2014; Myers 1977) and the risk-shifting incentive (Barnea et al. 1980; Leland and Toft 1996); opaque firms use short-term debt to signal their quality (Flannery 1986), while firms subject to large liquidation and refinancing risks employ long-term debt to reduce those risks (Diamond 1991a). Furthermore, the institutional theory suggests that the quality of institutions is important in explaining cross-country differences in corporate financing choices, including the choice of debt maturity. Several empirical studies have shown that institutional factors, such as country-level governance, law enforcement, and investor protection, influence a firm's choice of debt maturity (Ağca et al. 2015; El Ghouli et al. 2016; Kirch and Terra 2012; Pour and Lasfer 2019; Zheng et al. 2012). However, the evidence regarding this issue is inconclusive and has failed to establish consistent results, especially in terms of the relationship between creditor protection and debt maturity. For example, Awartani et al. (2016) and Fan et al. (2012) report a positive relationship between long-term debt financing and measures of creditor protection, while Cho et al. (2014) and Vig (2013) report a negative relationship. Therefore, this study builds on this literature by examining firm and institutional determinants of the use of long-term debt of corporations in the Gulf Cooperation Council (GCC) countries, with a focus on the role of creditor protection. The study argues that while greater creditor protection induces suppliers of funds to increase debt maturities, it weakens the incentives of managers and owners to demand long debt maturities to avoid losing control in the case of a default (Cho et al. 2014). The GCC countries witnessed key improvements to their institutions and financial markets, but their private investments are still concentrated, which makes the GCC setting ideal to examine these two impacts.



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The extant research on debt maturity is dominated by studies examining the US experience (Barclay et al. 2003; Custódio et al. 2013; Fu et al. 2022; Goyal and Wang 2013; Guedes and Opler 1996; Stohs and Mauer 1996; Wang and Zhang 2023) and, to a lesser degree, that of other developed countries (Allaya et al. 2018; Ben-Nasr et al. 2015; Guney and Ozkan 2005; Nguyen et al. 2020). The experiences of developing and emerging markets are usually examined through empirical studies that utilize cross-country settings (Ağca et al. 2015; El Ghouli et al. 2016; Kirch and Terra 2012; Pour and Lasfer 2019; Zheng et al. 2012). However, little is known about the experiences of the GCC countries except for a few studies. Awartani et al. (2016) examine corporate debt maturity in the Middle East and North Africa (MENA), encompassing the GCC countries, but without considering the specificity of the GCC region. The GCC is different from MENA in key aspects such as taxes. The literature on debt maturity shows that tax considerations are important factors that influence a firm's choice of debt maturity (Brick and Ravid 1985; Leland and Toft 1996; Pour and Lasfer 2019). One important aspect of the GCC countries is that their environments are almost tax-free (Hertog 2013; Mimouni et al. 2019), while other MENA countries have sizable corporate taxes. Therefore, it is difficult to generalize the results of the MENA countries to the GCC countries. Although Mimouni et al. (2019) examine the debt maturity of GCC firms, they do not investigate the relationship between institutions and firm debt maturity.

The study of the GCC countries and their firms' choices of debt maturity is important for several reasons. The GCC countries undertook major economic reforms in the 2000s, with the aim of diversifying their economies and improving the contribution of private investments in economic growth (Awartani et al. 2016; Bley and Chen 2006). This led to substantial growth in the GCC's financial systems, especially in the Sukuk market (Awartani et al. 2016). According to the World Bank, the average market capitalization of the six countries comprising the GCC region in 2019 amounted to 104% of GDP. Additionally, Statista reports that the Islamic debt (Sukuk) market in the GCC grew substantially, with a total value of only USD 2.4 billion in 2010 to USD 23.9 billion in 2019. Hence, it is important to evaluate the experiences of the GCC countries in terms of their success in improving access to long-term capital. Access to long-term debt reduces liquidity and refinancing risks and improves the funding of private long-term investments (Diamond 1991a; Jungherr and Schott 2021). However, investments by the private sector in the GCC countries are still lagging behind the investments of the state as the latter has heavy direct involvement in economic activity (Abdallah and Ismail 2017; Kaya and Tsai 2016), with the wealth of the private sector concentrated among a handful of families (Martínez-García et al. 2021; Santos 2015; Tayem 2023b). The characteristics of the GCC's private wealth are likely to influence the risk tolerance of self-interested managers and controlling owners and distort their incentives to raise risky capital. This is important because effective policy reforms in the GCC countries tackling the issue of strengthening and expanding the role of private investments by enhancing access to external finance must consider firms' access to long-term borrowing from a supply and demand perspective.

Therefore, this study attempts to fill this gap in the literature by examining the relationship between institutional quality focusing on creditor protection and debt maturity using the context of the GCC countries for the first time. Specifically, this study poses the following questions: How do GCC firms' debt maturities vary with the quality of institutions? Does greater creditor protection prompt GCC firms to use longer or shorter debt maturities? To answer these questions, the extant study uses a sample of listed firms from the GCC countries, namely, Bahrain, Kuwait, Oman, Qatar, the Kingdom of Saudi Arabia (KSA), and the United Arab Emirates (UAE). The study builds on the theoretical contributions of debt maturity and controls for the endogenous choice of debt maturity and leverage using the two-stage least square estimation method. It also controls for well-documented determinants of debt maturity, including growth opportunities, asset maturity, firm size, asset tangibility, earnings, risk of default, volatility, and leverage.

