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Capital Structure and Firm Performance: Evidence From Saudi Non-Financial Firms Under IFRS 16

Abstract

This paper examines the relationship between capital structure and firm performance and considers the moderating effect on this relationship of the issuance of International Financial Reporting Standards (IFRS) 16. The study sample consists of 101 Saudi non-financial firms listed on the Tadawul between 2017 and 2020. The study uses two proxies for firm performance: an accounting-based measure using return on assets and a market-based measure using Tobin's q. Capital structure is measured using financial leverage. To avoid bias in the results, the study employs six control variables: growth, firm size, tangibility, risk, investment, and industry. The existing theory posits a positive relationship; however, using ordinary least squares regression, this study finds that high leverage firms in Saudi Arabia are associated with lower performance. IFRS 16 was only found to have a significantly positive impact on market performance.

Keywords: Leverage, Return on assets, Tobin's q, IFRS 16, Saudi Arabia.

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ملخص البحث

تبحث هذه الدراسة العلاقة بين هيكل رأس المال وأداء الشركة مع الأخذ بالاعتبار تأثير المعيار الدولي رقم 16 المختص بالإيجارات (16 IFRS)، وتتكون عينة الدراسة من 101 شركة سعودية غير مالية مدرجة في السوق السعودية (تداول) بين عامي 2017 – 2020، وتستخدم الدراسة مقياسين لقياس أداء الشركة: مقياس قائم على المحاسبة باستخدام العائد على الأصول ومقياس قائم على السوق باستخدام Tobin q، كما يتم قياس هيكل رأس المال باستخدام الرافعة المالية، ولتجنب التحيز في النتائج، تستخدم الدراسة ست متغيرات تحكم: النمو وحجم الشركة والملموسية والمخاطر والاستثمار والصناعة، وبخلاف النظرية الحالية التي تفترض علاقة إيجابية؛ وجدت الدراسة باستخدام تحليل المربعات الصغرى العادية أن الشركات ذات الرافعة المالية العالية في المملكة العربية السعودية مرتبطة بأداء منخفض. بالإضافة الى أن نتائج الدراسة تبين أن المعيار الدولي لإعداد التقارير المالية رقم 16 له علاقة إحصائية معنوية على أداء الشركة السوقي فقط.

الكلمات المفتاحية: الرافعة المالية، العائد على الأصول، توبين كيو، المعيار الدولي للتقرير المالي 16، المملكة العربية السعودية.

1. Introduction

The impact of capital structure on a firm's performance has attracted many scholars' attention. This issue is important at both the academic and professional levels. Capital structure decisions affect firms' operating and investing activities and firms seek to find the optimal capital structure to maximize their performance and hence their overall value. A number of theories have tried to explain the relationship between capital structure and firm performance.

The earliest theory seeking to explain the effect of capital structure on firm performance can be traced back to the Modigliani and Miller (1958) theorem. Modigliani and Miller (1958) proposed that, in a perfect capital market, capital structure does not have any influence on firm value due to a number of assumptions in their theorem, such as the absence of corporate taxes, no transaction or agency costs, and the perfect disclosure of all relevant information. However, in the real world, perfect capital market assumptions do not hold. Three alternative theories have been suggested to account for an imperfect capital market: trade-off theory, pecking order theory, and agency cost theory.

The three theories argue that capital structure is relevant to a firm's value from various perspectives. Kraus and Litzenberger (1973) suggested that a firm will seek a balance or trade-off between tax-shield benefits and bankruptcy costs related to debt financing to maximize its value. Pecking order theory states that financing follows a certain order: internal financing via retained earnings first; followed by debt; and the last option for financing sources is equity (Myers and Majluf, 1984). Finally, agency cost theory, developed by Jensen and Meckling (1976), contends that the optimal capital structure is one that maximizes a firm's value and minimizes the agency cost. Nevertheless, no single theory can interpret the relationship between capital structure and firm performance because theories are based on a number of assumptions that do not reflect all real-world conditions (Ardalan, 2017).

Given the empirical literature examining the impact of capital structure on firm performance, the results are mixed. On the one hand, most of the studies show a positive impact of capital structure on firm performance. For example,

Wippern (1966), Berger and Di Patti (2006), Margaritis and Psillaki (2010), and Abdullah and Tursoy (2019) investigated the impact of financial leverage on firm performance and found a positive association. They argue that leverage has a positive impact by motivating managers to work more in the interests of the shareholders (Berger and Di Patti, 2006; Margaritis and Psillaki, 2010), and debts affect firm performance by reducing taxes because debt interest is tax–deductible (Abdullah and Tursoy, 2019).

