Summer 8-5-2019

State Ownership, Financial Constraints, and the Determinants of Capital Structure

Sultan Alshuwaier
sultan3300@hotmail.com

State Ownership, Financial Constraints, and the Determinants of Capital Structure

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Financial Economics

by

Sultan Alshuwaier

B.S. King Saud University, 2007
M.S. Texas A&M University Commerce, 2011
M.S. University of New Orleans, 2017

August, 2019

Dedication

To my Mother for her unconditional love, patience, and nurturing
To my Father who guided and believed in me
To my brothers, for the special bond we share
To my sisters, for their care and respect
To my best friend, Khalid
I dedicate this dissertation

Acknowledgment

I am very thankful to my advisor, Professor M. Kabir Hassan, for his support and guidance; this work would not have been possible without him. I also extend my gratitude to my committee members: Dr. Walter Lane, Dr. Arja Turunen-Red, and Dr. Duygu Zirek; their time and valuable feedback are heartily appreciated. Many special thanks to the faculty members at the University of New Orleans, Department of Economics and Finance, for years of knowledge and achievements. Finally, I am very thankful to my country, Kingdom of Saudi Arabia, for making this dream a reality.

Table of Contents

List of Tables

Abstract

The aim of this study is to investigate the influence of state ownership in Saudi firms listed in the stock market. The first chapter studies the influence of state ownership on financial constraint on investment. Some scholars believe state ownership has a negative effect on the firm value. However, by using two measures of financial constraint, the investment cash flow sensitivity and the Kaplan and Zingales financial constraints index, the finding indicates that the existent of government ownership decreases financial constraint in firms. Also, the results show that the higher government ownership percentage the less financial constraint in firms. The second chapter studies the influence of specific company factors and the government ownership factor on capital structure. The finding shows that tangibility of assets and size have a positive association with leverage. Leverage is negatively correlated with growth and profitably. Finally, the results suggest that government ownership affects the level of leverage negatively.

JEL Classification: G14, G11, G31, G32.

Keywords: Privatization; State ownership; Financial Constraint, Capital Structure.

CHAPTER 1

Does Government Ownership Relax Financing Constraints on Investment? Evidence from Saudi Arabia

1. Introduction

The opinion of those government-owned firms that have lower performance than non-government owned firms has been believed by many scholars. The government-owned firms are known as inefficient firms and they could perform better if they were under private ownership. Many studies report the low performance of state-owned firms comparing with fully private firms. Dewenter and Malatesta (2001) show that government companies have lower net income. Alfaraih, Alanezi, Almujamed (2012) find an adverse correlation between state ownership and firm performance in firms listed on Kuwait stock exchange, indicating that government ownership decreases market performance. Also, Boubakri, Guedhami, Kwok and Saffar (2016) conclude that the higher government ownership in firms causes poorer performance, less value, less productivity, and less risk-taking.

However, government ownership may signify to the market because it affords firm credibility and assures investors, markets, and suppliers since the government is willing to protect deals with these sides. Eljelly (2009) finds that government-related companies in Saudi Arabia manage to generally perform better than private companies with regard to income and operating efficiently. The reason for this better performance is that the Saudi government manages economic development

by owning fully or partially major companies such as oil and petrochemical companies.

Financial constraints have a negative effect on companies. This effect influences the performances and values. Campello, Graham, and Harvey (2010) investigate whether corporate expenditure strategies vary conditional on the case of financial constraint, they conclude to that throughout the credit crisis in 2008, many firms avoid attractive projects opportunities due to the inability to externally borrow. Cleary (1999) studies the relationship between financial status and firms investments; he argues that firm investment decisions are directly related to financial factors.

In this study, I would like to add to the literature by examining the influence of government ownership on the level of financial constraints of firms in the case where the government may have a positive effect. The aim of this research is to examine the differences of influences of financial constraint among the Saudi listed government-related firms and the Saudi listed private firms. Many studies have discussed the influence of the state ownership on the level of financial constraints in the Chinese firms such as Poncet, Steingress, and Vandenbussche (2010) and Guariglia, Liu, and Song (2011). My study is different than previous studies in many aspects. I emphasize the study on only the listed companies with government ownership while the previous studies use both listed and non-listed companies. The difference here is the influence of government ownership on the listed and non-listed companies. In my opinion, listed companies with government ownership

usually are clearer and have improved corporate governance mechanisms than the non-listed. Also, listed companies with government ownership are more open to market scrutiny thus they are more reactive to the market environment than non-listed companies with government ownership. Moreover, the previous studies use only one measure of the financial constraints on the investments, which is the investment cash flow sensitivity. Since there is no optimal measure of the financial constraints, the previous studies need for the robustness check. In this paper, I use two measures of the financial constraints on the investments, the investment cash flow sensitivity and the developed Kaplan and Zengales index of the financial constraints to study the influence of the government ownership and level of the financial constraints. Also, I control for the effect of the Seasoned Equity Offerings of companies. Finally, this is the first paper to study the influence of government ownership on the level of financial constraints among Saudi companies. Since the financial position of the Saudi government is strong, it is likely that government ownership has a positive influence on the level of financial constraints of companies comparing to the companies without government ownership. Also, It is expected this positive influence increases by the increase of government ownership. This study addresses several questions that are related to government ownership and financial constraints.

Using data of the nonfinancial Saudi listed firms. I follow Lin and Bo (2012) and I use two measures to measures the level of financial constraints. First, I use a standard investment equation, which is a pool of two models, accelerator type

investment and investment Tobin's Q. Second, I use the developed Kaplan and Zingales financial constraints index by Lamont, Polk, and Saa-Requejo (2001). The findings support the two hypotheses, the related government firms suffer less financial constraint than the fully privatized firms and the more government ownership percent the less level of financial constraint in the Saudi stock market. The results indicate that Saudi's privatization plan is going to make an influence in the terms of the soft budget constraints that the government-linked companies are characterized by.

This finding of the relationship between government ownership and financial constraints in companies can be explained as either way, it can be evidence for the opinion of that government ownership creates value to government-linked companies since it supports the companies by decreasing their financial constraints, or it can be evidence for the government involvement continues to bring in soft budget constraints to government-linked companies

This study adds to the literature of the state ownership in a different aspect, where the state ownership affects positively companies' values. Also, the study contributes to the literature of financial constraints, and financial markets. Also, it helps to give an explanation of the influence of government ownership on the firms' values with financial constraints.

The rest of the paper is organized as follow. Section 2 provides a literature review. The hypotheses of the study are presented in section 3. The data and the

methodology are in section 4 and 5, respectively. Section 6 describes the results of the investment-cash flow sensitivity measure. Section 7 shows the KZ index and the result. Finally, section 8 completes the study.

2. Literature Review

The effects of government ownership have been discussed as a related factor to the efficiency. Some scholars argue that government ownership affects efficiency negatively. Ramamurti (1987) argues that government-linked companies (GLCs) goal is other than a wealth-maximizing goal. Krueger (1990) believes that there as a lot of pressure on GLCs to employ politically related people while there are better professional people who can be hired. Also, Boycko, Shleifer and Vishny (1996) say that the government may force GLCs to hire excess employs. Another reason for the low-efficiency performance in GLCs can be related to the bureaucratic in management (Chang and Singh 1997). Moreover, there are no sufficient motivations for managers to follow efficiency and profitability. However, Jones (1991) argues that privatization delivers management of government-linked companies to clear goals about what government policies need. Conversely, Christensen (1998) finds that government-owned organizations in some states have low-efficiency performance even after reorganizations are announced. Micco and Panizza (2007) study the connection between ownership in banks and performance among data of commercial banks in 179 states. They find government-owned banks operating have poorer income and greater expenses than the non-government-owned banks.

As some scholars find a negative effect of government ownership. Some scholars support the firm out-performance with government ownership. Dewenter and Malatesta (1997) contend that governments can monitor the GLCs chiefs better than isolated stakeholders in non-GLCs. Chang and Singh (1997) argue that GLCs do not always have lower efficiency than private companies.

Some scholars attempt to investigate the concept of ownership structure effects. McGuiness and Ferguson (2005) measure two kinds of ownership structure amongst Chinese listed corporations. They examine the influences of government and foreign ownership on the performance of companies in China. They find that there is a negative connection between free-float size and company performance. Additionally, they find that foreign ownership state is not correlated with company performance.

Some scholars claim that government ownership signifies a significant indication to the market because it provides firm credibility and guarantees financiers and markets, and suppliers because of the government ability to protect dealings with them. Bourdman and Vining (1989) study ownership depends on three groups of ownership: state-owned, non-state-owned, and mixed owned. They find that fractional privatization is a better plan for a government that does not want the state ownership form. Ang and Ding (2006) compare the GLCs and the fully privatized companies in term of financial and market performance in Singapore. The finding shows that corporate governance and the valuations in GLCs are better and higher. Omran (2004) shows that there is no development

difference in performance in Egyptian non-state-owned companies and state-linked corporations. Kole and Mulherin (1997) study the case in the United States and Bozec (2003) in Canada find Similar results for different reasons.