The findings of this study contribute to the extant literature in several ways. They contribute to the literature on the relationship between institutional quality and public governance and debt maturity by providing new evidence on a negative relationship between creditor protection and debt maturity from the GCC countries (Ağca et al. 2015; El Ghoul et al. 2016; Kirch and Terra 2012; Pour and Lasfer 2019; Zheng et al. 2012). The extant empirical evidence regarding this issue is inconclusive and has failed to establish consistent results; hence, the results of this study contribute to the ongoing debate regarding this issue. The results highlight the importance of considering the impact of institutional reforms not only on the supply of long-term capital, but also on the demand for this capital. The study also contributes to the literature on the corporate debt maturity structure in developing countries (Memon et al. 2018; Orman and Köksal 2017; Salehi and Sehat 2019; Tayem 2018), which is limited, as most studies outside the US tend to examine large groups of countries (Ağca et al. 2015; Álvarez-Botas and González-Méndez 2019; El Ghoul et al. 2016; Feito-Ruiz and Menéndez-Requejo 2022; Kirch and Terra 2012; Pour and Lasfer 2019; Zheng et al. 2012). However, Awartani et al. (2016) note that it is useful to examine individual cases of developing markets to understand the nature of financial constraints faced by firms specific to those markets. Furthermore, the extant study contributes to the growing number of empirical studies that focus on the financial and private investment behaviours of corporate GCC (Guizani and Ajmi 2021; Mimouni et al. 2019; Tayem 2023a).

The next section reviews the literature on debt maturity and the hypotheses development. Section 3 presents the research design, including the model, variables, estimation methods, sample, and data sources. The data is described in Section 4, while the results and their discussion are presented in Sections 5 and 6, respectively.

## 2. Literature and Hypotheses Development

### 2.1. Debt Maturity and Firm-Level Determinants

The literature proposes several theories to explain firms' debt maturity structures, which are largely based on agency and information asymmetry rationales. The agency view suggests that short debt maturity can mitigate the underinvestment problem (Myers 1977) and the asset substitution problem (Barnea et al. 1980). Firms reject profitable investment opportunities if the added value accrues to debtholders; however, short-term debt reduces this disinvestment incentive, as the cash flows of short-term debt mature before the realization of the project's cash flows (Myers 1977; Diamond and He 2014). Likewise, short-term debt discourages shareholders from taking suboptimal risky projects that transfer wealth from debtholders to themselves because the value of short-term debt is less sensitive to asset volatility (Leland and Toft 1996). This view predicts that firms subject to larger agency costs over the financing of their growth opportunities have incentives to finance those opportunities with short debt maturities (Barnea et al. 1980; Diamond and He 2014; Myers 1977), which is supported by empirical findings (Pan and Tan 2019; Pour and Lasfer 2019; Zheng et al. 2012). The second implication of the agency view is suggested by Myers (1977), who predicts that matching the maturities of assets and debt reduces the firm disinvestment incentive. The empirical evidence supports this prediction and shows that asset maturity is positively associated with debt maturity (Feito-Ruiz and Menéndez-Requejo 2022; Pour and Lasfer 2019; Zheng et al. 2012). Therefore, this study expects that growth opportunities are negatively related to long-term debt, and assets with long maturities are positively related to long-term debt.

In terms of explanations based on information asymmetry and signalling, Flannery (1986) suggests that good-quality firms have incentives to issue short-term debt to signal their quality, while bad-quality firms cannot mimic this signal because of the high transaction costs associated with rolling short-term debt, and because information about the firm's type is revealed at the refinancing interval (Kale and Noe 1990). Consistent with this view, the extant evidence shows negative relationships between earnings, a proxy of the quality of the firm, and debt maturity (Feito-Ruiz and Menéndez-Requejo 2022; Pour and Lasfer 2019). Hence, this study expects that earnings are negatively associated with long-term

debt. However, short-term debt exposes the firm to refinancing and liquidity risks. For example, [Diamond \(1991a\)](#) proposes a model in which firms decide on debt maturity based on the trade-off between the liquidity risk and the increased sensitivity of financing costs to new information. Hence, firms subject to high liquidation and refinancing risks choose long-term debt to reduce those costs ([Diamond 1991a](#); [Harford et al. 2014](#)). Accordingly, levered firms subject to a greater liquidity risk are expected to borrow with longer terms to maturity to mitigate this risk ([Custódio et al. 2013](#); [Diamond 1991a](#)). This is supported by the evidence in the works of [Ağca et al. \(2015\)](#), [Awartani et al. \(2016\)](#), [Mimouni et al. \(2019\)](#), [Pour and Lasfer \(2019\)](#), and [Zheng et al. \(2012\)](#). However, the agency view implies that firms with low leverage have less debt agency costs and, therefore, have less incentive to use short-term debt as a control mechanism ([Barclay et al. 2003](#); [Johnson 2003](#)). Therefore, this study models the leverage choice simultaneously with the debt maturity choice and leaves the relationship between leverage and debt maturity to be determined empirically.

