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Examination of Factors Influencing Capital Structure Decision: Evidence from Syria

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□ ABSTRACT □

The study aims to explore the determinants of capital structure of Syrian joint stock companies, and to test whether the determinants offered by financial theory and previous studies are able to provide convincing explanations for companies in Syria. A total of 33 joint stock companies that subject to the supervision of Syrian Commission on Financial Markets and Securities were selected from year 2007 to 2011 (the period before the circumstances of Syrian crisis). This study applied eight determinants as independent variables: profitability, liquidity, business risk (volatility), growth prospects, tangibility, size, age, and taxes. On the other hand, the leverage ratio represented the variable related to the firm's capital structure. To achieve the objective of the study, the researcher used a hypothetical-deductive approach to formulate the hypotheses, then in order to test these hypothesis, the researcher used panel data, which is a combination of data time series and cross section. The results found that there is a significant positive relationship between capital structure and the variables of profitability and size. Also, there is a significant negative relationship between capital structure and the variables of volatility; liquidity; and tangibility. While, there is no relationship with firm's age; expected growth; and taxes.

Keywords: Determinants of capital structure, Joint Stock Companies. Syria**.**

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اختبار العوامل المؤثرة في قرار هيكل رأس المال: دليل عملي من سورية

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ملخّص

يتمثل الهدف الرئيس لهذا البحث في استكشاف مُحددات هيكل رأس المال في الشّركات المُساهمة السّورية، واختبار فيما إذا كانت هذه المُحددات والمقترحة من خلال نظريات الهيكل المالي ونتائج الدِّراسات السّابقة تستطيع تقديم تفسير لقرار هيكل رأس المال في بيئة الأعمال السّورية. تتكون عينة البحث من 33 شّركة من الشركات المساهمة الخاضعة لإشراف هيئة الأوراق والأسواق المالية السّورية بالتّركيز على الفترة بين عاميّ 2007–2011 (الفترة قبل الأزمة السورية). ويتناول البحث دراسة العلاقة بين العوامل المُحددة لهيكل رأس المال مثل: الربحية؛ والسيولة؛ ومخاطر الأعمال؛ ومعدل النمو المتوقع؛ وهيكل الأصول؛ وحجم الشّركة؛ وعمر الشّركة؛ والضرائب (كمتغيرات مستقلة)، وبين نسبة المديونية كمقياس لهيكل رأس المال. ولتحقيق هدا الهدف، اعتمد الباحث على المدخل الاستنباطي لصياغة فرضيات البحث، ومن أجل اختبار هذه الفرضيات اعتمد الباحث على تحليل الانحدار الخطي البسيط باستخدام نموذج السّلسلة الزمنية المقطعية. أشارت نتائج الدّراسة إلى وجود علاقة إيجابية معنوية بين هيكل رأس المال للشركات المساهمة العامة السّورية وكل من حجم الشّركة؛ وربحيتها. ومن ناحية أخرى، أن العلاقة بين هيكل رأس المال، وكل من سيولة الشّركة؛ ومخاطرها؛ وهيكل أصولها؛ هي علاقة سلبية معنوية. أخيراً، لم تُقدم نتائج الدّراسة أية أدلة على وجود علاقة بين هيكل رأس المال وكل من عمر الشّركة؛ ومعدل النّمو المتوقع؛ ومعدل الضّريبة.

الكلمات المفتاحية: محددات هيكل رأس المال ، الشّركات المساهمة، سورية.

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Introduction:

Capital structure is the mixture of sources of funds a firm uses (debt, preferred stock, retain earnings, and common stock). The decision how companies work out their capital structure is one of the main topics within the field of organizational finance research. The capital structure used to finance the firm assets has implications on shareholders value and firm value (Hirigoyen et Pichard-Stamford, 2003).