The financial status of firms with the presence of financial constraints has been investigated in many studies. Fazzari, Hubbard, and Petersen (1988) study the company investment choices in case of financial constraints. They classify companies based on the cash holdings using Value Line data of 422 U.S. companies for the period of 1970 to 1984 to analysis variances of investment behavior. They say that companies with better cash holding ratios have higher informational asymmetry difficulties and are expected to be cash constrained. The companies' investments that use internal cash are more affected to variations of cash flow that companies' investments with great dividend firms. Following studies find similar results. Hoshi, Kashyap and scharfstein (1991) conclude to that the expenditures of investment in Japanese companies that are not keiretsu partners, financial business conglomerates, are more affected to the liquidity than the corporations that are keiretsu partners so they are supposed to have fewer financially constrained. Oliner and Rudebusch (1992) find that companies stocks that are traded over-the-counter, their investment is more affected to cash flow and that have insider-trading behavior according to internal information. Similar results are found by Schaller (1993) in Canadian companies. Whited (1992) and Bond and Meghir (1994) use the Euler equation method to examine the first-order condition of an intertemporal maximization. The approach is applied by using an exogenous

constraint on external finance and examining if the constraint is required for a specific group of corporations. They conclude to the external finance constraint to be required for the constrained groups of companies.

Kaplan and Zingales (1997) have a different conclusion. They classify companies based on the level of financial constraint. A corporation is categorized as financially constrained if the price of external finance eliminates the corporation from entering investments. Opposing to previous studies, the finding shows that the smallest financially constrained corporations to have the highest cash flow influence of investment. Kaplan and Zingales (1997) claim that high sensitivity cannot be indicated as evidence of financial constraints.

Almeida, Campello, and Weisbach (2004) use an alternate method to determent whether costly external finance influences financial policies. Instead of concentrating on the sensitivity of investment to cash flow, they concentrate on the cash flow sensitivity of cash. Financially constrained companies should have a logical tendency to save cash, whereas unconstrained companies should not exhibit this tendency. Using numerous ways for classifying companies into financially constrained and unconstrained, the authors conclude that the cash flow sensitivity of cash is positive for financially constrained companies and it is statistically insignificant for financially unconstrained companies.

Almeida and Campello (2007) analyses the variance influence of asset tangibility on the investment to cash flow sensitivity within different cases of

financial constraints. They apply this method to a large sample of manufacturing companies covering the period between 1985 and 2000. They find that tangibility of asset can determine whether a company suffers from credit constraints - companies with higher tangible assets can enjoy better access to external financial resources. The credit multiplier has a significant influence on investment when companies suffer from credit constraints, the sensitivities of investment-cash flow are rising in the level of the tangibility of constrained companies' assets. However, the sensitivities of investment-cash flow are not affected by asset tangibility if the companies are unconstrained. Their finding supports their hypothesis of the asset tangibility role in corporate investment under financial constraints.

Nevertheless, the literature analyses the determinants of cash holdings. Opler et al. (1999) show that cash holdings are negatively correlated to the degree and the availability of a bond rating. That is, corporations with a bond rating under the investment grade and those that have no bond rating available hold more cash than corporations that have an investment-grade bond rating. Kim, Mauer, and Sherman (1998) and Harford (1999) report similar finding, cash holdings are positively related to the volatility of industry cash flow. Also, the findings support the results of Opler et al. (1999), financially constrained corporations hold more cash than unconstrained corporations.

The influence of state ownership on the level of financial constraints has been discussed in some studies. Poncet, Steingress, and Vandenbussche (2010)

investigate the presence of credit constraints in Chinese firms for the period of 1998-2005. They organize the enterprises into three different enterprises classifications based on the shareholder's types, private enterprises, SOEs, and foreign-invested enterprises. They use cash flow as a proxy for internal finance and they estimate every group separately. The study finds that the cash flow coefficients are insignificant for the group of SOEs and foreign-invested enterprises while in the group of private enterprises, the cash flow coefficient is positive and significant. The authors conclude that SOEs and foreign-invested enterprises do not face financial constraints while private enterprises do. Guariglia, Liu, and Song (2011) use a dynamic assets growth model for the same enterprise's classifications obtain by Poncet, Steingress, and Vandenbussche (2010) for the period of 2000-2007. Guariglia, Liu, and Song (2011) use a dynamic assets growth model and cash flow as a proxy for internal finance. The finding is similar to the results of Poncet, Steingress, and Vandenbussche (2010), SOEs do not face financial constraints.

There are few studies have analyzed the issue of the investment behavior of privatized former SOEs in transition economies. Lizal and Svejnar (2002) discover that SOEs and former SOEs were less profitable and enjoyed more bank credits in industrial companies in the Czech Republic. The findings show that during the transition period SOEs and former SOEs invested at a greater rate than more profitable other companies and operated under the soft budget constraint.

Firth, Lin, and Wong (2008) study the influence of state ownership on the monitoring and disciplinary influence of leverage on investment of Chinese companies. The results show that the companies with a greater state ownership ratio have a less negative correlation between leverage and investment, indicating a less monitoring role of debt in the company with greater state ownership ratio.

Finally, these studies conclude that companies with high state ownership ratio in transition economies still have some level of the soft budget constraint. Nevertheless, as I discussed in section one, there are some issues with the previous studies. First, I emphasize the study on only the listed companies with government ownership while the previous studies use both listed and non-listed companies. The difference here is the influence of government ownership on the listed and non-listed companies. In my opinion, listed companies with government ownership usually are clearer and have improved corporate governance mechanisms than the non-listed. Also, listed companies with government ownership are more open to market scrutiny thus they are more reactive to the market environment than non-listed companies with government ownership. Second, the previous studies use only one measure of the financial constraints on the investments, which is the investment cash flow sensitivity. Since there is no optimal measure of the financial constraints, the previous studies need for the robustness check. In this paper, I use two measures of the financial constraints on the investments, the investment cash flow sensitivity and the developed Kaplan and Zengales index of the financial constraints to study the influence of the government ownership and level of the

financial constraints. Third, I control for the effect of the Seasoned Equity Offerings of companies.

3. Hypotheses

The fact that Saudi government financial position is strong and the government manages the economic development by owning partially major companies arises a question about how the government affects the financial positions in the corporations listed in the Saudi stock market. Especially, when considering the Saudi 2030 vision that aims to fully or partially privatize more state-owned assets, which is going to affect the government-linked firms' performance in the future.

The government-related companies in Saudi Arabia manage to perform better than private companies with regard to income and operating efficiently Eljelly (2009). Cleary (1999) finds that investments are related to direct financial status. Taking into account these two studies, I hypotheses that government-related firms have less financial constraints compared to private firms in Saudi Arabia.

H_1: Government-related firms have less financial constraints

Gunasekarage and et al. (2007) find that state ownership has influenced on firms performance at a high level of state ownership. Since I expect a positive influenced of the state ownership, I hypotheses that the level of financial constraints decreases as government ownership increases.

H_2: The level of financial constraints decreases as government ownership increases

4. Data

The data I use in the study is quarterly and it covers nonfinancial companies listed on the Saudi stock market for the period of 2010 to 2017. The accounting data comes from global Campustat. Data of government ownership is hand collected. Saudi government ownership can be in three forms, the public investments funds (PIF), the general organization for social insurance and the public pension agency. The total number of firms included in the study is 86 firms. The government owns partially in 31 firms. Table 1 presents summary statistics for the full sample.

The mean average of the investment to total assets is 0.02. The mean average of Tobin's-Q is 1.48. The mean average of cash flow to total assets is 0.03. The average of government ownership percentage is 0.07. The size average is 21.72. The mean average of the sales growth is 0.02. The majority of the sample did not use equity financing over the sample term. Finally, the average total debt to total assets is 0.29.

Table 2 shows summary statistics for the linked government firms. Table 3 shows summary statistics for the fully privatized firms. The mean average of the investment to total assets is about 0.02 for both subsamples. The average of Tobin's-Q is a little better for the fully privatized firms' sample. The ability to make internal funds is slightly higher in the linked government firms. The average mean

of government ownership is about %20 in linked government firms. The mean average of the sales growth is little higher in linked government firms (0.03) while for the privatized firms is only 0.02. Finally, the average of total debt to total assets is 0.31 for the linked government firms and 0.29 for the fully privatized firms.

5. Methodology

To analysis the influence of the Saudi government on the degree of financing constraints in companies, I follow Lin and Bo (2012) and I use a standard investment equation, which is a pool of two models, accelerator type investment and investment Tobin's Q. Because the Saudi stock market is not very well developed, I use sales growth rate and Tobin's Q together to take into account investment fundamentals to avoid any problems can be caused by market-based variables. The standard investment equation is:

$$\left[\frac{I}{K}\right]_{i,t} = \beta_1 \left[\frac{I}{K}\right]_{i,t-1} + \beta_2 Sales_{i,t-1} + \beta_3 Q_{i,t-1} + \beta_4 \left[\frac{CF}{K}\right]_{i,t-1} + \beta_5 \left[\frac{D}{K}\right]_{i,t-1} + \beta_6 State_{i,t-1} + \beta_7 Size_{i,t-1} + \beta_8 SEO_{i,t-1} + e_{i,t} \ldots(1)$$

I, is the investment and it is the difference between the fixed assets for the present year and the fixed assets for the prior year adding depreciation. K is the whole assets as a measure for the capital stock. Sale is the yearly growth ratio of sales. Q is Tobin's Q, indicating the firms' investment chances and it is estimated as

Table 1

The table shows summary statistics for quarterly data of nonfinancial companies listed in the Saudi stock market covering the term of 2010 – 2017. Note that (I/K) is the fraction of investment to whole assets. Q is Tobin's Q, (CF/K) is the fraction of cash flow to whole assets. State is the percentage of shares held by the government, Size is the natural logarithm of whole assets, Sales is the yearly growth rate of sales, Leverage is a fraction of whole debt to whole assets and SEO is the seasoned equity offering dummy and it equals 1 if seasoned equity offering exists.