Moreover, credit risk can influence the firm's debt maturity structure. [Custódio et al. \(2013\)](#) argue that firms with a higher probability of default are likely to be excluded from the long-term debt market. The empirical evidence reports a negative relationship between default risk and debt maturity ([Awartani et al. 2016](#); [Pour and Lasfer 2019](#)). In addition, firms with greater volatility are subject to a greater credit risk and, therefore, the market of long-term debt screens out those risky firms ([Johnson 2003](#); [Zheng et al. 2012](#)). [Ağca et al. \(2015\)](#), [Memon et al. \(2018\)](#), and [Zheng et al. \(2012\)](#) document a negative relationship between firm volatility and debt maturity. Hence, this study expects the default risk and earnings volatility to be negatively associated with long-term debt. Furthermore, the degree of agency conflicts and information asymmetries varies substantially with the firm size. Small firms are subject to severe agency conflicts compared to large firms ([Wu et al. 2022](#)), and they face large information asymmetry ([Custódio et al. 2013](#)), which impedes their ability to issue long-term debt. Additionally, transaction costs and economies of scale can induce small firms to obtain short-term debt ([Wu et al. 2022](#)). Overall, the empirical studies document a positive association between the firm size and debt maturity ([Ağca et al. 2015](#); [Awartani et al. 2016](#); [Feito-Ruiz and Menéndez-Requejo 2022](#); [Mimouni et al. 2019](#); [Pour and Lasfer 2019](#); [Zheng et al. 2012](#)). This study predicts a positive association between size and long-term debt. Further, tangible assets provide creditors with protection against firm defaults by reducing information asymmetry regarding the firm quality and by providing a source of repayment in the case of firm failure, which reduces agency conflicts ([Myers and Rajan 1998](#)). The empirical evidence documents a positive relationship between tangibility and debt maturity ([Ağca et al. 2015](#); [Awartani et al. 2016](#); [Feito-Ruiz and Menéndez-Requejo 2022](#); [Kirch and Terra 2012](#)). Hence, this study expects firms with more tangible assets to use more long-term debt.

## 2.2. Debt Maturity and Institutional Quality

The literature on institutional quality offers important insights into the cross-country differences in firm financial behaviours. In terms of debt maturity, the influence of different aspects of institutional quality on a firm's choice of debt maturity has been examined by several studies. For example, the empirical evidence documents significant relationships between institutional quality ([Kirch and Terra 2012](#)), national culture ([Zheng et al. 2012](#)), auditor quality ([El Ghoul et al. 2016](#)), public governance ([Awartani et al. 2016](#)), and corruption ([Hassan et al. 2022](#)) and debt maturity. In terms of the overall quality of rules and policies, the literature predicts that they have positive relationships with debt maturity. In countries where agents have confidence in and abide by the rules of society, and where governments implement sound policies and regulations, business uncertainty, transaction costs, and information asymmetries are expected to decrease ([Meyer 2001](#)). For example, better quality contract enforcement, property rights, and courts increase investors' confidence and their willingness to supply long-term risky capital ([Awartani et al. 2016](#)). Therefore, this study follows the literature and includes two measures that capture the overall quality of



institutions, namely, the rule of law and regulation control, and expects that the corporate sector in countries with better quality rules and policies have longer debt maturities.

In terms of creditor protection, which is the focus of this study, there are two alternative hypotheses on its relationship with debt maturity. The first hypothesis assesses this relationship from a supply channel aspect and predicts that suppliers of funds commit to longer debt maturities in countries with better creditor protection. Equity and debt investors in countries with a stronger rule of law are more (less) likely to be protected (expropriated), and, therefore, they are willing to supply long-term risky capital (Djankov et al. 2007; La Porta et al. 1997; among others). However, in the case of the absence of a strong rule of law, credit providers can rely on short-term debt as a substitution mechanism for weak legal protection. This is because short debt maturities force firms to tap into the credit market more frequently, which subjects them to frequent monitoring (Diamond 1984, 1991b). The empirical evidence shows a positive association between long-term risk financing and measures of several aspects of creditor protection (Awartani et al. 2016; Fan et al. 2012). Therefore, the first hypothesis expects that creditor protection is positively associated with longer debt maturities, as stated in H1a:

**H1a.** *Debt maturities are longer in countries with strong creditor protection than in countries with weak creditor protection.*

However, the alternative hypothesis examines the debt maturity decision from a demand side and predicts that strong creditor protection is negatively associated with debt maturity. Strong creditor protection implies that creditors have an advantage over shareholders in terms of seizing assets, liquidation, and insolvency, which induces managers and owners to avoid long debt maturity because it increases the likelihood of losing control in financial distress (Cho et al. 2014). In the case of the GCC countries, ownership is concentrated and, hence, GCC corporate managers and controlling shareholders are less diversified and more risk-averse (Martínez-García et al. 2021; Santos 2015; Tayem 2023b). Therefore, managers and controlling owners are reluctant to employ risky long-term debt for fear of losing control over the firm's assets. The empirical evidence reported by Cho et al. (2014) shows that in an international cross-country setting, creditor protection is negatively related to debt maturity, while Vig (2013) shows that in a single-country setting, stronger creditor protection in India is associated with lower debt maturities. Hence, the alternative hypothesis, expressed in H1b, states that:

**H1b.** *Debt maturities are shorter in countries with strong creditor protection than in countries with weak creditor protection.*

### 3. Research Design

#### 3.1. Model and Variables

To empirically test the predictions of the study hypotheses, a debt maturity model was developed in line with the literature (Awartani et al. 2016; Mimouni et al. 2019; Pour and Lasfer 2019). The model is specified in Equation (1):

$$Maturity_{jit} = \alpha + \sum \delta_m Z_{mjt} + \sum \beta_k X_{kjit} + \varepsilon_{it} \quad (1)$$

where  $j$  refers to country,  $i$  refers to firm, and  $t$  refers to time. *Maturity* is defined as long-term debt divided by total debt (Awartani et al. 2016; Mimouni et al. 2019; Zheng et al. 2012).  $Z$  is a matrix of institutional variables, namely, the rule of law (*Law*), regulatory quality (*Regulatory*), strength of creditor legal rights (*Credit-Legal*), depth of credit information (*Credit-Information*), getting credit (*Credit*), and strength of insolvency (*Insolvency*). *Law* and *Regulatory* are measured using variables obtained from the World Bank Governance Indicators Database, while *Credit-Legal*, *Credit-Information*, *Credit*, and *Insolvency* are measured using variables obtained from the World Bank Doing Business Database. The  $Z$  matrix also includes GDP growth (*GDP*) (Ağca et al. 2015; Awartani et al. 2016; Mimouni et al. 2019)

and private credit to GDP ratio (*Private-Credit*) (Awartani et al. 2016; Zheng et al. 2012) to control for country-wide variations. The variables' definitions are presented in Table 1.