However, some studies find a negative relationship between capital structure and firm performance (Majumdar and Chhibber, 1999; King and Santor, 2008; Abor, 2005; Hull and Dawar, 2014; Le and Phan, 2017). The majority of these studies examine an emerging or transition economic environment and argue that under a higher level of debt, the costs of debt (i.e., interest rates) exceed the benefits of debt (i.e., a tax shield). Therefore, the excessive use of debt most likely leads to high bankruptcy costs, which could negatively affect performance.

In the context of Saudi Arabia, three studies have been conducted that, surprisingly, show mixed results. Salameh (2012) and Suleiman (2013) report a negative association between capital structure and firm performance, whereas Twairesh (2014) finds a significant and positive association.

In addition, on 1 January 2005, Australia, European Union constituents, Hong Kong, Philippines, and South Africa required publicly traded companies to present their financial statements according to International Financial Reporting Standards (IFRS) (Horton et al., 2013). The International Accounting Standards Board (IASB) is responsible for developing the IFRS, and the adoption of IFRS around the world has caused a major accounting regulatory change in recent years. The IFRS promote the harmonizing, transparency, quality, and comparability of financial reporting (Yamani and Almasarwah, 2019; Lakhal and Dedaj, 2020). In the case of Saudi Arabia, the Saudi Organization for Certified Public Accountants required all publicly traded companies to apply IFRS from the start of 2017 (Nurunnabi et al., 2020). In general, mandatory IFRS adoption has enhanced accounting quality (Key and Kim, 2020) and improved the information environment overall (Horton et al., 2013).

Moreover, a new accounting standard introduced by the IASB, IFRS 16 *Leases* (IFRS 16), came into effect on 1 January 2019. This standard has a material impact on both balance sheets and income statements. A balance sheet demonstrates an increase in assets, an increase in financial liabilities, and a decrease in equity, whereas an income statement demonstrates an increase in earnings before interest, taxes, depreciation, and amortization (EBITDA) and finance costs. Therefore, it is worth examining the relationship between capital structure and firm performance, since no studies have been conducted in Saudi Arabia regarding this relationship since the introduction of IFRS 16.

Therefore, the current study aims to conduct an empirical investigation of the impact of capital structure on firm performance after IFRS 16 for listed non-financial firms in Saudi Arabia over the period between 2017 and 2020. The paper attempts to address two questions: (1) what is the nature of the relationship between capital structure and accounting and market performance for listed non-financial firms? and (2) what is the impact of IFRS 16 on the relationship between capital structure and firm performance?

The current study contributes to the body of literature as the first to investigate the impact of capital structure on accounting and market performance in Saudi Arabia post–IFRS 16. Further, this study uses data from a recent period (2017–2020), thus allowing relevant and up–to–date findings.

The remainder of this study proceeds as follows. Section 2 presents a literature review and hypotheses development. Section 3 outlines the research methodology. Section 4 presents the results and discussion. Section 5 offers a summary and conclusions.

2. Literature review and hypotheses development

Since the seminal work of Modigliani and Miller (1958), several theories have emerged that attempt to explain the relationship between capital structure and firm performance in an imperfect capital market. Kraus and Litzenberger (1973) suggested trade–off theory, which claims that a firm will seek a balance or trade–off between the costs and benefits of debt financing to maximize the firm's value.

They claimed that an optimal capital structure maximizes firm value through the benefits of debt issuance. Gains from debt mainly arise because debt interest is tax-deductible, which creates a tax shield. In addition, Myers and Majluf (1984) and Myers (1984), in their pecking order theory, argued that firms seek the lowest risk financing cost and, therefore, prefer internal to external financing and debt financing over equity. In other words, firm prefer internal financing via retained earnings first; followed by financing by debt; and the last option for financing is equity. Financing with equity is considered to carry a greater risk than financing with debt because equity requires a higher return. However, this theory does not propose an optimal capital structure for a firm.