Variable	Mean	Standard Deviation	Minimum	Maximum
(I/K)	0.018	0.078	-2.344	0.707
Q	1.484	0.650	0.792	2.799
(CF/K)	0.026	0.019	0.001	0.059
State	0.067	0.112	0.000	0.325
Size	21.737	1.131	20.185	23.676
Sales	0.024	0.193	-0.284	0.371
SEO	0.256	0.436	0.000	1.000
Leverage	0.293	0.156	0.061	0.533

Table 2

The table shows summary statistics for quarterly data of nonfinancial government-linked companies listed in the Saudi stock market covering the term of 2010 – 2017. Note that (I/K) is the fraction of investment to whole assets. Q is Tobin's Q, (CF/K) is the fraction of cash flow to whole assets. State is the percentage of shares held by the government, Size is the natural logarithm of whole assets, Sales is the yearly growth rate of sales, Leverage is a fraction of whole debt to whole assets and SEO is the seasoned equity offering dummy and it equals 1 if seasoned equity offering exists.

Variable	Mean	Standard Deviation	Minimum	Maximum
(I/K)	0.021	0.060	-0.863	0.542
Q	1.456	0.612	0.792	2.799
(CF/K)	0.032	0.018	0.001	0.059
State	0.195	0.107	0.050	0.325
Size	22.505	0.932	20.185	23.676
Sales	0.029	0.177	-0.284	0.371
SEO	0.236	0.425	0.000	1.000
Leverage	0.301	0.154	0.061	0.533

Table 3

The table shows summary statistics for quarterly data of nonfinancial fully privatized companies listed in the Saudi stock market covering the term of 2010 – 2017. Note that (I/K) is the fraction of investment to whole assets. Q is Tobin's Q, (CF/K) is the fraction of cash flow to whole assets. State is the percentage of shares held by the government, Size is the natural logarithm of whole assets, Sales is the yearly growth rate of sales, Leverage is a fraction of whole debt to whole assets and SEO is the seasoned equity offering dummy and it equals 1 if seasoned equity offering exists.

Variable	Mean	Standard Deviation	Minimum	Maximum
(I/K)	0.017	0.085	-2.344	0.707
Q	1.502	0.672	0.792	2.799
(CF/K)	0.023	0.018	0.001	0.059
State	0.000	0.000	0.000	0.000
Size	21.324	1.006	20.185	23.676
Sales	0.022	0.199	-0.284	0.371
SEO	0.266	0.442	0.000	1.000
Leverage	0.289	0.156	0.061	0.533

the total of the value of the year-end market, the book value of total debts, divided by the year-end whole assets. Cash flow is the net income adding depreciation. The coefficient for CF/K indicates the sensitivity of investment cash flow, which is generally employed in the literature as an indicator of financial constraints. D/K is the ratio of whole debt to whole assets. State is the percentage of shares held by the government. Size is calculated by the natural logarithm of the firm's whole assets.

To measure the influence of government ownership of the level of financial constraint, I use a method that is similar to the method developed by Firth, Lin, and Wong (2008). I include an interactive term of cash flow and the government ownership to measure the influence of government ownership on the investment cash flow effects. The interactive term is the product of the cash flow scaled by whole assets and a dummy variable D-State that equals one if the biggest owner of the company is the government. Also, I replace the dummy variable by the percentage of government shares State.

$$\left[\frac{I}{K}\right]_{i,\mathrm{t}} = \beta_1 \left[\frac{I}{K}\right]_{i,\mathrm{t}-1} + \beta_2\, Sales_{i,t-1} + \beta_3 Q_{i,t-1} + \beta_4 \left[\frac{CF}{K}\right]_{i,\mathrm{t}-1} + \beta_5 \left[\left[\frac{CF}{K}\right]_{i,\mathrm{t}-1} \times DState_{i,t-1}\right] +$$

$$\beta_6 \left[\frac{D}{K}\right]_{i,\mathrm{t}-1} + \beta_7\, State_{i,t-1} + \beta_8\, Size_{i,t-1} + \beta_9\, SEO_{i,t-1} + e_{i,t} \ldots(2)$$

As checking for the robustness, I change the dummy variable in the interactive term with the government ownership percentage. The new interactive term is to analysis the influence of the amount of the percentage of stocks holds by the government on the level of financial constraints on investment.

$$\left[\frac{I}{K}\right]_{i,t} = \beta_1 \left[\frac{I}{K}\right]_{i,t-1} + \beta_2 \, Sales_{i,t-1} + \beta_3 Q_{i,t-1} + \beta_4 \left[\frac{CF}{K}\right]_{i,t-1} + \beta_5 \left[\left[\frac{CF}{K}\right]_{i,t-1} \times State_{i,t-1}\right] +$$

$$\beta_6 \left[\frac{D}{K}\right]_{i,t-1} + \beta_7 \, State_{i,t-1} + \beta_8 \, Size_{i,t-1} + \beta_9 \, SEO_{i,t-1} + e_{i,t} \ldots(3)$$

6. Main variables and interactive terms

The first measure is a combine of two models, which are accelerator type investment and investment Tobin's Q. Since the Saudi stock market is not very well developed. I take into account investment fundamentals and I use sales growth rate and Tobin's Q together to avoid any problems can be affected by market-based variables. Table 4 summaries the main variables used in the first measure. The dependent variable is investment scaled by total assets, investment is calculated as the difference between the fixed assets for the present year and the fixed assets for the prior year plus depreciation. Total assets are calculated as the total assets. The first independent variable is the lagged term of dependent variable to consider the dynamic nature of investment. Second independent variable is sales. It is calculated as the yearly growth ratio of sales and it is used to take into account the accelerator influence. Third independent variable is Tobin's Q. It indicates the firms' investment chances and it is estimated as the total of the value of the year-end market, the book value of total debts, divided by the year-end whole assets. Fourth independent variable is the cash flow to total assets. Cash flow is the sum of net income and depreciation. The coefficient of the cash flow to total assets indicates the sensitivity of investment cash flow, which is generally employed in the literature as an indicator of financial constraints. Fifth independent variable is the fraction of

total debt to total assets and is used to control the influence of the debt on the investment. Sixth independent variable is state. It is calculated as the percentage of shares held by the government. Next independent variable is size and it is generated by the natural logarithm of the firm's whole assets. Last independent variable is the seasonal equity offering. It is a dummy variable that takes the value of one if a firm has SEO in a single period, and zero otherwise. It is used to capture the effect of the SEO on investment.

To test the two hypotheses, I use a method that is similar to the method developed by Firth, Lin, and Wong (2008). I add two interactive terms of cash flow and the government ownership to measure the influence of government ownership on the investment cash flow effects. The first interactive term is the product of the cash flow scaled by total assets and a dummy variable, D-State, that takes the value of one if the biggest owner of the company is the government, and zero otherwise. This interactive term should tell us the type of the state influence on the level of financial constraints in firms. The second interactive term is the product of the cash flow scaled by total assets and the variable of State (measured as the percentage of shares held by the government). This interactive term measures the influence of the state ownership on financial constraint at different level of the ownership. Table 5 summaries the two interactive terms used in the first measure.

7. The results of the investment-cash flow sensitivity measure

Since the level of corporation's investment is influenced by its cash flow and profitability, also the level of investment might affect the firm's cash flow and

profitability, the problem of endogeneity is probably to happen in the equation. I employ the estimator of the Generalized Method of Moments developed by Arellano and Bond (1991) to get the results of the three models.

Before I look at the results, I check the fitness of the model. The GMM estimator requires no autocorrelation in the idiosyncratic errors. The results of Arellano-Bond tests for serial correlation in the first-differenced errors at first order and second order are presented in Table 6 as m1 and m2. The p values for m1 test in all estimations are zero so I reject the null hypothesis of no serial correlation in the first-differenced errors at order one. The p values for m2 test in all estimations are greater than 0.05 so I cannot reject the null hypothesis of no second-order autocorrelation. Therefore, The result of autocorrelation indicates that there is no model misspecification problem for the estimations. Another important thing is to check the validity of instruments used in the estimation by using Sargan test of overidentifying restrictions. The result of the test presented in Table 6 and it indicates that the null hypothesis of valid overidentifying restrictions cannot be rejected. The results of the two tests imply that the models are correctly specified and the instruments employed are valid.

The findings are given in Table 7. The estimated coefficients of the lagged investment to whole assets are negative and significant for the first, second and third models. The estimated coefficients of the sales growth are insignificant in the three models. Tobin's Q estimated coefficients in the three models are positive and significant and this is stable with the Q-model of investment. The most important

Table 4

The table describes the main variables in the study that are used in the first measure, the cash flow sensitivity measure.

Main Variables	Description
Investment to Total Assets	Investment is calculated as the difference between the fixed assets for the present year and the fixed assets for the prior year plus depreciation. Total assets are calculated as the total assets.
Sales	Sales variable is calculated as the yearly growth ratio of sales.
Tobin's Q	Tobin's Q is calculated as the total of the value of the year-end market, the book value of total debts, divided by the year-end whole assets.
Cash flow to Total Assets	Cash flow is calculated as the net income plus depreciation. Total assets are calculated as the total assets.
Total Debt to Total Assets	Total debt is calculated as the sum of long-term debt plus short-term dept. Total assets are calculated as the total assets.
State	State is the percentage of shares held by the government.
Size	Size is calculated by the natural logarithm of the firm's total assets.
SEO	Seasonal equity offering is a dummy variable that takes the value of one if a firm has SEO in a single period, and zero otherwise.