Since the pioneering work of Modigliani and Miller (1958) on capital structure, modern financial theory has undergone a fundamental evolution, it has evolved from a normative theory which defines what should be, to a positive theory which explain the corporate finance behavior in practice. Modigliani and Miller (1958) argue that in an efficient and perfect market, capital structure is irrelevant to the value of the firm (the irrelevance theory), and companies should be indifferent in choosing between debt and equity financing. However, their conclusion holds for perfect capital markets and is valid under strict assumptions. Some key assumptions of Miller-Modigliani work are: there is no tax; there is no transaction cost; there is no bankruptcy cost; and there is no information asymmetry in the market.

Relaxing no tax assumption, Modigliani and Miller (1963) show that it is optimal for a firm to borrow as much debt as possible once they integrate the tax benefits of leverage to their theorem. They offer that the value of levered firm is larger than the value of unlevered firm because the interest payments are tax deductible. Thus, in the theoretical argument, full debt relative to equity financing is a preferred choice for an optimal capital structure that maximizes the firm value.

Following the work of Modigliani and Miller (1958, 1963), two conflicting theories of capital structure have been developed: Trade-Off Theory and Pecking Order Theory.

Miller (1977) proposes trade-off theory which mentioned that companies choose the proportion of debt finance and equity finance after balancing the tax advantages of debt against the costs of possible financial distress and bankruptcy, holding firm's assets and investment decisions constant. In fact, this implication points out that there is no reasonable amount of debt for any individual firm. As a result, the optimal debt ratio (debt capacity) varies from firm to firm.

Later on, the optimal capital structure is examined from the agency theory perspective as well. From agency perspective, there are both agency costs and agency benefits of the leverage. The agency cost theory of capital structure states that an optimal capital structure will be determined by minimising the costs arising from conflicts between the parties involved. Jensen and Meckling (1976) argue that agency costs play an important role in financing decisions due to the conflict that may exist between shareholders and debtholders. They state that shareholders of a financially distressed firm are more likely to use the existing debt to make risky investments. In other words, usage of leverage enables shareholder to replace low-risk assets with riskier ones which. Sophisticated debtholders will then require a higher return for their funds if there is potential for this transfer of wealth. Jensen and Meckling proposes that, debt represents a fixed obligation that must be met by the firm as the debt interest and principals have to be paid. hence managers concerned about potential loss of job, will be more likely to operate the firm as efficiently as possible in order to meet the interest payments, thus aligning their behaviour closer to shareholder wealth maximization. Jensen (1986) states that when a firm has large excess free cash flows, the managers may use the cash in wasteful investments for the sake of empire building or higher compensation, prestige, and promotion. Thus, the manager is motivated to run the firm as efficient as possible only when the cash is tight. Jensen (1986)

resolve excess free cash flow problem by using debt, because the manager has to pay the cash flow to debt holders.

Considering both, trade-off theory and agency theory, the new optimal leverage level is the point where total marginal cost of the debt (financial distress cost and agency cost) exactly offsets the total marginal benefit of debt (tax benefits and agency benefits).

Pecking order theory (the information asymmetry theory) proposed by Myers (1984), and Myers et Majluf (1984), does not assume an optimal capital structure as in the case of trade-off theory. This theory is based mainly on two prominent assumptions. First the information asymmetry, as managers are better informed about their own firm's prospects than outside investors. Second, managers acts in the best interest of existing shareholders. So, the pecking order theory assumes hierarchal financing decisions; first the companies use internal sources of financing, and then seek external sources of financing from debt if the internal sources are less than the investments requirements, and at last use the equity as the last source.

Harris and Raviv (1991) in their survey of capital structure theories claimed that the models surveyed have identified a large number of potential determinants of capital structure. The empirical work so far has not, however, sorted out which of these are important in various contexts. This indicates a gap between theory and practice needs further understanding. DeAngelo et DeAngelo (2006) stated that the failure of these theories to provide a full explanation of the motives behind the capital structure. due to the simple assumptions of these theories about the circumstances under which managers make their own financing decisions. Thus, recent studies have evolved into models based on field analysis of the determinants of the capital structure decision in practice (different economic environments).What is interesting, however, the results of these studies have also been contradictory with regard to those determinants even in the developed countries. Many of the factors affecting the capital structure of the developed countries have not been significant in interpreting the capital structure for the developing countries (Berk, 2006). That is emphasizes the importance of the environmental dimension in the study of funding behavior. Gleason et al. (2000) argue that legal and tax environment, the economic system, as well as technological capabilities all influence the capital structure. The existing empirical evidence is based mainly on data from developed countries, while few studies provide evidence from developing countries (Cevheroglu-Acar, 2018 ; Sakr and Bedeir, 2019). This study attempts to reduce the gap by analyzing the question of capital structure in the Syrian business environment.