**Table 1.** Summary of variable definitions.

Variable	Proxy	Predicted Sign
Strength of creditor legal rights ( <i>Credit-Legal</i> )	Based on the getting credit/strength of legal rights index (Doing Business database), which measures whether certain features that facilitate lending exist within collateral and bankruptcy laws.	+ (Creditor protection) – (Mangers' risk aversion)
Depth of credit information ( <i>Credit-Information</i> )	Based on the getting credit/depth of credit information index (Doing Business database), which measures the coverage, scope, and accessibility of credit information available through credit reporting providers.	+ (Creditor protection) – (Mangers' risk aversion)
Index of Getting Credit ( <i>Credit</i> )	Based on the Getting Credit index (Doing Business database), which is the sum of the strength of the legal rights index and the depth of credit information index.	+ (Creditor protection) – (Mangers' risk aversion)
Strength of insolvency ( <i>Insolvency</i> )	Based on the strength of insolvency framework index (Doing Business database), which measures the legal framework applicable to judicial liquidation and reorganization proceedings and the extent to which best practices have been implemented regarding the commencement of proceedings, management of debtor's assets, reorganization proceedings, and creditor participation.	+ (Creditor protection) – (Mangers' risk aversion)
Rule of law ( <i>Law</i> )	Based on the rule of law index (Governance Indicators database), which is an index that captures perceptions of the extent to which agents have confidence in and abide by the rules of society (the quality of contract enforcement, property rights, the police, and the courts and crime and violence).	+ (Information asymmetry and transaction costs)
Regulatory quality ( <i>Regulatory</i> )	Based on the regulatory quality index (Governance Indicators database), which is an index that captures perceptions of the ability of a government to formulate and implement sound policies and regulations that permit and promote private sector development.	+ (Information asymmetry and transaction costs)
Growth opportunities ( <i>Growth</i> )	The market-to-book ratio, defined as the market value of equity plus the book value of liabilities divided by total assets.	– (Agency)
Asset maturity ( <i>Asset-Maturity</i> )	The net property, plant, and equipment divided by the depreciation expense.	+ (Agency)
Firm size ( <i>Size</i> )	The natural logarithm of total assets.	+ (Agency, information, and transaction costs)
Asset tangibility ( <i>Tangibility</i> )	The ratio of fixed assets divided by total assets.	+ (Source of repayment in case of liquidation)
Earnings ( <i>Earnings</i> )	Earnings before interest, tax, and depreciation divided by total assets.	– (Signalling)
Default risk ( <i>Default</i> )	The reverse-modified Altman's Z-score. Z-score is calculated as $3.3 (\text{EBIT}/\text{total assets}) + 1.0 (\text{sales}/\text{total assets}) + 1.2 (\text{working capital}/\text{total assets})$ .	– (Credit risk)
Earnings volatility ( <i>Volatility</i> )	The standard deviation of cash flows over a four-year period.	– (Credit risk)
Leverage ( <i>Leverage</i> )	Total debt divided by total assets.	+ (Liquidity risk) – (Agency)

$X$  is a matrix of  $k$  firm-level characteristics identified in the literature as determinants of debt maturity. The choice of these variables is discussed in the previous section and their measurements are presented below. Growth opportunities (*Growth*) are measured using the market-to-book ratio, which is equal to the market value of equity plus the book value of liabilities divided by the book value of assets (Ağca et al. 2015; Awartani et al. 2016; Kirch and Terra 2012; Zheng et al. 2012). Asset maturity (*Asset-Maturity*) is measured with the net property, plant, and equipment divided by the depreciation expense (Pour and Lasfer 2019). Firm size (*Size*) is measured as the natural logarithm of total assets (Ağca et al. 2015; Awartani et al. 2016; Mimouni et al. 2019; Zheng et al. 2012). Asset tangibility (*Tangibility*) is measured as the net property, plant, and equipment divided by total assets (Ağca et al. 2015; Awartani et al. 2016; Kirch and Terra 2012; Mimouni et al. 2019; Zheng et al. 2012). *Earnings* is equal to earnings before interest and taxes divided by total assets (Kirch and Terra 2012). Earnings volatility (*Volatility*) is measured as the standard deviation of the ratio of earnings before interest and taxes divided by total assets over a four-year period (Kirch and Terra 2012). Default risk (*ReverseZ-score*) is the reverse-modified Altman's Z-score. The higher the Z-score, the lower the probability of the default; hence, this study takes the reverse of the Z-score. The Z-score is calculated as  $3.3 (\text{EBIT}/\text{total assets}) + 1.0 (\text{sales}/\text{total assets}) + 1.4 (\text{retained earnings}/\text{total assets}) + 1.2 (\text{working capital}/\text{total assets})$  (Awartani et al. 2016). Leverage (*Leverage*) is measured as the total debt divided by total assets (Ağca et al. 2015; Awartani et al. 2016; Mimouni et al. 2019; Zheng et al. 2012).