Table 5

The table describes the interactive terms in the study that are used in the first measure, the cash flow sensitivity measure.

Interactive Terms	Description
First Interactive Term	It is calculated as the product of the cash flow (scaled by total assets) and a dummy variable D-State that equals one if the biggest owner of the company is the government, and zero otherwise.
Second Interactive Term	It is calculated as the product of the cash flow (scaled by total assets) and the variable of State (measured as the percentage of shares held by the government).

estimated coefficient in the first model is one of the cash flow to whole assets. It is positive and significant which indicates the existent of the financial constraint in the sample. The estimated coefficients of the leverage variable for the three models are insignificant. The government ownership estimated coefficient in the first model is insignificant however, the two coefficients of models two and three are positive and significant which, indicates the important role in the investments. The estimated coefficients of the natural logarithm of the size are significant and negative in the first and third models while it is insignificant in the second model. The estimated coefficients of the seasonal equity offering are insignificant in all three models. The most important is the estimated coefficients of the interactive terms of model two and three. In model two, the estimated coefficient of the interactive term is negative and significant, which confirms the first hypothesis that the existent of government ownership decreases the level of financial constraint. The estimated coefficient of the interactive term in model three is negative and significant which confirms the second hypothesis that the greater government ownership the less level of financial constraint in firms.

The results indicate that Saudi's privatization plan is going to make an influence in the terms of the soft budget constraints that the government-linked companies are characterized by. This finding of the relationship between government ownership and financial constraints in companies can be explained as either way, it can be evidence for the opinion of that government ownership creates

value to government-linked companies since it supports the companies by decreasing their financial constraints, or it can be evidence for the government involvement continues to bring in soft budget constraints to government-linked companies.

8. The results of the developed KZ model

The second measure is the developed Kaplan and Zingales index of financial constraints by Lamont, Polk, and Saa-Requejo (2001). Kaplan and Zingales (1997) challenged that companies facing greater investment-cash flow sensitivity cannot be an indicator of being greater financially constrained. They test various accounting variables and conclude that there are five important accounting variables that have an influence on the level of the financial constraints in companies. The five variables are cash flow, Tobin's Q, debt, dividends and cash holdings. Lamont, Polk, and Saa-Requejo (2001) make an indicator to proxy the degree of financial constraints for companies by employing the estimated coefficients of the five variables to their own sample. The construction of the KZ index is:

$$KZ_{it} = -\ 1.002\left[\frac{CF_{it}}{K_{i,t-1}}\right] + 0.283\,[Q_{it}] + 3.139[Debt_{it}] - 39.368\left[\frac{Div_{it}}{K_{i,t-1}}\right] - 1.315\left[\frac{Cash_{it}}{K_{i,t-1}}\right]$$

$KZ_{i,t}$ is the Kaplan and Zingales index for each individual firm at time t, the high the KZ index indicates high financial constraints in the corporation. CF is the cash flow, K is the whole assets, Q is Tobin's Q, Debt is the ratio of whole debt to whole assets, and Cash is the liquidity. I generate the KZ index for my sample. I

Table 6

The table reports the result of the autocorrelation test and Sargan test to see statistical fitness of the three equations of the first model.

Tests	(1)	(2)	(3)
m1	-3.6819	-3.6983	-3.6814
	[0.00]	[0.00]	[0.00]
m2	1.0136	1.0157	1.0095
	[0.31]	[0.30]	[0.31]
Sargan Test	17.2	34.32	29.97
	[0.71]	[0.41]	[0.34]

Table 7

The table shows the results of models 1-3 using GMM estimator. The dependent variable is the fraction of investment to whole assets. The p-value presented in the parentheses.

	(1)	(2)	(3)
[I/K]	-0.0605	-0.0598	-0.0612
	[0.00]	[0.00]	[0.00]
Sales	-0.0006	-0.001	-0.0005
	[0.88]	[0.81]	[0.91]
Q	0.0099	0.0074	0.0093
	[0.00]	[0.00]	[0.00]
(CF/K)	0.1284	0.2257	0.1812
	[0.02]	[0.00]	[0.00]
(D/K)	0.0028	-0.0042	0.0015
	[0.63]	[0.47]	[0.79]
(CF/K)*Dstate		-0.4816	
		[0.00]	
(CF/K)*State			-1.8525
			[0.00]
State	0.0043	0.0065	0.0213
	[0.36]	[0.07]	[0.00]
Size	-0.0016	0.0004	-0.0009
	[0.06]	[0.63]	[0.32]
SEO	-0.0015	-0.0017	-0.0018
	[0.60]	[0.55]	[0.55]
Number of observations	1631	1631	1631
Number of firms	85	85	85

generate the KZ index for each corporation -quarter observation. The mean value of the KZ index for the whole sample is 0.15. The standard deviation is 2.42.

To check if there is any relationship among the KZ index and the government ownership, I use fixed effect estimator and I regress the KZ index on government ownership. Additionally, I add size as a control variable because it is not included in the structure of the index.

$$KZ_{it} = \beta_1 + \beta_2 State_{it} + \beta_3 Size_{it} + e_{it}$$

State is government ownership. First, I use it as a dummy that takes the value of one when the government ownership exists and then I use it as a percentage. Size is calculated by the natural logarithm of the firm's whole assets.

The findings are given in Table 8. The estimated coefficient of the dummy state is significant and negative which indicates that the existent of government ownership decreases financial constraint in firms. This finding is constant with the results of the first measure and confirms the first hypothesis. The estimated coefficient of the state as a ratio of the government ownership is significant and negative which indicates that the higher government ownership percentage the less financial constraint in firms. This finding is constant with the findings of the first measure and confirms the second hypothesis. The size estimated coefficients are both significant and positive suggesting the greater size the higher financial constraint. The results show evidence that the listed companies with government ownership face a lower level of financial constraints. The results indicate that

Saudi's privatization plan (2030 vision) is going to make an influence in the terms of the soft budget constraints that the government-linked companies are characterized by.

9. Conclusion

The government-linked firms are known as inefficient firms and they could perform better if they were under private ownership. Many studies report the low performance of state-owned firms comparing with fully private firms (Dewenter and Malatesta, 2001, Alfaraih, Alanezi, Almujamed 2012, and Boubakri, Guedhami, Kwok and Saffar 2016). However, government ownership may signify to the market because it affords firm credibility and assures investors, markets, and suppliers since the government is willing to protect deals with these sides. Eljelly (2009) finds that government-related companies in Saudi Arabia manage to generally perform better than private companies with regard to income and operating efficiently. The reason for this better performance is that the Saudi government manages economic development. Financial constraints have a negative effect on companies. Campello, Graham, and Harvey (2010) conclude to that throughout the credit crisis in 2008, many firms avoid attractive projects opportunities due to the inability to externally borrow. Cleary (1999) argues that firm investment decisions are directly related to financial factors.

In this study, I add to the literature by examining the influence of government ownership on the level of financial constraints of firms in the case

where the government may have a positive effect. The aim of this research is to examine the differences of influences of financial constraint among the Saudi listed government-related firms and the Saudi listed private firms. Many studies have discussed the influence of the state ownership on the level of financial constraints in the Chinese firms such as Poncet, Steingress, and Vandenbussche (2010) and Guariglia, Liu, and Song (2011). My study is different than previous studies in many aspects. I emphasize the study on only the listed companies with government ownership while the previous studies use both listed and non-listed companies. In my opinion, listed companies with government ownership usually are clearer and have improved corporate governance mechanisms than the non-listed. Moreover, the previous studies use only one measure of the financial constraints on the investments, which is the investment cash flow sensitivity. Since there is no optimal measure of the financial constraints, I use two measures of the financial constraints on the investments to study the influence of the government ownership and level of the financial constraints. Also, I control for the effect of the Seasoned Equity Offerings of companies. Finally, this is the first paper to study the influence of government ownership on the level of financial constraints among Saudi companies.

The data used in the study is quarterly and it covers nonfinancial companies listed on the Saudi stock market for the period of 2010 to 2017. The total number of companies included in the study is 86 companies. The government owns partially in 31 companies. I use two measures to measure the level of financial constraints.

First, I use two standard investment equations, which is a pool of two models, accelerator type investment and investment Tobin's Q. Second, I use the developed Kaplan and Zingales's financial constraints index by Lamont, Polk, and Saa-Requejo (2001). The findings support the two hypotheses, the related government firms suffer less financial constraint than the fully privatized firms and the more government ownership percent the less level of financial constraint in the Saudi stock market. This positive influence can be caused by the willingness of the Saudi government to support a company's equity by increasing its capital.

This finding of the relationship between government ownership and financial constraints in companies can be explained as either way, it can be evidence for the opinion of that government ownership creates value to government-linked companies since it supports the companies by decreasing their financial constraints, or it can be evidence for the government involvement continues to bring in soft budget constraints to government-linked companies

I show evidence that the listed companies with government ownership face a lower level of financial constraints. The finding is important because it provides evidence that having a higher ratio of government ownership decreases the level to which the company is financially constrained. The results indicate that Saudi's privatization plan is going to make an influence in the terms of the soft budget constraints that the government-linked companies are characterized by. This study adds to the literature of the state ownership in a different aspect, where the state ownership affects positively companies' values. Also, the study contributes to the

literature of financial constraints, and financial markets. Also, it helps to give an explanation of the influence of government ownership on the firms' values with financial constraints.

Table 8

The table shows the results of the developed KZ model using fixed effect estimator. The dependent variable is the KZ index. The p-value presented in the parentheses.