Syria differs from the developing countries previously studied. The Syrian economy is described as a socialist-oriented economy, several attempts have been taken by the state since 2000 to allow individuals to take part in the national economy in an attempt to gradually move the Syrian economy towards the socialist market economy. Following the introduction of banking and insurance laws, the government announced the establishment of the Syrian Commission on Financial Markets and Securities in 2005, and the next year it introduced a capital markets law eventually allowing for the establishment of a securities exchange. In 2009, Syria has a secondary capital market, but until that banks still control the financial market, where most of the loans obtained by Syrian companies are still bank loans and not bonds.

Literature review

The literature review of determinants of capital structure is not new.

Ahmadimousaabad et al., (2013) aimed to examine the theories of capital structure (Trade-Off Theory, Pecking Order Theory) proposed in the literature of financial management, to explain differences in the capital structures of Iranian companies. Using a multiple regression analysis on a sample of (123) companies listed on the Tehran Stock Exchange during the period 2001-2010. The study found that companies with greater growth potential have a lower debt ratio. This result is consistent with both of these two theories. The study also supported the pecking order theory regarding the negative relationship between profitability and debt ratio. The positive relationship between size and debt ratio supported the static trade-off theory.

Ab-Wahab and Ramli (2014) tested the firm specific characteristics that determine the capital structure of 13 listed Malaysian government linked companies from 1997 to 2009. The researchers analyzed the data by using pooled regression in a panel data analysis. The leverage was measured by two elements of leverage, book value of total debt ratio and long term debt ratio. The study showed that the tangibility and size are the most significant variables to determine the corporate financing of sampled companies. Liquidity and interest rates have a significant negative impact on two measures of leverage.

Awan and Amin (2014) examined the determinants of the capital structure of 68 Pakistani textile sector companies listed in the Karachi Financial Market during the period 2006-2012. To achieve the objectives of the study, the researchers used the multi regression model. Variables used for the analysis include debt ratio (ratio of total debt to total assets) as the dependent variable, and profitability, liquidity, business risk, tangibility, and size as the independent variables. The study concluded that liquidity and tangibility have a significant positive impact on the debt ratio. While the size, risk, and profitability have a significant negative impact on the debt ratio.

Handoo and Sharma (2014) investigated the determinants of capital structure of 870 listed Indian companies in both private and government sectors for the period 2001–2010. Ten independent variables (profitability, growth rate, size, cost of debt, tax rate, tangibility, financial distress, liquidity, debt serving capacity, and firm age), and three dependent variables (total debt ratio, long-term debt ratio, and short-term debt ratio) have been tested using regression analysis. It has been concluded that factors such as profitability, growth, tangibility, size, cost of debt, tax rate, and debt serving capacity have a significant impact on the leverage in Indian companies.

Khan et al., (2015) examined the determinants of capital structure of 20 Pakistani companies in cement sector for the period of 2006-2011.The researchers analyzed the firm independent variables which are; size, growth, tangibility and profitability with the dependent variable which is leverage. The analysis techniques which are used are pooled regression model. The study found a significant positive relationship between the leverage and the variables of growth and tangibility. While there is a significant negative relationship between leverage and the variables of profitability and size.

Al-Ani and Al-Amri (2015) investigated five determinants of capital structure (leverage) in three subsectors of the Omani Industrial companies (food, construction and chemical) listed on Muscat Securities Market for the period 2008–2012. The determinants are: profitability, risk, firm size, and rate of growth. The capital structure or leverage is measured by total debt ratio. In the industrial sector as whole; the findings indicate that there is a significant positive relationship between risk and tangibility and leverage. Also,

there is a significant negative relationship between growth rate and profitability and leverage, while there is no relationship with size.