Jensen and Meckling (1976) proposed agency cost theory, which concerns the conflict between principals and agents incurred because of the separation of ownership. They define agency cost as the sum of the principal's monitoring expenses, the bonding expenses incurred by the agent, and the overall residual loss. Agency cost theory indicates two further types of agency cost: the agency cost of equity and the agency cost of debt. Later, Jensen (1986) indicated a problem with managers' incentives to invest free cash flow below the cost of capital or to waste it on organizational inefficiencies rather than assigning it to shareholders. Therefore, the principals of a firm may use leverage in the capital structure to act as a disciplinary device to restrict managerial discretionary behavior or to encourage managers and thereby contribute to improving the firm's performance (Milton and Raviv, 1991; Margaritis and Psillaki, 2010). Thus, an optimal capital structure is one that maximizes firm value by minimizing the aggregate agency costs.

The variety of theories encourages researchers to conduct empirical studies of both the dimensions and consequences of capital structure. Results regarding the consequences of whether leverage has a positive or negative effect on firm performance are still contradictory and ambiguous. Many of the studies have found a positive association between capital structure and firm performance (Wippern, 1966; McConnell and Servaes, 1995; Margaritis and Psillaki, 2010; Gungoraydinoglu and Öztekin, 2011; Abdullah and Tursoy, 2019). These studies support the theoretical assumptions that leverage has a positive effect on firm perfor-

mance. Ross (1977) revealed that high leverage firms have a greater probability of bankruptcy, which affects the market perception of their situation. Therefore, high leverage puts pressure on managers to invest in profitable projects in order to improve firm performance and please shareholders or to cover debt interest payments (Berger and Di Patti, 2006). Firms also use a high level of debt in their capital structure to gain debt benefits through a tax shield (Abdullah and Tursoy, 2019).

Country-specific characteristics have been proven to have an effect on the relationship between capital structure and firm performance. For example, Ramli et al. (2019) examined the effect of capital structure on firm performance in Malaysia and Indonesia and found a significant and positive association in Malaysia but a negative association in Indonesia. Further, Li et al. (2019) studied a sample of European small and medium-sized enterprises and found that when a firm acquires a high level of debt, the interest paid will also increase and the free cash flow will decrease. Therefore, a firm's potential investment in assets and resources will be limited and, eventually, firm performance will decrease. In addition, Le and Phan (2017) reveal that in Vietnam an increase in debt of 1% will decrease firm performance by approximately 0.2%. Their explanation is that loans in Vietnam are associated with higher interest rates, which offset the debt benefits. Therefore, a higher level of debt than is appropriate will increase the bankruptcy costs of liquidation and will most likely decrease firm performance (Milton and Raviv, 1991). A negative result has been reported in other counties as well, such as in India by Majumdar and Chhibber (1999) and Hull and Dawar (2014), Ghana by Abor (2005) and Jordan by Tian and Zeitun (2007).

Saudi Arabia has its own unique environment. The most relevant attribute of the Saudi environment is that income tax is not applied to firms listed on the Saudi Stock Exchange (Tadawul) (GAZT, 2020). Accordingly, Saudi firms cannot benefit from debt through a tax shield, which eliminates the trade-off theory arguments. Contrary to previous tax shield ideas, agency cost theory argued that debt was commonly used by firms before the existence of tax shields on interest payments (Jensen and Meckling, 1976). As an alternative, debt was used by firms'

owners as a disciplinary and encouragement tool for managers to reduce the agency cost of equity, and hence the overall agency cost (Milton and Raviv, 1991). Furthermore, agency cost theory is more applicable with regard to publicly listed firms, in which the separation of principal and agent is relevant, which is in line with this study sample of listed non–financial firms (Al Nasser, 2019).

Therefore, based on agency cost theory, this study expects to find a positive relationship between capital structure and firm performance using accounting and market measures in Saudi Arabia. Thus, this study hypothesizes the following:

H1: Other things being equal, there is a positive relationship between leverage and accounting–based measures for Saudi non–financial listed firms.

H2: Other things being equal, there is a positive relationship between leverage and market–based measures for Saudi non–financial listed firms.

The adoption of IFRS created a major accounting change in Saudi Arabia. Mandatory IFRS adoption has improved the information environment, and hence the quality of information (Horton et al., 2013). Nevertheless, the current study emphasizes a new standard that has a material impact on the financial statements of listed firms: IFRS 16 *Leases*. IFRS 16 was issued on 13 January 2016 and came into effect on 1 January 2019. Under IFRS 16, when an entity enters into a lease contract (as a lessee), the accounting treatment will be in a form of a capitalization lease unless it is a short–term lease or leases low–value assets. According to the IASB (2019), IFRS 16 differs in the accounting treatment for lease contracts for lessees from the previous standard (International Accounting Standards [IAS] 17). Under IFRS 16, the lessee recognizes as expenses right–of–use assets that are similar to other non–financial assets, lease liability similar to other financial liabilities, interest expenses similar to other finance costs, and depreciation expenses. In the previous standard, the IAS 17 lessee was only required to report a lease payment as an expense in the income statement.