	(1)	(2)
State Dummy	-0.8252 [0.025]	
State Shares Ratio		-8.8316 [0.002]
Size	0.9143 [0.000]	0.8854 [0.000]
Constant	-7.1653 [0.001]	-6.4453 [0.002]
Observations	1787	1787
Firms	91	91
R^2	0.0197	0.0325

References

Alfaraih, M., Alanezi, F. and Almujamed, H., 2012. The influence of institutional and government ownership on firm performance: evidence from Kuwait. International Business Research, 5(10), p.192.

Allayannis, G. and Mozumdar, A., 2004. The impact of negative cash flow and influential observations on investment–cash flow sensitivity estimates. *Journal of Banking & Finance*, *28*(5), pp.901-930.

Almeida, H., Campello, M. and Weisbach, M.S., 2004. The cash flow sensitivity of cash. The Journal of Finance, 59(4), pp.1777-1804.

Almeida, H. and Campello, M., 2007. Financial constraints, asset tangibility, and corporate investment. *The Review of Financial Studies*, *20*(5), pp.1429-1460.

Ang, J.S. and Ding, D.K., 2006. Government ownership and the performance of government-linked companies: The case of Singapore. Journal of Multinational Financial Management, 16(1), pp.64-88.

Arellano, M. and Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), pp.277-297.

Boardman, A.E. and Vining, A.R., 1989. Ownership and performance in competitive environments: A comparison of the performance of private, mixed, and state-owned enterprises. the Journal of Law and Economics, 32(1), pp.1-33.

Bond, S. and Meghir, C., 1994. Financial constraints and company investment. Fiscal Studies, 15(2), pp.1-18.

Boubakri, N., Guedhami, O., Kwok, C.C. and Saffar, W., 2016. National culture and privatization: The relationship between collectivism and residual state ownership. Journal of International business studies, 47(2), pp.170-190.

Boycko, M., Shleifer, A. and Vishny, R.W., 1996. A theory of privatisation. The Economic Journal, pp.309-319.

Bozec, R. and Breton, G., 2003. The impact of the corporatization process on the financial performance of Canadian state-owned enterprises. International Journal of Public Sector Management, 16(1), pp.27-47.

Campello, M., Graham, J.R. and Harvey, C.R., 2010. The real effects of financial constraints: Evidence from a financial crisis. Journal of financial Economics, 97(3), pp.470-487.

Chang, H.J. and Singh, A., 1997. Policy Arena: Can Large Firms be Run Efficiently Without being Bureaucratic?. Journal of International Development, 9(6), pp.865-875.

Chirinko, R. and von Kalckreuth, U., 2003. *Further evidence on the relationship between firm investment and financial status* (No. 0302). Department of Economics, Emory University (Atlanta).

Christensen, P.F., 1998. Performance and divestment of state-owned enterprises in Ghana. Public Administration & Development (1986-1998), 18(3), p.281.

Cleary, S., 1999. The relationship between firm investment and financial status. The Journal of Finance, 54(2), pp.673-692.

Devereux, M. and Schiantarelli, F., 1990. Investment, financial factors, and cash flow: Evidence from UK panel data. In *Asymmetric information, corporate finance, and investment* (pp. 279-306). University of Chicago Press.

Dewenter, K.L. and Malatesta, P.H., 1997. Public offerings of state-owned and privately-owned enterprises: an international comparison. The Journal of Finance, 52(4), pp.1659-1679.

Dewenter, K.L. and Malatesta, P.H., 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. The American Economic Review, 91(1), pp.320-334.

Eljelly, A.M. and Authority, C.M., 2009. Ownership and firm performance: the experience of Saudi Arabia's emerging economy. International Business & Economics Research Journal, 8(8), pp.25-34.

Erel, I., Jang, Y. and Weisbach, M.S., 2015. Do acquisitions relieve target firms' financial constraints?. The Journal of Finance, 70(1), pp.289-328.

Fazzari, S.M., Hubbard, R.G., Petersen, B.C., Blinder, A.S. and Poterba, J.M., 1988. Financing constraints and corporate investment. Brookings papers on economic activity, 1988(1), pp.141-206.

Firth, M., Lin, C. and Wong, S.M., 2008. Leverage and investment under a state-owned bank lending environment: Evidence from China. *Journal of Corporate Finance*, *14*(5), pp.642-653.

Guariglia, A., Liu, X. and Song, L., 2011. Internal finance and growth: microeconometric evidence on Chinese firms. *Journal of Development Economics*, *96*(1), pp.79-94.

Gunasekarage, A., Hess, K. and Hu, A.J., 2007. The influence of the degree of state

ownership and the ownership concentration on the performance of listed Chinese companies. *Research in international business and finance*, *21*(3), pp.379-395.

Harford, J., 1999. Corporate cash reserves and acquisitions. *The Journal of Finance*, *54*(6), pp.1969-1997.

Hoshi, T., Kashyap, A. and Scharfstein, D., 1991. Corporate structure, liquidity, and investment: Evidence from Japanese industrial groups. The Quarterly Journal of Economics, 106(1), pp.33-60.

Jones, S., 1991. The road to privatization. Finance and Development, 28(1), p.39.

Kaplan, S.N. and Zingales, L., 1997. Do investment-cash flow sensitivities provide useful measures of financing constraints?. The quarterly journal of economics, 112(1), pp.169-215.

Keynes, J.M., 1936. The general theory of employment, investment, and money. London and New York, quoted from: https://sites. google. com/site/biblioeconomicus/KeynesJohnMaynard-TheGeneralTheoryOf EmploymentInterestAndMoney. pdf [Accessed 07 Jan 2014].

Kim, C.S., Mauer, D.C. and Sherman, A.E., 1998. The determinants of corporate liquidity: Theory and evidence. *Journal of financial and quantitative analysis*, *33*(3), pp.335-359

Kole, S.R. and Mulherin, J.H., 1997. The government as a shareholder: A case from the United States. The Journal of Law and Economics, 40(1), pp.1-22.

Krueger, A.O., 1990. Government failures in development (No. w3340). National Bureau of Economic Research.

Lamont, O., Polk, C. and Saaá-Requejo, J., 2001. Financial constraints and stock returns. *The review of financial studies*, *14*(2), pp.529-554.

Lin, H.C.M. and Bo, H., 2012. State-ownership and financial constraints on investment of Chinese-listed firms: New evidence. *The European Journal of Finance*, *18*(6), pp.497-513.

McGuinness*, P.B. and Ferguson, M.J., 2005. The ownership structure of listed Chinese state-owned enterprises and its relation to corporate performance. Applied Financial Economics, 15(4), pp.231-246.

Micco, A., Panizza, U. and Yanez, M., 2007. Bank ownership and performance. Does politics matter?. Journal of Banking & Finance, 31(1), pp.219-241.

Oliner, S.D. and Rudebusch, G.D., 1992. Sources of the financing hierarchy for business investment. The Review of Economics and Statistics, pp.643-654.

Omran, M., 2004. The performance of state-owned enterprises and newly privatized firms: does privatization really matter?. World Development, 32(6), pp.1019-1041.

Opler, T., Pinkowitz, L., Stulz, R. and Williamson, R., 1999. The determinants and implications of corporate cash holdings. *Journal of financial economics*, *52*(1), pp.3-46

Poncet, S., Steingress, W. and Vandenbussche, H., 2010. Financial constraints in China: firm-level evidence. *China Economic Review*, *21*(3), pp.411-422.

Ramamurti, R., 1987. Performance evaluation of state-owned enterprises in theory and practice. Management Science, 33(7), pp.876-893.

Schaller, H., 1993. Asymmetric information, liquidity constraints, and Canadian investment. Canadian Journal of Economics, pp.552-574.

Whited, T.M., 1992. Debt, liquidity constraints, and corporate investment: Evidence from panel data. The Journal of Finance, 47(4), pp.1425-1460.

CHAPTER 2

Determinants of Capital Structure and Government Ownership, Evidence from Saudi Arabia

1. Introduction

The capital structure factors have been discussed a lot in the literature. It began with Modigliani and Miller (1958) who argued that the capital structure is irrelevant to firm value. But later in their study (1963) after considering the benefits of interests paid on debts are deductible, they conclude that the optimal capital structure is determined by the benefits of interests. Later hundreds of papers have studied the factors of capital structure in the United State and other countries. In this paper, I study the determinants of the capital structure of the Saudi listed firms.

Some scholars may believe that the linked government firms have lower profitability Dewenter and Malatesta (2001). However, government ownership may signify to the market because it affords firm credibility and assures investors, markets, and suppliers since the government is willing to protect deals with these sides. Eljelly (2009) finds that government-related companies in Saudi Arabia manage to generally perform better than private companies with regard to income and operating efficiently. The reason for this better performance is that the Saudi government manages economic development by owning fully or partially major companies such as oil and petrochemical companies.

In this paper, I test the influence of specific company factors and the government ownership factor on the capital structure of the Saudi listed companies covering the period of 2010 - 2017. Using three measures of leverage, whole debt to whole assets, long-term debt to whole assets, and short-term debt to whole assets. I follow Rajan and Zingales (1995) and I use four specific company factors, firm size, the tangibility of assets, profitability and growth. Also, I include government ownership as an effective factor. It is expecting that the tangibility of assets and size have a positive association with leverage. In contrast, leverage is negatively correlated with growth and profitably. There are few studies that determent the capital structure of the Saudi listed firms such as (Abdullah 2001, Alzomaia 2015). However, none of them study the effects of government ownership on the capital structure.