### 3.2. Estimation Methods

This study follows several key studies that examined the determinants of debt maturity in a cross-country context. Estimating Equation (1) using pooled OLS does not control for unobservable firm-specific characteristics that are invariant over time, which could lead to inconsistent and biased coefficients. Therefore, this study applies the random effects model to eliminate the firm-specific effect across firms, which reduces the omitted variable bias (Awartani et al. 2016). In addition, as the main variables of interest in this study are variables that change across time and country but are constant across firms, the random effects model is augmented with country, year, and industry effects that enter as regressors (Awartani et al. 2016). Further, the simultaneous nature of debt maturity and leverage (Barclay et al. 2003) can result in biased and inconsistent estimated coefficients (Białek-Jaworska and Nehrebecka 2016). Therefore, this study uses the two-stage least square random-effects estimator (G2SLS random-effects) to control for the simultaneity between debt maturity and leverage (Mimouni et al. 2019). The first-stage equation controls for earnings, growth opportunities, tangibility, and size, as well as year, industry, and country effects.

### 3.3. Sample and Data Resources

The sample consists of nonfinancial publicly listed companies from the GCC countries over the period 2007–2019. The GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The stock exchanges where the sample companies are listed are Bahrain Bourse, Boursa Kuwait (formerly the Kuwait Stock Exchange), the Muscat Securities Market, Qatar Stock Exchange, Saudi Stock Exchange (Tadawul), Dubai Financial Market, and Abu Dhabi Securities Exchange. Financial companies are excluded because of their different asset structure and because their liquidity is partially regulated (Awartani et al. 2016). Firm-level financial data is obtained from DataStream and firm annual reports. The study sample period started based on the consistent coverage of the DataStream database and ended before the coronavirus pandemic. Country-level macroeconomic data is obtained from the World Bank's Governance Indicators and Doing Business databases.



#### 4. Descriptive Statistics

Table 2 presents summary statistics by country. The figures indicate that Saudi Arabia has the largest corporate assets expressed in USD value and the largest amount of total debt and long-term debt. The figures also indicate that *Maturity* is the highest in Qatar, indicating that Qatari firms in the Gulf region use more long-term debt as a proportion of total debt in their financing.

**Table 2.** Summary statistics by country.

	Bahrain	Kuwait	Oman	Qatar	Saudi	UAE
<i>Credit-Legal</i>	15.76	15.88	26.05	19.03	25.75	32.77
<i>Credit-Information</i>	80.83	80.39	64.64	51.48	100.00	84.73
<i>Credit</i>	41.59	40.69	41.26	32.00	54.53	53.00
<i>Insolvency</i>	43.75	43.75	43.75	43.75	0.00	52.75
<i>Regulatory</i>	0.59	−0.01	0.46	0.63	0.05	0.80
<i>Law</i>	0.41	0.29	0.48	0.81	0.14	0.63
<i>GDP</i>	3.153	1.395	3.314	5.502	3.550	3.243
<i>Private-Credit</i>	69.782	76.804	56.551	62.677	46.276	71.371
Avg. assets (USD thousands)	359,168	929,984	140,931	3,449,005	4,522,667	3,354,295
Avg. total debt (USD thousands)	59,191	235,558	28,150	1,179,849	1,314,480	1,184,618
Avg. long-term debt (USD thousands)	40,219	143,497	15,653	968,552	1,045,650	1,000,983
<i>Maturity</i>	0.180	0.333	0.374	0.615	0.462	0.454
<i>Growth</i>	1.015	1.165	1.368	1.429	1.813	1.039
<i>Asset-Maturity</i>	13.064	10.499	13.346	21.070	15.786	16.558
<i>Size</i>	11.762	12.467	10.554	14.112	13.636	13.615
<i>Tangibility</i>	0.208	0.266	0.439	0.382	0.494	0.413
<i>Earnings</i>	0.069	0.043	0.076	0.084	0.077	0.052
<i>Default</i>	−1.764	−1.292	−1.872	−1.369	−1.305	−1.173
<i>Volatility</i>	0.037	0.050	0.038	0.021	0.034	0.036
<i>Leverage</i>	0.069	0.198	0.211	0.249	0.257	0.214

Table 2 reports summary statistics by country. Variables are defined in Table 1.

Table 3 presents GCC firm characteristics, while their correlation coefficients are presented in Table 4. Table 3 shows that the mean value of *Maturity* is 41.2% which indicates that the average corporation in the GCC countries issues 41.2% of its total debt in the form of long-term debt. The sample statistics are comparable to Mimouni et al. (2019) and Tayem (2023b). Table 4 shows that the correlation coefficients between debt maturity and its expected determinants carry their expected signs.

**Table 3.** Summary statistics.

	Mean	SD	25% Percentile	Median	75% Percentile
<i>Maturity</i>	0.412	0.350	0	0.395	0.755
<i>Growth</i>	1.365	0.787	0.906	1.149	1.603
<i>Asset-Maturity</i>	14.425	15.837	6.713	10.955	16.799
<i>Size</i>	12.712	1.981	11.579	12.760	13.859
<i>Tangibility</i>	0.390	0.233	0.202	0.375	0.579
<i>Earnings</i>	0.064	0.091	0.029	0.063	0.108
<i>Default</i>	−1.410	1.068	−1.932	−1.361	−0.877
<i>Volatility</i>	0.038	0.044	0.012	0.024	0.047
<i>Leverage</i>	0.218	0.191	0.055	0.174	0.353

Table 3 reports firm-level descriptive statistics for a sample of listed nonfinancial firms operating in the GCC countries over the period 2007–2019. The variable under investigation is *Maturity*, defined as long-term debt divided by total assets. Variables are defined in Table 1.