Therefore, a balance sheet demonstrates an increase in assets and an increase in financial liabilities, whereas an income statement demonstrates an increase in

EBITDA and an increase in finance costs. Based on this argument, this study anticipates IFRS 16 to have an impact on the relationship between capital structure and firm performance using accounting and market measures. The following hypotheses were formulated:

H3: Other things being equal, IFRS 16 has a significant impact on the relationship between leverage and accounting-based measures for Saudi non-financial listed firms.

H4: Other things being equal, IFRS 16 has a significant impact on the relationship between leverage and market-based measures for Saudi non-financial listed firms.

3. Research methodology

3.1 Sample selection

The initial sample for this study consisted of all firms listed on the Tadawul. There are 199 firms currently listed on the Tadawul. However, the final sample was narrowed down by omitting firms that did not meet any of the following criteria. First, the sample consists of non-financial firms only. Financial firms, including banks and companies offering insurance and financial services, differ substantially in their characteristics and financial statements because they have to comply with Saudi Central Bank (the Saudi Arabian Monetary Authority) regulations (Alotaibi and Hussainey, 2016; Yamani and Almasarwah, 2019; Khan et al., 2020). Second, firms included in the sample must have been listed for the entire research period (2017–2020) and their financial year must end on 31 December. Finally, all firms must have the complete availability of essential data for the study period.

The final sample consisted of 101 non-financial firms and 404 firm-year observations. The study period of 2017 to 2020 is of interest because it covers the years before and after IFRS 16 was put into effect. Further, this research period allows for relevant and up-to-date findings.

3.2 Definition and measurement of the variables

The dependent variable in this study is *firm performance*. According to Berger and Di Patti (2006), there are different measures of firm performance. These measures include financial ratios from balance sheet and income statements (e.g., return on assets [ROA] and return on equity); stock market returns and their volatility; mixes of both accounting and market values (e.g., Tobin's q); and measures of profit efficiency. This study employs two types of measure to capture both accounting and market performance. First, the current study uses ROA to capture accounting performance. ROA is defined as operating earnings over total assets (de Jong et al., 2008; King and Santor, 2008). Tobin's q is employed to capture market performance. Tobin's q is defined as total assets plus market value minus book value of equity over total assets (King and Santor, 2008).

The independent variable in this study is *capital structure*. Capital structure refers to the mixture of debt and equity that a company holds to fund its assets (Geske et al., 2016). This study uses financial leverage as a proxy for capital structure. Financial leverage is defined as total debt over total assets (Jiraporn and Liu, 2008; King and Santor, 2008; Frank and Goyal, 2009).

Furthermore, the study considers the moderating effect of the recent financial regulatory change (i.e., IFRS 16 *Leases*) on the study models. IFRS 16 adjusts the accounting treatment for the majority of lease contracts. IFRS 16 reveals in the balance sheet an increase in assets, an increase in financial liabilities, and a decrease in equity, whereas income statements demonstrate an increase in EBITDA and an increase in finance costs (IASB, 2019). In line with Horton et al. (2013) and Morales-Díaz and Zamora-Ramírez (2018), this study uses a dummy variable to obtain the impact of financial regulatory changes in order to capture the impact of IFRS 16 on the Tadawul (0 before IFRS 16 and 1 after IFRS16 came into effect).

In addition, to avoid false or biased results, we gave full attention to the control variables introduced in the models. According to Nielsen and Raswant (2018), inadequate attention to control variables results in a major threat to the internal validity of the models used. Therefore, this study employed six control variables

that have been proven in the literature to have an impact on the relationship between capital structure and firm performance: growth, firm size, tangibility, risk, investment, and industry.