Farrukh and Asad (2017) examined the determinants of capital structure of the 15 concrete business companies listed in the Karachi Stock Exchange (Pakistan) for the period 2012 to 2016. It has taken leverage as a dependent variable and profitability, growth, firm size, liquidity, tangibility and non-debt tax shield as independent factors. The researchers utilized the panel least square method of regression through. The independent factors comprising liquidity and profitability have a significant negative impact on leverage. Additional variable consist of non-debt tax shield plus growth have a significant positive impact on leverage. The remaining two factors measure tangibility and firm size has insignificant impact on leverage.

Dakua (2018), investigated the capital structure of Indian steel industry from 2010 until 2017, and which and how of the characteristics of a firm correlate with leverage (debt ratio). Seven key characteristics have been found: profitability, asset structure, size, growth opportunities, non-debt tax shield, liquidity, and risk. The correlations among the characteristics such as size, and non-debt tax shield are insignificant. Profitability and liquidity carry positive relationship with debt ratio, although there is a negative relationship between debt ratio and asset structure.

Goh et al., (2018) investigated the determinants of capital structure for 174 Malaysia manufacturing companies listed in Bursa Malaysia from 2011 to 2014. Firm fixed-effect with robust standard was used in data analysis to address the potential heterogeneity and endogeneity that arise from panel data. The analysis shows that firm profitability and non-debt tax shield are negatively related to firm leverage. On the other hand, several corporate governance mechanisms; ownership concentration, separation of CEO-chairs, board independence, are not related to firm leverage. Liquidity, firm size and asset structure are also not related to firm leverage.

Cevheroglu-Acar (2018) aimed to identify the firm-specific determinants of the capital structure of non-financial companies in Turkey and to test whether the determinants offered by financial theory are able to provide convincing explanations for companies in Turkey. The researcher include liquidity, profitability, growth, non-debt tax shields, firm size, tangibility and risk as independent variables during the period from 2009 to 2016. The results show that profitability (positive), non-debt tax shield (negative), firm size (positive), tangibility (positive), and liquidity (negative) are significant determinants of the capital structure. While the others determinants don't play a role in the determination of the capital structure.

Abdur-Rouf (2018), aimed to determine the influence of various firm characteristics such as total assets, total sales, return on assets, return on sales, liquidity and age on leverage of the listed companies in the Dhaka Stock Exchange (Bangladesh) for the period 2011-2015. Multiple regression models are used to estimate the influence of firm characteristics on leverage, which is measured by the debt ratio (total liabilities divided by total assets). The results showed that total sales, return on assets, and age are negatively and significantly related to the leverage of companies, but the others characteristics don't relate to the leverage.

Sakr and Bedeir (2019), examined the firm level determinants of capital structure for 62 Egyptian listed companies over the period 2003 to 2016. The researchers investigated whether the capital structure decisions in Egypt are closer to the assumptions of trade-off theory, pecking order theory or agency theory. The results found a significant positive

relationship between the leverage and profitability, size, and growth. While there is a significant negative relationship between leverage and tangibility, liquidity and risk.

Helmy and Hairudin (2019) investigated the determinants of capital structure of 15 companies listed in Malaysian Stock Exchange during the periods of 2010 to 2017. The investigation is focus on the firm-specific factors such as liquidity, tangibility, growth, profitability and size that influence the capital structure decisions. The debt to equity ratio is used as a proxy to measure the capital structure of a firm. The analysis of this study performed by using the panel data model and random effects model. The results indicate that the determinants that have a positive impact on capital structure are firm's growth, profitability and size. In contrast, the determinants that give negative impact on the capital structure are liquidity and tangibility.