Using the generalized method of moments (GMM) estimator, the findings show that all the three measures have the compatible results confirming the hypotheses except the third measure where the estimated coefficient of the fixed assets to whole assets has a negative correlation with the ratio of short-term debt to whole assets.

The rest of the paper is structured as follow. Section 2 provides a literature review. The determinants of leverage and the hypotheses of the study are presented in section 3. The data and the methodology are in section 4 and 5, respectively. Section 6 describes the findings. Section 7 concludes the study.

2. Literature Review

2.1 Capital Structure

Two majors theories have discussed the capital structure, trade-off theory and pecking order theory. Miller (1977) presents the trade-off theory. Since the cost of debt is less than the cost of equity, a company can get the benefit and increases the level of debt until it gets the optimal degree of debt. Pecking order theory is discussed by Myers (1984). He says companies prefer financing sources in order, internal financing first, debt second and finally financing by equity.

Many empirical studies investigate the capital structure determinants. Warner (1977) argues the influence of bankruptcy costs in the capital structure. Warner finds no significant evidence that the bankruptcy costs can be a determinant factor for the capital structure. In contrast, Altman (1984) examines predictable profits and actual profits and finds that the bankruptcy cost is not shallow. Bradley, Jarrell, and Kim (1984) use cross-sectional, firm-specific data to study the capital structure. The results show that the ratios of firm leverage are correlated negatively to the volatility of earnings indicating that there is a significant cost of financial deficit. Also, they discover a positive correlation between leverage and non-tax shields. Crutchley and Hansen (1989) examine the equity agency costs that happen between managers and stockholders. They find that increases in earnings volatility have a negative influence on leverage. Similarly, increasing discretionary expense decreases the use of debt. Furthermore, the

findings show that the larger firm size the more debt used. Rajan and Zingales (1995) study the determinants of the capital structure of seven countries, United State, United Kingdom, Germany, France, Italy, Japan, and Canada. They find a positive link among tangibility of assets and leverage. Also, they find a negative correlation among the market to book ratio and leverage except in Italy. Moreover, the findings show that a positive association among size and leverage except in Germany. Finally, the authors capture a negative association among profitability and leverage except in Germany. Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) study the determinants of the capital structure of ten growing nations, Brazil, Indi, Pakistan, Turkey, Mexico, Zimbabwe, Jordan, Korea, Thailand, and Malaysia. They find a negative correlation between profitability and leverage. However, the findings show a positive link between size and leverage. Also, there is a positive link among tangibility of assets and leverage. Deesomsak, Paudyal, and Pescetto (2004), investigate the determinants of the capital structure of companies in four countries of the Asia Pacific countries. They find that different legal, financial and institutional environments have an impact on the capital structure determinants.

Gaud, Jani, Hoesli, and Bender (2005) study the factors of the capital structure for corporations listed in the stock exchange in Switzerland. They find that the size of corporations and the tangible assets are positively correlated to leverage. Also, the findings show that growth and profitability are negatively related to leverage. Frank and Goyal (2009) study the significance of many factors

in the capital structure of publicly traded corporations in the United State. They capture that median industry leverage, tangibility, the log of assets, and expected inflation are positively correlated to leverage. But market-to-book assets percentage and profits are negatively correlated to leverage. Also, the results show that dividend-paying firms have lower leverage. Cespedes, Gonzalez, and Molina (2009) study the capital structure of companies in Latin America. The results show that Latin American companies prefer debt to equity.

Huang and Song (2005) investigate the capital structure characteristics using 1200 Chinese-listed companies. They find that leverage is affected by firm size and fixed assets positively while with profitability, non-debt tax shields, growth opportunity, managerial shareholdings and correlates with industries affect leverage negatively. State ownership is found to have no significant influence on the leverage level. Li, ,Yue, and Zhao (2009) study the influence of ownership structure and institutional development in debt financing of non-publicly traded Chinese firms. They conclude that state ownership is positively related to leverage and firms' access to long-term debt, however, foreign ownership is negatively related to all measures of leverage. Unexpectedly, they find that companies in better-grown regions are correlated with less access to long-term debt, signifying the availability of other financing resources. Also, state-owned companies' easy access to long-standing debt is positively related to long-standing investment and negatively related to firm performance. Finally, they find that in less grown regions non-state-

owned companies manage to have lower total and short-term debt than their state-owned companies.

Goh, Tai, Rasli, Tan, and Zakuan (2018) study the determinants of capital structure for listed Malaysian industrial corporations covering the period of 2011 to the year 2014. They find that firm profitability and non-debt tax shield are negatively associated with leverage. However, the authors find that ownership concentration, separation of CEO-chairs, board independence, are not associated with leverage. Also, Liquidity, firm size and asset structure are not associated with leverage.

Fan, Titman, and Twite (2010) study the impact of the institutional environment on capital structure in 39 developed and developing nations. The results show that a country's legal and tax system and the degree of corruption describe an important part of the changing in leverage and debt maturity ratios. The findings imply that companies in nations that are considered as more corrupt use less equity and higher debt, whereas companies operating in nations that have better legal systems have more equity.

2.2 Government Ownership

The connection between ownership structure and capital structure supports the relationship between corporate governance and firm performance. Shleifer and Vishny (1986) argue that external block-holders can decrease managerial opportunism that may arise from lower direct agency disagreements between

management and shareholders. Companies that have large external block-holdings are probable to have greater debt.

The effects of the owners have been discussed as a related factor to the efficiency. Some scholars argue that government ownership affects efficiency negatively. Ramamurti (1987) argues that government-linked companies (GLCs) goal is other than a wealth-maximizing goal. Krueger (1990) believes that there as a lot of pressure on GLCs to employ politically related people while there are better professional people who can be hired. Also, Boycko, Shleifer and Vishny (1996) say that the government may force GLCs to hire excess employs. Another reason for the low-efficiency performance in GLCs can be related to the bureaucratic in management (Chang and Singh 1997). Moreover, there are no sufficient motivations for managers to follow efficiency and profitability. However, Jones (1991) argues that privatization delivers management of government-linked companies to clear goals about what government policies need. Conversely, Christensen (1998) finds that government-owned organizations in some states have low-efficiency performance even after reorganizations are announced. Micco and Panizza (2007) study the connection between ownership in banks and performance among data of commercial banks in 179 states. They find government-owned banks operating have poorer income and greater expenses than the non-government-owned banks.

As some scholars find a negative effect of government ownership. Some scholars support the firm out-performance with government ownership. Dewenter and Malatesta (1997) contend that governments can monitor the GLCs chiefs better

than isolated stakeholders in non-GLCs. Chang and Singh (1997) argue that GLCs do not always have lower efficiency than private companies. Khwaja and Mian (2005) categorize a company as political if its executive contributes in an election, the authors study the level, type, and economic costs of "political rent provision". They find that political rents are stronger with the increase of the firm's politician, and political rents decrease with the decreasing of the level of electoral participation. Khwaja and Mian also find that political rents increase with the strength of the firm's politician and whether he or his party is in power, and fall with the degree of electoral participation in his constituency.

Some scholars claim that government ownership signifies a significant indication to the market because it provides firm credibility and guarantees financiers and markets, and suppliers because of the government ability to protect dealings with them. Bourdman and Vining (1989) study ownership depends on three groups of ownership: state-owned, non-state-owned, and mixed owned. They find that fractional privatization is a better plan for a government that does not want the state ownership form. Ang and Ding (2006) compare the GLCs and the fully privatized companies in term of financial and market performance in Singapore. The finding shows that corporate governance and the valuations in GLCs are better and higher. Omran (2004) shows that there is no development difference in performance in Egyptian non-state-owned companies and state-linked corporations. Kole and Mulherin (1997) study the case in the United States and Bozec (2003) in Canada find Similar results for different reasons.

3. The Determinants of Leverage and Hypotheses

Harris and Raviv (1991) claim that fixed assets, growth opportunities, firm size, and profitability affect leverage. Based on this argument, I test the four variables. Also, I include government ownership as an effective factor. The tangibility of assets could help as security for repayment loans. The tangibility of assets is measured as the ratio of whole fixed assets to whole assets. The higher ratio of tangible assets to whole assets increases the firm ability to borrow loans.

Myers (1977) claims that firms are more probably to forgo profitable projects when they are highly leveraged. Therefore, Rajan and Zengales (1995) argue that companies use more equity financing when they forecasting high growth in the future. To proxy the growth, I employ the percentage of the market value of assets to the book value of assets. The correlation between leverage and growth is estimated to be negative.

Large companies are usually more diversified and they fail less regularly. So size can be used as an opposite proxy of bankruptcy. Therefore, size is expected to affect leverage positively. Size is calculated as the logarithm of sales.

The influence of profitability on leverage is still unclear. The trade-off theory claims that the cost of debt is not more than the cost of the equity, it is less. A company can get the benefit of the tax shield and increases the level of debt until it receives the best level of debt. However, Pecking order theory claims that corporations choose financing ways in order, internal financing first, debt second

and finally financing by equity. In the case of Saudi Arabia, there is no benefit of tax since there is no corporate tax. The profitability is estimated as the ratio of income to whole assets. It is expecting that profitability has a negative relationship on leverage.

Finally, government ownership has an influence on companies. The fact that Saudi government financial position is strong and the government manages the economic development by owning partially major companies arises a question about how the government affects the leverage position in the corporations listed in the Saudi stock market. The linked government corporations seem to have less difficulty to raise their equities since the government supports them. The influence of government ownership is expected to be negative on the leverage level. Government ownership is measured as the ratio of shares owned by the government. Table 8 summarizes the determinants of the leverage.