**Table 4.** Correlation matrix.

	<i>Maturity</i>	<i>Growth</i>	<i>Asset-Maturity</i>	<i>Size</i>	<i>Tangibility</i>	<i>Earnings</i>	<i>Default</i>	<i>Volatility</i>
<i>Growth</i>	−0.0567 (0.016)							
<i>Asset-Maturity</i>	0.3202 (0.000)	0.0161 (0.492)						
<i>Size</i>	0.4224 (0.000)	−0.0087 (0.710)	0.1886 (0.000)					
<i>Tangibility</i>	0.3955 (0.000)	0.1147 (0.000)	0.5582 (0.000)	0.1231 (0.000)				
<i>Earnings</i>	0.0452 (0.054)	0.4245 (0.000)	0.0568 (0.015)	0.1275 (0.000)	0.0503 (0.032)			
<i>Default</i>	0.157 (0.000)	−0.2927 (0.000)	0.091 (0.000)	0.0555 (0.018)	0.168 (0.000)	−0.6533 (0.000)		
<i>Volatility</i>	−0.2049 (0.000)	−0.0377 (0.108)	−0.1225 (0.000)	−0.2432 (0.000)	−0.1124 (0.000)	−0.2949 (0.000)	0.2723 (0.000)	
<i>Leverage</i>	0.41 (0.000)	−0.1577 (0.000)	0.2163 (0.000)	0.2886 (0.000)	0.2594 (0.000)	−0.2515 (0.000)	0.4486 (0.000)	−0.0714 (0.002)

Table 4 shows the correlation between firm-level variables used in the study for a sample of listed nonfinancial firms operating in the GCC countries over the period 2007–2019. The variable under investigation is *Maturity*, defined as long-term debt divided by total assets. Variables are defined in Table 1. *p*-values are in parentheses.

## 5. Results

### 5.1. Debt Maturity and Firm-Level Determinants

The analysis starts by presenting the results of estimating Equation (1), including the macrolevel variables *GDP* and *Private-Credit*, but without including the institutional variables. Column (1) presents the results using the random effects model augmented with country, year, and industry effects that enter as regressors (Awartani et al. 2016), while column (2) reports the estimation results of the two-stage least square random-effects estimator (G2SLS random-effects) to control for the simultaneity between debt maturity and leverage (Mimouni et al. 2019). The results reported in Table 5 show that *Growth* is significantly and negatively related to *Maturity* at the 10% and 5% levels in the random effects and G2SLS estimations, respectively. This finding indicates that firms with a large set of growth opportunities use more short-term debt financing. This finding is consistent with the view that firms subject to large agency costs of debt resolve these costs by choosing debt maturities that expire before the growth opportunity to reduce the underinvestment problem (Myers 1977), and is consistent with empirical evidence (Pan and Tan 2019; Pour and Lasfer 2019; Zheng et al. 2012). In terms of the variable *Asset-Maturity*, the results show that it is significantly and positively related to *Maturity* at the 1% and 5% levels in the random effects and the G2SLS estimations, respectively, which indicates that firms with longer asset maturities use longer debt maturities. This finding is consistent with the prediction that firms subject to large agency costs of debt resolve these costs by choosing long debt maturities (Myers 1977) and the extant empirical evidence (Feito-Ruiz and Menéndez-Requejo 2022; Pour and Lasfer 2019; Zheng et al. 2012). In addition, the results reported in Table 5 show that *Size* is significantly and positively related to *Maturity* at the 1% level in both the random effects and G2SLS estimations. This result indicate that large firms secure more long-term debt financing, which is consistent with the view that large firms are subject to less transaction, information, and agency costs (Wu et al. 2022). Further, this result is consistent with the extant empirical evidence (Ağca et al. 2015; Awartani et al. 2016; Feito-Ruiz and Menéndez-Requejo 2022; Mimouni et al. 2019).

**Table 5.** Firm-level determinants of debt maturity in the GCC region.

	Random Effects	2SLS
<i>Growth</i>	−0.021 * (−1.69)	−0.024 ** (−2.09)
<i>Asset-Maturity</i>	0.036 *** (3.02)	0.026 ** (2.30)
<i>Size</i>	0.050 *** (5.26)	0.059 *** (8.55)
<i>Tangibility</i>	0.315 *** (5.38)	0.369 *** (6.82)
<i>Earnings</i>	−0.022 (−0.200)	0.096 (0.88)
<i>Default</i>	−0.034 ** (−2.17)	−0.006 (−0.35)
<i>Volatility</i>	−0.383 ** (−2.27)	−0.351 ** (−2.13)
<i>Leverage</i>	0.535 *** (8.69)	0.332 ** (2.51)
<i>GDP</i>	0.000 (0.00)	0.001 (0.25)
<i>Private-Credit</i>	0.000 (−0.22)	0.000 (0.02)
Observations	1820	1820
Groups	282	282
First-stage results	—	Not reported
F test ( <i>p</i> -value)	0.000	—
Hausman ( <i>p</i> -value)	0.159	0.023
Overall R <sup>2</sup>	0.452	0.369

Table 5 reports the estimation results of the firm-level determinants of debt maturity in the GCC region controlling for country-level *GDP* and *Private-Credit*. The sample consists of listed nonfinancial firms operating in the GCC countries over the period 2007–2019. The variable under investigation is *Maturity*, defined as long-term debt divided by total assets. Variables are defined in Table 1. *z*-statistics are in parentheses. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10%, respectively.