Asheesh et al., (2019) analyzed the important determinants of capital structure of 500 Indian companies listed in National Stock Exchange over a period from 2001 to 2016 (The period of recession has been divided into two phases: pre-recession and post-recession phases). The panel estimations using the fixed effect model have been used to analyses the relationship between leverage (long term debt, short term debt, and total debt) and 14 explanatory variables. The empirical findings suggest that profitability, tangibility, liquidity, and debt service capacity seem to be significant determinants of capital structure for both the pre- and post-recession periods. Other variables such as size, cost of debt and financial distress indicate the change in companies' preference for the long-term and short-term debt post-recession. Growth, tax rate, uniqueness, dividend payout ratio, and age indicate significant results in the first phase, but in the second phase, the results are non-significant.

Sudiyatno et al., (2019) examined the factors that affect the capital structure of the manufacturing companies listed on the Indonesia Stock Exchange. The variables used in the study is the tangibility, profitability, size, liquidity, and capital structure. The study uses panel data, which is a combination of data time series and cross section. The results showed that tangibility has a significant positive impact on the capital structure. Profitability and liquidity negatively affect the capital structure. While the firm size has no impact on the capital structure.

The research objectives of this study are as follows:

1. To identify the company characteristics that significantly affect the capital structure of Syrian joint stock companies;

2. To determine how do these characteristics correlate (positively or negatively) with the capital structure of Syrian joint stock companies

Determinants of Capital Structure and Hypotheses Development

We have developed our research framework based on the variables identified from the literature review. The present study employed leverage as the dependent variable and eight independent variables comprising: profitability; liquidity; volatility; growth prospects; tangibility; size; age; and taxes .

Measure of capital structure (leverage)

In the empirical literature, there are several measures of capital structure. Rajan and Zingales (1995) suggest that short-term, long-term, and total debts over total assets ratios is a more appropriate measure of financial leverage than the ratio of liabilities to total assets, because it provides a better indication of whether the firm is at risk of default any time soon and is a more accurate picture of past financing choices. In this study, we consider long-term debt over total assets as a measure of leverage (LEV). Long-term debt involves measuring how total assets are financed by long-term debt. This ratio is used in a number

of empirical studies (Handoo and Sharma, 2014; Cevheroglu-Acar, 2018; Asheesh et al., 2019; Sakr and Bedeir; 2019).

Profitability

According to trade-off theory, highly profitable companies take out credits to benefit from tax saving. Conversely, the pecking order theory indicates that companies with high profits retain more internal funds. One indicator is used to measure the profitability (PRO): Return on assets is defined as the ratio of earnings before interest and taxes to total assets (Handoo and Sharma, 2014; Cevheroglu-Acar, 2018; Asheesh et al., 2019; Sakr and Bedeir; 2019).

Hypothesis 1: There is a significant relationship between the profitability and the leverage in Syrian joint stock companies.

Liquidity

According to the trade-off theory, companies with high liquidity can incur high debt because of their ability to meet current liabilities. On the other hand, the pecking order theory indicates that companies with high liquidity are obliged to deploy their own funds instead of using external financing. The variable of liquidity (LIQ) is measured by the ratio of current assets divided by current liabilities. A number of empirical studies have used this ratio (Handoo and Sharma, 2014; Asheesh et al., 2019; Sakr and Bedeir; 2019).

Hypothesis 2: There is a significant relationship between the liquidity and the leverage in Syrian joint stock companies.

Business Risk (volatility)

The two theories agree on the presence of an inverse relationship between the volatility of profit and debt. Higher earnings volatility means greater probability of bankruptcy due to the inability of companies to pay interest and debt at maturity. This variable is measured by the standard deviation of operating income over total assets (RISK) (Sakr and Bedeir; 2019; Al-Ani and Al-Amri, 2015).

Hypothesis 3: There is a significant relationship between the earnings volatility and the leverage in Syrian joint stock companies.

Growth Opportunities

The trade-off theory indicates the presence of a negative relationship between growth and debt. It connects this to the costs of financial distress. Higher firm's growth means greater financial distress costs. On the other hand, according to the pecking order theory, growth has a positive impact on debt. In fact, companies with strong growth opportunities have access to external financing to meet their capital investment requirements. The ratio of the change in total assets between time t and t-1 divided by total assets at time t−1, will be used to measure growth opportunities (GRO). (Sakr and Bedeir; 2019).