4. Data

The data I use in the study is quarterly and it covers nonfinancial corporations listed on Saudi stock market for the term of 2010 to 2017. The accounting data is from global Campustat. Government ownership data is hand collected. The Saudi government ownership can be in three forms, the public investments funds (PIF), the general organization for social insurance and the public pension agency. The total number of firms included in the study is 86 firms. The government owns partially in 31 firms. Table 9 presents summary statistics.

Table 9

The table describes the determinants of leverage used in the three measures, total debt to total assets, the long-term debt to total assets, the short-term debt to total assets.

Determinants of Leverage	Description
Tangibility of Assets	The tangibility of assets could help as security for repayment loans. The tangibility of assets is measured as the ratio of whole fixed assets to whole assets.
Profitability	In the case of Saudi Arabia, there is no benefit of tax since there is no corporate tax. Based on the trade-off theory and pecking order theory, it is expecting that profitability has a negative relationship on leverage. The profitability is estimated as the ratio of income to whole assets.
Growth	Firms are more probably to forgo profitable projects when they are highly leveraged. The correlation between leverage and growth is estimated to be negative. Growth is calculated as the fraction of the market value of assets to the book value of assets.
Size	Size can be used as an opposite proxy of bankruptcy so it is expected to affect leverage positively. Size is calculated as the logarithm of sales.
State	The linked government corporations seem to have less difficulty to raise their equities since the government supports them. The influence of government ownership is expected to be negative on the leverage level. Government ownership is measured as the ratio of shares owned by the government.

The mean average of the whole debt to whole assets is %29. The mean average of the long-term debt to whole assets is %18. The mean average of the short-term debt to whole assets is %11. The mean average of the tangibility of assets is %63. The size average is 5.17. The mean average of the return on assets is %2. The growth rate mean average is 1.6. Finally, the average of government ownership is %7.

5. Methodology

To investigate the effect of the factors on the level of leverage in companies, I follow the literature and use three measures of the leverage. The first measure is the whole debt to whole assets. The second measure is the long-term debt to whole assets. The third measure is the short-term debt to whole assets. I follow Rajan and Zingales (1995) and I estimate the three basic regressions and I add the state-ownership as a fifth factor:

$$\left[\frac{D}{K}\right]_{it} = \beta_1 \left[Tangibility\ of\ Assets\right]_{it} + \beta_2 \left[Growth\right]_{it} + \beta_3 \left[Size\right]_{it} + \beta_4 \left[Profitability\right]_{it} + \beta_5 \left[State\right]_{it} + e_{it} \quad \ldots(1)$$

$$\left[\frac{LTD}{K}\right]_{it} = \beta_1 \left[Tangibility\ of\ Assets\right]_{it} + \beta_2 \left[Growth\right]_{it} + \beta_3 \left[Size\right]_{it} + \beta_4 \left[Profitability\right]_{it} + \beta_5 \left[State\right]_{it} + e_{it} \quad \ldots(2)$$

$$\left[\frac{STD}{K}\right]_{it} = \beta_1 \left[Tangibility\ of\ Assets\right]_{it} + \beta_2 \left[Growth\right]_{it} + \beta_3 \left[Size\right]_{it} + \beta_4 \left[Profitability\right]_{it} + \beta_5 \left[State\right]_{it} + e_{it} \quad \ldots(3)$$

Table 10

The table shows summary statistics for quarterly data of nonfinancial corporations listed in the Saudi stock market for the term of 2010 – 2017. Note that (D/K) is the fraction of whole debt to whole assets. (LD/K) is the ratio of long-term debt to whole assets, (SD/K) is the ratio of short-term debt to whole assets. The tangibility of assets is measured as the fraction of fixed assets to total assets. Size is calculated as the logarithm of sales. The profitability is calculated as the fraction of income to whole assets. Growth is measured as a fraction of the market value of assets to the book value of assets. State is the ratio of direct shareholding by the state.

Variable	Mean	Standard Deviation	Minimum	Maximum
(D/K)	0.293	0.156	0.061	0.533
(LD/K)	0.177	0.135	0.021	0.425
(SD/K)	0.109	0.101	0.010	0.311
Tangibility of Assets	0.626	0.201	0.000	0.998
Size	5.174	1.378	2.872	7.368
Profitability	0.018	0.017	-0.005	0.048
Market to Book	1.618	1.080	0.453	3.777
State	0.067	0.112	0.000	0.325

The subscript i represents individual firms, and the subscript t represents the current quarter. D is the total debt. K is the whole assets. The tangibility of Assets is the fraction of fixed assets to whole assets. Growth is the fraction of the market value of assets to the book value of assets. Size is the logarithm of sales. Profitability is the fraction of income to whole assets. The state is the percentage of shares owned by the government. To avoid any endogeneity between the explanatory variables I use the estimator of developed generalized method of moments (GMM) by Arellano and Bond (1991).

6. The results

Before I look at the results, I check the fitness of the models. The GMM estimator requires no autocorrelation in the idiosyncratic errors. The results of Arellano-Bond tests for serial correlation in the first-differenced errors at first order and second order are presented in Table 11 as m1 and m2 respectively for the three models. The p values for the m1 test in all estimations are zero so I reject the null hypothesis of no serial correlation in the first-differenced errors at order one. The p values for the m2 test in all estimations are greater than 0.05 so I cannot reject the null hypothesis of no second-order autocorrelation. Therefore, The result of autocorrelation indicates that there is no model misspecification problem for the three estimations. Another important thing is to check the validity of instruments used in the estimation by using the Sargan test of overidentifying restrictions. The result of the test presented in Table 11. It indicates that the null hypothesis of valid overidentifying restrictions cannot be rejected. Therefore, the results of the two

tests of the fitness of the models imply that the models are correctly specified and the instruments employed are valid.

The results of the first measure are presented in Table 12. The estimated coefficient of the fixed assets to whole assets is positive but insignificant. However, The estimated coefficient of growth is negative and significant confirming the second hypothesis. Size estimated coefficient is positive and significant and it confirms the third hypothesis that size is expected to affect leverage positively. The estimated coefficient of profitability is negative and significant confirming the fourth hypothesis that profitability affects leverage negatively. Finally, the estimated coefficient of government ownership is negative and significant which confirms the hypothesis that government ownership has a negative relationship with leverage.

Table 13 presents the results of the second measure, where the dependent variable is the ratio of the long-term debt to whole assets. The estimated coefficient of the fixed assets to whole assets is positive but it is insignificant. The estimated coefficient of growth is negative and significant confirming the second hypothesis. Size estimated coefficient is positive and significant and it confirms the third hypothesis that size is expected to affect leverage positively. The estimated coefficient of profitability is negative and significant confirming the fourth hypothesis that profitability affects leverage negatively. Finally, the estimated coefficient of government ownership is negative and significant.

Finally, Table 14 presents the results of the third measure, where the dependent variable is the ratio of the short-term debt to whole assets. The estimated coefficient of the fixed assets to whole assets is negative and significant. The estimated coefficient of growth is negative and significant confirming the second hypothesis. The estimated coefficient of size is positive and significant and it confirms the third hypothesis that size is expected to affect leverage positively. The estimated coefficient of profitability is negative and significant confirming the fourth hypothesis that profitability affects leverage negatively. Finally, the estimated coefficient of government ownership is negative and significant.

In summary, all the three measures have the compatible results confirming the hypotheses except the third measure where the estimated coefficient of the fixed assets to whole assets has a negative association with the ratio of short-term debt to whole assets. Growth is negatively associated with leverage. This finding matches the claim of Myers (1977) and Rajan and Zengales (1995) argument that firms are more probably to forgo profitable projects when they are highly leveraged. The profitability is negatively connected with leverage. The finding is compatible with the pecking order system. Firm size affects leverage level positively, the larger firm size means more diversified firm and less risk therefore, the more firm's ability to borrow. The results suggest that government-linked companies have less leverage ratio comparing with the fully privatizing companies. This indicates the more availability of alternative financial resources for the government-linked companies in Saudi Arabia.

7. Conclusion

The capital structure factors have been discussed heavily in the literature. It began with Modigliani and Miller (1958) who argue that the capital structure is irrelevant to firm value. But later in their study (1963) after considering the benefits of interests paid on debts are deductible, they conclude that the optimal capital structure is determined by the benefits of interests. Later hundreds of papers have studied the factors of capital structure in the United State and other countries. Harris and Raviv (1991) find that fixed assets, growth opportunities, firm size, and profitability affect leverage. Some scholars may believe that the linked government firms have lower profitability Dewenter and Malatesta (2001). However, government ownership may signify to the market because it affords firm credibility and assures investors, markets, and suppliers since the government is willing to protect deals with these sides. Eljelly (2009) finds that government-related companies in Saudi Arabia manage to generally perform better than private companies with regard to income and operating efficiently.

Based on the previous argument, I follow Rajan and Zingales (1995) and I investigate the influences of the four variables. Also, I include government ownership as an effective factor. The tangibility of assets could help as security for repayment loans. Myers (1977) claims that firms are more probably to forgo profitable projects when they are highly leveraged. Therefore, Rajan and Zengales (1995) argue that companies use more equity financing when they forecasting high growth in the future. Large companies are usually more diversified and they fail

less regularly. So size can be used as an opposite proxy of bankruptcy. In the case of Saudi Arabia, there is no benefit of tax since there is no corporate tax. Based on the trade-off theory and pecking order theory, it is expecting that profitability has a negative relationship on leverage. Finally, The linked government corporations seem to have less difficulty to raise their equities since Saudi government supports them. The influence of government ownership is expected to be negative on the leverage level.