Furthermore, the results reported in Table 5 show that *Tangibility* is significantly and positively related to *Maturity* at the 1% level in both the random effects and G2SLS estimations. This result indicates that firms with more asset tangibility use more long-term debt financing, which is consistent with the view that firms with a large base of tangible assets provide the necessary source of payment in the case of bankruptcy ex-post, thereby reducing information and agency costs ex-ante (Myers and Rajan 1998). This result is also consistent with extant empirical evidence (Ağca et al. 2015; Awartani et al. 2016; Feito-Ruiz and Menéndez-Requejo 2022; Mimouni et al. 2019). However, the results reported in Table 5 show that the variables *Earnings* and *Default* are not statistically significantly related to *Maturity*. Hence, the results of this study do not find evidence supporting the signalling argument (Flannery 1986), which is discussed further in the next section. *Volatility* is significantly negatively related to *Maturity* at the 5% level in both the random effects and the G2SLS estimations. This indicates that firms with a volatile cash flow use short debt maturities, supporting the view that volatile firms are screened out of the long-term debt market because they are considered too risky (Johnson 2003; Zheng et al. 2012). This result is consistent with the international evidence that documents a significant negative relationship between volatility and debt maturity (Ağca et al. 2015; Memon et al. 2018; Zheng et al. 2012). In terms of leverage, the results show that *Leverage* is significantly positively related to *Maturity* at the 1% level in the random effects model. This result is robust to controlling for the endogeneity between the leverage and maturity, as shown in the G2SLS estimations. This finding is consistent with the liquidity argument that predicts that as leverage increases, liquidity risk increases, hence, the firm is better off issuing

long-term debt (Diamond 1991a), and is also consistent with the empirical evidence (Ağca et al. 2015; Mimouni et al. 2019; Pour and Lasfer 2019; Zheng et al. 2012).

## 5.2. Debt Maturity and Institutional Determinants

This section presents the estimation results of Equation (1), including the institutional determinants, alongside firm-level and macrolevel controls in Table 6. As in the estimations presented in Table 5, columns (1) and (2) in Table 6 present the results using the random effects model augmented with country, year, and industry effects that enter as regressors (Awartani et al. 2016), while columns (3) and (4) report the estimation results of the two-stage least square random-effects estimator (G2SLS random-effects) to control for the simultaneity between debt maturity and leverage (Mimouni et al. 2019). Because *Credit* is an index based on *Credit-Legal* and *Credit-Information*, the estimation presents its relationship with debt maturity in a standalone regression in columns (2) and (4). Table 6 does not report the results of the firm-level and macrolevel variables to save space, and because they are qualitatively similar to the ones presented in Table 5.

**Table 6.** Institutional determinants of debt maturity in the GCC region.

	Random Effects		2SLS	
<i>Credit-Legal</i>	−0.002 *	—	−0.002 **	—
	(−1.88)	—	(−1.97)	—
<i>Credit-Information</i>	−0.001 **	—	−0.001 ***	—
	(−2.40)	—	(−2.71)	—
<i>Credit</i>	—	−0.003 ***	—	−0.003 ***
	—	(−2.93)	—	(−3.27)
<i>Insolvency</i>	−0.002 **	−0.002 **	−0.002 *	−0.002 **
	(−2.03)	(−2.21)	(−1.84)	(−1.98)
<i>Regulatory</i>	0.148 ***	0.145 ***	0.105 **	0.103 **
	(3.26)	(3.29)	(2.36)	(2.43)
<i>Law</i>	0.024	0.029	0.068	0.071
	(0.40)	(0.51)	(1.14)	(1.27)
Control Variables:				
Firm-level	Yes	Yes	Yes	Yes
Macrolevel	Yes	Yes	Yes	Yes
Observations	1820	1820	1820	1820
Groups	282	282	282	282
First-stage results	—	—	Not reported	Not reported
F test ( <i>p</i> -value)	0.000	0.000	—	—
Hausman ( <i>p</i> -value)	0.022	0.027	0.881	0.767
Overall R <sup>2</sup>	0.45	0.45	0.38	0.45

Table 6 reports the estimation results of the institutional determinants of debt maturity in the GCC region controlling for firm-level determinants, *GDP*, and *Private-Credit*, as specified in Equation (1). The sample consists of listed nonfinancial firms operating in the GCC countries over the period 2007–2019. The variable under investigation is *Maturity*, defined as long-term debt divided by total assets. Variables are defined in Table 1. *z*-statistics are in parentheses. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10%, respectively.

The results reported in Table 6 show that all measures of creditor protection are negatively and significantly associated with debt maturity in the four specifications. *Credit-Legal* is negatively and significantly related to debt maturity at the 10% and 5% levels in the random effects and G2SLS models, respectively. This result indicates that the stronger the legal protection of creditors, the shorter the debt maturity. *Credit-Information* is also negatively and significantly related to debt maturity at the 5% and 1% level in the random effects and G2SLS models, respectively, which indicates that the availability of credit information is associated with shorter debt maturities. The composite index, *Credit*, is also negatively and significantly related to debt maturity at the 1% level in both the random effects and G2SLS models. *Insolvency* is negatively and significantly related to debt maturity at the 5% level in all but one model, where it is significant at the 10% level, which indicates that better insolvency practices are associated with shorter debt maturities.

These results strongly support the prediction of H1a that strong creditor protection is negatively associated with debt maturity, which suggests that corporate GCC managers and controlling owners have incentives to avoid risky long-term debt for fear of losing control over the firm's assets. The evidence supports the one reported by Vig (2013) and Cho et al. (2014).

The other results reported in Table 6 show that *Regulatory* is positively and significantly related to debt maturity. This result indicates that high-quality public governance is associated with long-term debt. This finding is consistent with the argument that business uncertainty, transaction costs, and information asymmetries decrease with high-quality public governance, which facilitates capital provision (Meyer 2001), and it corresponds with the evidence presented by Kirch and Terra (2012) and Awartani et al. (2016).