Growth is defined as the percentage change in sales over the year. Usually, a higher growth rate is associated with the better performance of a firm (Jiraporn and Liu, 2008; King and Santor, 2008; Margaritis and Psillaki, 2010). *Firm size* is defined as the natural logarithm of the firm's assets. Large firms can access wider markets and a greater diversification of business, which influences their performance (Frank and Goyal, 2009; Hull and Dawar, 2014). *Tangibility* is defined as the ratio of net fixed assets to total assets. According to agency theory, creditors take actions to protect themselves by requiring firms to have tangible assets (Chakraborty, 2010). *Risk* is defined as the standard deviation of the ratio of operating income before interest, taxes, and depreciation to total assets for three years. According to de Jong et al. (2008), higher risk leads to higher earnings volatility and a greater probability of bankruptcy. *Investment* is defined as the ratio of capital expenditure to total assets. A firm with greater investment opportunities is more likely to have a higher firm performance (Le and Phan, 2017). Finally, *Industry* is a dummy variable of each of the industries of the firms included in this study (Basic Materials, Industrials, Telecommunications, Consumer Services, Consumer Goods, Health Care, and Utilities). According to Wippern (1966), an industry dummy should be structured to capture any systematic differences among industries which are not considered in the regression model.

To investigate the relationship between the dependent, independent, and control variables, the study developed two regression models:

$$
\begin{aligned}
ROA_{n,t} = \alpha + {} & \beta_1 LEV_{n,t} + \beta_2 LEV * IFRS16_{n,t} + \beta_3 GROW_{n,t} + \beta_4 SIZE_{n,t} \\
& + \beta_5 TAN_{n,t} + \beta_6 RISK_{n,t} + \beta_7 INV_{n,t} + \beta_8 Industry_{n,t} \\
& + \varepsilon_{n,t} \quad \ldots\ldots\ldots\ldots (1)
\end{aligned}
$$

$$
\begin{aligned}
TQ_{n,t} = \alpha + {} & \beta_1 LEV_{n,t} + \beta_2 LEV * IFRS16_{n,t} + \beta_3 GROW_{n,t} + \beta_4 SIZE_{n,t} \\
& + \beta_5 TAN_{n,t} + \beta_6 RISK_{n,t} + \beta_7 INV_{n,t} + \beta_8 Industry_{n,t} \\
& + \varepsilon_{n,t} \quad \ldots\ldots\ldots\ldots (2)
\end{aligned}
$$

Where ROA is the accounting performance measure using the ROA of firm n at time t; TQ is the market performance measure using the Tobin's q of firm n at time t; LEV is the financial leverage of firm n at time t; $LEV * IFRS16$ is an interaction variable: a measure of capital structure and IFRS 16 to capture the moderating effect of IFRS 16 on the relationship between capital structure and firm performance; $GROW$ is the firm sales growth of firm n at time t; $SIZE$ is the firm size of firm n at time t; TAN is the firm tangibility of firm n at time t; $RISK$ is the firm risk of firm n at time t; INV is the firm investment of firm n at time t; and $Industry$ is a dummy variable of the industry of firm n at year t.

4. Results and discussion

4.1 Descriptive statistics

Table I presents a summary of descriptive statistics of the dependent, independent, and control variables used in this study. The sample consists of 101 non–financial firms over four years. The data are presented as balanced panel data because all the firms in the sample have the same number of time series observations (404 firm–year observations) (Gujarati et al., 2004). Further, all the variables in this study are winsorized at the 1% and 99% levels to avoid distortions in the estimates resulting from the effect of outliers.

The accounting measure of performance shows an average ROA equal to 0.032 for Saudi listed firms. The disparity in ROA ranges between a minimum value of –0.173 and a maximum value of 0.268. This indicates that Saudi non–financial firms have a relatively low average ROA. The market measure of performance (Tobin's q [TQ]) shows a significantly higher performance for Saudi listed firms, equal to 1.678. The disparity in TQ ranges between a minimum value of 0.819 and a maximum value of 6.854. This indicates that Saudi non–financial firms have a higher market performance than accounting performance. According to Tian and Zeitun (2007), higher market performance is likely to be due to an increase in share price and equity, without any rise in the actual performance of firms.

Table I: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Firm performance					
ROA	404	.032	.074	-.173	.268
TQ	404	1.678	1.062	.819	6.854
Capital structure					
LEV	404	.252	.196	0	.736
Control variables					
GROW	404	.007	.237	-.559	.86
TAN	404	.494	.225	.04	.9
SIZE	404	7.848	1.581	4.34	12.681
RISK	404	.032	.035	.002	.265
IINV	404	-.029	.033	-.174	0

Notes: Table I reports panel regression results on a sample of 101 Saudi non-financial listed companies from 2017 to 2020. ROA: the return on assets; TQ: is Tobin Q; LEV: the ratio of total debt to total assets; GROW: firm growth; TAN: tangibility; SIZE: firm size; RISK: risk; INV: investment.