The data I use in the study is quarterly and it covers nonfinancial corporations listed on Saudi stock market for the term of 2010 to 2017. I follow the literature and use three measures of leverage, total debt to total assets, long-term debt to total assets, and short-term debt to total assets. I follow Rajan and Zingales (1995) and I use four specific company factors, firm size, the tangibility of assets, profitability and growth. Also, I include government ownership as an effective factor.

Using the generalized method of moments (GMM) estimator, the findings show that all the three measures have the compatible results confirming the hypotheses except the third measure where the estimated coefficient of the fixed assets to whole assets has a negative correlation with the ratio of short-term debt to whole assets. Growth is negatively associated with leverage. This finding matches the claim of Myers (1977) and Rajan and Zengales (1995) argument that firms are more probably to forgo profitable projects when they are highly leveraged. The profitability is negatively connected with leverage. The finding is compatible with

the pecking order theory. Firm size affects leverage level positively, the larger firm size means more diversified firm and less risk therefore, the more firm's ability to borrow. The results suggest that government-linked companies have less leverage ratio comparing with the fully privatizing companies. This indicates the more availability of alternative financial resources for the government-linked companies in Saudi Arabia. This is the first study that investigates the influence of government ownership on the capital structure in Saudi Arabia.

Table 11

The table reports the result of the autocorrelation test and Sargan test to see statistical fitness of the three models.

Tests	(1)	(2)	(3)
m1	-2.9847	-4.8113	-4.7143
	[0.00]	[0.00]	[0.00]
m2	1.0168	1.2865	1.0601
	[0.31]	[0.19]	[0.29]
Sargan Test	18.2	15.6	11.6
	[0.71]	[0.75]	[0.78]

Table 12

The table shows the findings of models 1 using GMM estimator. The dependent variable is the fraction of the whole debt to whole assets. The p-value presented in the parentheses.

	(1)
Tangibility of Assets	0.0056
	[0.17]
Growth	-0.0125
	[0.00]
Size	0.0102
	[0.00]
Profitability	-0.4554
	[0.00]
State	-0.0342
	[0.00]
Number of observations	1562
Number of firms	84

Table 13

The table shows the findings of models 2 using GMM estimator. The dependent variable is the fraction of long-term debt to whole assets. The p-value presented in the parentheses.

	(2)
Tangibility of Assets	0.0635
	[0.00]
Growth	-0.0067
	[0.00]
Size	0.0068
	[0.00]
Profitability	-0.3073
	[0.00]
State	-0.0081
	[0.03]
Number of observations	1706
Number of firms	85

Table 14

The table shows the findings of models 3 using GMM estimator. The dependent variable is the fraction of short-term debt to whole assets. The p-value presented in the parentheses.

	(3)
Tangibility of Assets	-0.0778
	[0.00]
Growth	-0.0048
	[0.00]
Size	0.0021
	[0.00]
Profitability	-0.348
	[0.00]
State	-0.0282
	[0.00]
Number of observations	1710
Number of firms	87

References

Abdullah, A.K., 2005. Capital structure and debt maturity: evidence from listed companies in Saudi Arabia.

Altman, E.I., 1984. A further empirical investigation of the bankruptcy cost question. *The Journal of Finance*, *39*(4), pp.1067-1089.

Alzomaia, T.S., 2014. Capital structure determinants of publicly listed companies in Saudi Arabia. *The International Journal of Business and Finance Research*, *8*(2), pp.53-67.

Ang, J.S. and Ding, D.K., 2006. Government ownership and the performance of government-linked companies: The case of Singapore. Journal of Multinational Financial Management, 16(1), pp.64-88.

Arellano, M. and Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), pp.277-297.

Boardman, A.E. and Vining, A.R., 1989. Ownership and performance in competitive environments: A comparison of the performance of private, mixed, and state-owned enterprises. the Journal of Law and Economics, 32(1), pp.1-33.

Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V., 2001. Capital structures in developing countries. *The journal of finance*, *56*(1), pp.87-130.

Boycko, M., Shleifer, A. and Vishny, R.W., 1996. A theory of privatisation. The Economic Journal, pp.309-319.

Bozec, R. and Breton, G., 2003. The impact of the corporatization process on the financial performance of Canadian state-owned enterprises. International Journal of Public Sector Management, 16(1), pp.27-47.

Bradley, M., Jarrell, G.A. and Kim, E.H., 1984. On the existence of an optimal capital structure: Theory and evidence. *The journal of Finance*, *39*(3), pp.857-878.

Cespedes, G., Molina (2009),"Ownership and Capital Structure in Latin America". *Journal of Business Research*, *63*(3), pp.1-7.

Chang, H.J. and Singh, A., 1997. Policy Arena: Can Large Firms be Run Efficiently Without being Bureaucratic?. Journal of International Development, 9(6), pp.865-875.

Christensen, P.F., 1998. Performance and divestment of state-owned enterprises in Ghana. Public Administration & Development (1986-1998), 18(3), p.281.

Crutchley, C.E. and Hansen, R.S., 1989. A test of the agency theory of managerial ownership, corporate leverage, and corporate dividends. *Financial Management*, pp.36-46.

Deesomsak, R., Paudyal, K. and Pescetto, G., 2004. The determinants of capital structure: evidence from the Asia Pacific region. *Journal of multinational financial management*, *14*(4-5), pp.387-405.

Dewenter, K.L. and Malatesta, P.H., 1997. Public offerings of state-owned and privately-owned enterprises: an international comparison. The Journal of Finance, 52(4), pp.1659-1679.

Dewenter, K.L. and Malatesta, P.H., 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. The American Economic Review, 91(1), pp.320-334.

Eljelly, A.M. and Authority, C.M., 2009. Ownership and firm performance: the experience of Saudi Arabia's emerging economy. International Business & Economics Research Journal, 8(8), pp.25-34.

Fan, J.P., Titman, S. and Twite, G., 2012. An international comparison of capital structure and debt maturity choices. *Journal of Financial and quantitative Analysis*, *47*(1), pp.23-56

Frank, M.Z. and Goyal, V.K., 2009. Capital structure decisions: which factors are reliably important?. *Financial management*, *38*(1), pp.1-37.

Gaud, P., Jani, E., Hoesli, M. and Bender, A., 2005. The capital structure of Swiss companies: an empirical analysis using dynamic panel data. *European Financial Management*, *11*(1), pp.51-69.

Goh, C.F., Tai, W.Y., Rasli, A., Tan, O.K. and Zakuan, N., 2018. The Determinants of Capital Structure: Evidence from Malaysian Companies. *International Journal of Supply Chain Management*, *7*(3), pp.225-230

Harris, M. and Raviv, A., 1991. The theory of capital structure. *the Journal of Finance*, *46*(1), pp.297-355.

Huang, G., 2006. The determinants of capital structure: Evidence from China. *China economic review*, *17*(1), pp.14-36.

Li, K., Yue, H. and Zhao, L., 2009. Ownership, institutions, and capital structure: Evidence from China. *Journal of comparative economics*, *37*(3), pp.471-490

Jones, S., 1991. The road to privatization. Finance and Development, 28(1), p.39.

Khwaja, A.I. and Mian, A., 2005. Do lenders favor politically connected firms? Rent provision in an emerging financial market. *The Quarterly Journal of Economics*, *120*(4), pp.1371-1411

Kole, S.R. and Mulherin, J.H., 1997. The government as a shareholder: A case from the United States. The Journal of Law and Economics, 40(1), pp.1-22.

Krueger, A.O., 1990. Government failures in development (No. w3340). National Bureau of Economic Research.

Micco, A., Panizza, U. and Yanez, M., 2007. Bank ownership and performance. Does politics matter?. Journal of Banking & Finance, 31(1), pp.219-241.

Miller, M.H., 1977. Debt and taxes. *the Journal of Finance*, *32*(2), pp.261-275.

Modigliani, F. and Miller, M.H., 1958. The cost of capital, corporation finance and the theory of investment. *The American*, *1*, p.3.

Modigliani, F. and Miller, M.H., 1963. Corporate income taxes and the cost of capital: a correction. *The American economic review*, pp.433-443.

Myers, S.C., 1977. Determinants of corporate borrowing. *Journal of financial economics*, *5*(2), pp.147-175.

Myers, S.C., 1984. The capital structure puzzle. *The journal of finance*, *39*(3), pp.574-592.

Omran, M., 2004. The performance of state-owned enterprises and newly privatized firms: does privatization really matter?. World Development, 32(6), pp.1019-1041.

Rajan, R.G. and Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *The journal of Finance*, *50*(5), pp.1421-1460.

Ramamurti, R., 1987. Performance evaluation of state-owned enterprises in theory and practice. Management Science, 33(7), pp.876-893.

Shleifer, A. and Vishny, R.W., 1986. Large shareholders and corporate control. *Journal of political economy*, *94*(3, Part 1), pp.461-488

Warner, J.B., 1977. Bankruptcy, absolute priority, and the pricing of risky debt claims. *Journal of Financial Economics*, *4*(3), pp.239-276.

VITA

Sultan Alshuwaier was born in Riyadh, Saudi Arabia. He received his bachelor's degree in Business Administration from King Saud University in 2007 and his M.S. from Texas A&M University-Commerce in 2011. He joined the University of New Orleans in 2014 and earned a PhD and Master of Science in Financial Economics in 2019. His research interest includes corporate leverage, financial markets, and equity investments.