## 6. Discussion and Conclusions

The theoretical and empirical research on whether corporations have optimal debt maturities and their determinants is vast. However, only a few articles have investigated the cases of developing markets outside cross-country studies. The findings of this study expand our understanding of debt maturity behaviour by utilizing the case of the GCC countries, which are characterized by several unique aspects that are relevant to the topic of this article. The GCC countries saw major reforms to their institutions and substantial growth in their financial markets; nonetheless, banks are still the dominant source of debt financing (Awartani et al. 2016). In addition, the private sector's contribution to economic growth still lags behind state-led initiatives, with private wealth concentrated among a few families (Martínez-García et al. 2021; Santos 2015; Tayem 2023b). Hence, this study attempts to evaluate the reform experiences of GCC countries in terms of the relationship between the quality of their institutions, especially pertaining to creditor protection, and the provision of and demand for long-term risky capital.

This paper presents robust evidence that measures of creditor protection are negatively related to long-term debt. This evidence supports that reported by Cho et al. (2014), which shows that in an international cross-country setting, creditor protection is negatively related to debt maturity, and Vig (2013), which shows that in a single-country setting, stronger creditor protection in India is associated with lower debt maturities. The results of this article suggest that the demand channel dominates the supply channel in the GCC countries in terms of directing the relationship between creditor protection and debt maturity. Strong creditor protection implies creditors have an advantage over shareholders in terms of seizing assets, liquidation, and insolvency (Cho et al. 2014). In the case of the GCC countries, ownership is concentrated and, hence, GCC corporate managers and controlling shareholders are less diversified and more risk-averse (Martínez-García et al. 2021; Santos 2015; Tayem 2023b). Therefore, managers have incentives to avoid long-term risky capital for fear of losing control over firm assets in countries with stringent creditor protection. These results have important implications for policymakers in the GCC countries, as they indicate that reforms on the supply side are necessary, but not sufficient, to enable access to long-term debt. The nature of private businesses, including their ownership, plays an important role in the choice of the source of capital; hence, policymakers may introduce policies that allow business diversification to reduce manager and shareholder risk aversion.

In addition, this study lends support to the prediction that high-quality public governance is associated with long-term debt. A good-quality regulatory environment is associated with lower uncertainty, transaction costs, and information asymmetries, inducing investors to commit their capital (Meyer 2001). This evidence supports that reported in MENA reported by Awartani et al. (2016). Policymakers concerned with reforms tackling the issue of strengthening and expanding the role of private investments could find these results useful. Previous research shows that access to long-term debt reduces liquidity and refinancing risks, and improves the funding of private long-term investments (Harford et al.



2014; Jungherr and Schott 2021). Hence, improvements in public governance, as evidenced by the results of this paper, improved GCC firms access to long-term debt.

In terms of firm-level determinants, the results are largely consistent with the predictions of debt maturity structure theories. GCC firms with growth opportunities use short-term debt, which suggests that they avoid agency conflicts arising from the under-investment problem (Myers 1977) and asset substitution (Barnea et al. 1980; Leland and Toft 1996) by using short-term debt. Further support for the influence of agency costs on debt maturity is evident in this article, as the findings indicate that GCC firms with long (short) asset maturity utilize long (short) debt maturity. This behaviour is consistent with the prediction of Myers (1977), showing that firms subject to agency conflicts would resort to matching asset and debt maturities to resolve these conflicts. This evidence supports that of Awartani et al. (2016) and Mimouni et al. (2019). In addition, the study finds that firm size and asset tangibility have significant positive relationships with the use of long-term debt. This evidence supports the predictions of agency and information asymmetry, because large firms and firms with tangible assets are expected to be subject to lower agency conflicts, information asymmetries, transaction, and monitoring costs (Wu et al. 2022; Kirch and Terra 2012). Further, because tangible assets are heavily used in asset-based lending, this evidence suggests the important role of collateralized loans in the provision of long-term loans.

However, this study finds that firm-specific factors that are expected to affect firm debt maturity through the signalling channel, namely, earnings, are not significantly related to debt maturity. According to the findings of this study, firms with favourable private information do not signal their quality through the issuance of short-term debt. This finding is not surprising, as the source of finance matters. GCC firms source their short-term debt from banks, not financial markets. Hence, the choice of bank short-term debt is unlikely to signal the quality of the firm, especially given that banks are efficient monitors and bank loans are private (Diamond 1984, 1991b). Other considerations relating to credit risk and liquidity do influence GCC firm debt maturity. GCC firms with a volatile cash flow use more short-term debt than the ones with less volatile earnings. Firms with greater volatility are subject to greater credit risk, hence, the market of long-term debt screens out those risky firms (Johnson 2003; Zheng et al. 2012). In terms of leverage, the evidence shows that GCC firms with more leverage opt to use more long-term debt in their debt structures. This finding is consistent with the liquidity argument that predicts that as leverage increases, liquidity risk increases, hence, the firm is better off issuing long-term debt (Diamond 1991a).

The results of this study direct attention to questions that can be answered through future research. The results of this study are best interpreted from the view that the demand channel in the GCC countries dominates the supply channel in influencing the creditor protection and debt maturity relationship. This is important since reforms in the supply channel are relevant. Hence, future research could examine the conditions that allow one channel to dominate the other. In addition, the results of this paper provide evidence that firm financial policies vary significantly with the quality of institutions, which can affect their ability to finance their investments. Hence, future research can focus on the interplay between investment, external financing, internal resources, and institutions. Further, this study focuses on the case of the GCC countries; future research can expand the data to include other developing and emerging markets. This could be useful, given that the evidence of the relationship between creditor protection and debt maturity is inconclusive.

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