Moreover, Table I shows that leverage (LEV), the independent variable of this study, has an average of 25.2%, which indicates that Saudi non–financial firms do not employ high levels of debt to raise leverage. The disparity in LEV ranges between a minimum value of 0% and a maximum value of 73.6%.

4.2 Correlation analysis

A correlation matrix shows the strength of the linear relationship between two variables. The correlation coefficient value lies between –1 and 1 and becomes weaker as it approaches 0. Table II shows the correlation among the variables of this study. The results indicate that ROA and TQ are inversely correlated to LEV. With regard to the first model, GROW, TAN, and SIZE have a positive correlation with ROA, whereas RISK and INV have a negative correlation with ROA. In comparison, the second model shows that TQ has a positive correlation with GROW and RISK, but TAN, SIZE, and INV have a negative correlation with TQ. In addition, the variance inflation factor (VIF) test shows that the independent variables have a VIF < 10. This confirms that multicollinearity is not a concern for this study.

Table II: Matrix of correlations and multicollinearity

Variables	ROA	TQ	LEV	GROW	TAN	SIZE	RISK	INV	VIF
ROA	1.000								
TQ	0.138	1.000							
LEV	-0.199	-0.321	1.000						1.67
GROW	0.273	0.133	0.012	1.000					1.48
TAN	0.119	-0.110	0.199	0.075	1.000				1.02
SIZE	0.303	-0.276	0.301	0.044	0.274	1.000			1.16
RISK	-0.310	0.267	-0.054	-0.045	-0.080	-0.284	1.000		1.83
INV	-0.223	-0.037	0.006	-0.043	-0.140	-0.155	0.144	1.000	1.17

4.3 Regression analysis

Table III shows the result of pooled ordinary least squares (OLS) regression analysis in respect of capital structure and firm performance. The study uses two models to capture accounting and market performance. The two models were tested for heteroscedasticity using a Breusch–Pagan test, which revealed a significant result, meaning that the models suffer from heteroscedasticity. Another potential threat to the models is autocorrelation. However, it is widely accepted in the literature that it is possible to neglect the autocorrelation issue in short panel data (Baltagi, 2005; Le and Phan, 2017). Since the current study uses panel data that only cover four years, autocorrelation was not deemed to be of sufficient importance. Nevertheless, robust standard errors can be used to deal with heteroscedasticity or autocorrelation problems in a regression model (Baltagi, 2005). Therefore, this study applied cluster standard errors to enhance the efficiency of the estimators.

The results in Table III reveal that both models are, overall, significant at the 1% level. R–squared is equal to 37.6% and 25.9% for model (1) and model (2), respectively. The results of model (1) show a significant and negative relationship with LEV at the 1% level. This indicates that higher leverage firms are associated with lower accounting performance. However, IFRS 16 was not found to be statistically significant in this model. GROW and SIZE show a significant and

positive association at the 1% level. RISK and INV appear to have a negative association at the 5% and 1% level, respectively.

Table III: OLS Regression results

	Model (1) Dependent variable: ROA		Model (2) Dependent variable: TQ	
	Coef.	t-statistics	Coef.	t-statistics
LEV	-.119	-3.90***	-2.018	-5.08***
LEV* IFRS16	-.003	-0.19	.766	4.31***
GROW	.075	5.53***	.732	3.83***
TAN	.01	0.42	-.144	-0.45
SIZE	.016	3.86***	-.05	-0.80
RISK	-.478	-2.35**	8.411	2.12**
INV	-.359	-2.98***	-1.824	-0.95
Constant	-.065	-1.95	2.091	3.78***
Industry controls	Yes		Yes	
R-squared	0.376		0.259	
F-test	7.795		3.764	
F Sig	0.000		0.000	
Number of obs	404		404	

Notes: ROA: the ratio of earnings after interest and tax to book value of total assets; Tobin Q: the ratio of the firm's market value to firm's book value; LEV: the ratio of total debt to total assets; LEV*IFRS16 is the interaction effect between capital structure and IFRS16; GRO: Current period sales -prior period sales/prior period sales; TAN: ratio of PP&E and total assets; SIZE: log of the firm's assets; RISK: The standard deviation of the ratio of operating income before interest, taxes, and depreciation to total assets; INV: The ratio of capital expenditure to total assets.. ** significant at the 5% level; *** significant at the 1% level.

Similar to the first model, model (2) reveals a significant and negative relation–ship between market performance and LEV at the 1% level. However, in this model, IFRS 16 is seen to have a significant and positive association with this relationship at the 1% level. This suggests that IFRS 16 led to increased market performance among Saudi non–financial firms. Further, GROW and RISK have a positive association at a significance level of 1% and 5%, respectively. TAN,

SIZE, and INV do not appear to have a statistically significant association with market performance.

The results of this study of the relationship between capital structure and firm performance appear not to support the agency cost theory hypotheses (*H1* and *H2*). Agency cost theory expects a positive relationship between capital structure and firm performance. However, the current study finds a negative association in Saudi Arabia that is consistent with the empirical evidence of previous studies conducted in developing countries, such as Majumdar and Chhibber (1999), Abor (2005), Hull and Dawar (2014), and Le and Phan (2017). Myers (1977) points to a negative impact of debt on firm performance called the debt overhang problem. This problem occurs when firms underestimate the bankruptcy costs of liquidation and enter into higher levels of debt than are appropriate, leading to a decrease in firm performance (Milton and Raviv, 1991). In other words, a high-er-than-appropriate level of debt jeopardizes firms by exposing them to risk of default. Therefore, in these circumstances, debt will have a negative effect on firm performance.

H3 and *H4* expected IFRS 16 to have had an impact on the relationship be-tween capital structure and firm performance. The ROA show that IFRS 16 did not have an effect on accounting performance. Morales-Díaz and Zamora-Ramírez (2018) explained that new interest expenses offset the old operating lease payments, which results in no effect on this relationship. On the other hand, IFRS 16 was found to have had a significantly positive association with market performance. The significant increase in TQ can be interpreted as an in-crease in assets due to the increase in right-of-use assets (IASB, 2019). This result indicates that IFRS 16 had a greater effect on the balance sheets than on the in-come statements of Saudi non-financial firms.

5. Conclusion

The aim of this paper was to provide empirical evidence regarding the impact of the choice of capital structure on firm performance after the introduction of IFRS 16 for non-financial firms operating in Saudi Arabia and listed on the Tad-awul. The study used OLS regression to test the research hypotheses. The find-

ings confirm that Saudi non-financial firms showed a significant and negative relationship between financial leverage and firm performance, which indicates that capital structure plays an important role in determining firm performance in Saudi Arabia. The results of this study do not support agency cost theory arguments that claim that there is a positive relationship between capital structure and firm performance. Nevertheless, the results are in line with the findings of research work conducted in developing countries, such as Majumdar and Chhibber (1999), Tian and Zeitun (2007), Hull and Dawar (2014), and Le and Phan (2017). Therefore, we recommend that Saudi firm managers fund their firm assets and investments through retained earnings and not by using large amounts of debt in their capital structure. In addition, managers should work to improve the capital structure of their firm in order to increase and maintain firm performance as much as possible.

However, the effect of IFRS 16 varied between accounting and market performance. On the one hand, accounting performance shows that IFRS 16 was not associated with ROA, which indicates that operating lease payments were offset by interest and depreciation expenses (Morales-Díaz and Zamora-Ramírez, 2018). On the other hand, however, Tobin's q as a measure of market performance increased after the implementation of IFRS 16. The increase in Tobin's q is due to the increase in right-of-use assets.

This study contributes to the body of literature by providing strict conclusions in respect of the nature of the relationship between capital structure and firm performance in the environment of Saudi Arabia by employing different measurements of performance (ROA and Tobin's q) and using a sufficient number of control variables to avoid bias in the results. We also considered the latest regulation change (i.e., IFRS 16) to provide relevant and up-to-date findings.

There are several limitations of this study that could be taken as suggestions for future research. First, because IFRS 16 came into effect recently, the available financial data only cover four years. Therefore, future research could examine the relationship between capital structure and firm performance after IFRS 16 for a longer period when more data have become available to provide more robust

results. Second, the study limited the sample to non-financial listed firms only. Future research could investigate this relationship among financial firms in Saudi Arabia, since, to the best of the researchers' knowledge, no study has been conducted in this regard. Finally, the study controlled in the analysis for growth, firm size, tangibility, risk, and investment only, whereas the real world is more complex than that.

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