Hypothesis 4: There is a significant relationship between the growth and the leverage in Syrian joint stock companies.

Tangibility

The two theories agree that there is a positive relationship between tangibility and debt. Indeed, the higher the share of tangible assets means the more the creditors are encouraged to grant loans to companies. The variable of tangibility (TANG) is measured by the ratio of property, plant and equipment divided by total assets. Rajan and Zingales (1995) have used this ratio in their study .

Hypothesis 5: There is a significant relationship between the tangibility and the leverage in Syrian joint stock companies.

Firm Size

According to trade-off theory, larger companies are more likely to issue more debt, Because larger companies have lower bankruptcy cost. Besides, larger companies are more

diversified, have larger economies of scale, their cash flows are less volatile, making them able to tolerate high leverage. Considering all, they are more tolerant to higher leverage ratio, which means that there should be a positive linkage between size and debt ratio. On the other hand, it is argued that larger companies have less asymmetric information because they tend to provide more information to the market. In this sense, large companies should borrow less because they can issue informationally sensitive securities like equity without giving a bad signal. Thus, pecking order theory predicts that as size increases leverage ratio decreases. For measure size variable (SIZ), we use the natural logarithm of total assets (Sakr and Bedeir; 2019; Al-Ani and Al-Amri, 2015).

Hypothesis 6: There is a significant relationship between the size and the leverage in Syrian joint stock companies.

Firm Age

The trade-off theory assumes a positive relationship between the age of the firm and the debt ratio in its financial structure. Age of the firm is a standard measure of reputation in capital structure models. To overcome problems associated with the evaluation of creditworthiness, Diamond (1989) suggests the use of firm reputation. He considers reputation as the good name a firm has built up over the years. Petersen and Rajan (1994) found that older companies have higher debt ratios since they should be higher quality companies. On the other hand, according to the pecking order theory, there is a negative relationship between firm age and the debt ratio, as the information gap is large in modern companies, which leads the companies to choose the private funds. This variable (AGE) is measured by the natural logarithm of the number of years since its creation (Diamond, 1989; Petersen and Rajan, 1994).

Hypothesis 7: There is a significant relationship between firm age and the leverage in Syrian joint stock companies.

Firm tax

The trade-off theory predicts a positive relationship between corporate taxation and debt policy. The higher the corporate tax is, the much debt the companies use in order to benefit from tax (Modigliani and Miller, 1958; Bradley et al., 1984). This variable (TAX) is defined as the ratio of firm tax divided by operating profit. This measure was used by Booth et al. (2001).

Hypothesis 8: There is a significant relationship between firm tax and the leverage in Syrian joint stock companies.

Data and Methodology :

Data

The aim of this study is to explore the determinants of the capital structure in Joint Stock Companies that subject to the supervision of Syrian Commission on Financial Markets and Securities, focusing on the period (2007-2011) (the period before Syrian crisis).

The research consists of Syrian joint stock companies: (14) banks; (7) insurance companies; (11) services companies; (6) industrial companies; (7) agriculture companies. two telecommunications companies; and (6) foreign exchange companies. We excluded companies which do not have complete observation throughout 2007 and 2011, to overcome the missing data problem (17 companies). And the three Islamic banks are excluded from our sample. As a result, the sample consists of (33) companies (62% of the total Syrian Joint Stock Companies), the number of observations decreased from (1485) to (1413) observations (Number of observations = number of companies × number of

variables × number of study years.). Table 1 describes the detail of the sample companies according to sectors.

The financial data is taken from the balance sheet and the profit and loss statement of each firm for each year published by the Syrian Commission on Financial Markets and Securities ()www.scfms.sy) during the period 2007-2011.

Table (1): Companies sample

Sector	Number	companies excluded	Companies in the study sample			
Banks	14	3	11	Bank Bemo Saudi Fransi	International Bank for Trade and Finance	Bank of Syria and Overseas
				Byblos Bank	Bank Audi	Arab Bank - Syria
				Bank of Jordan Syria	Bank Al-Sharq	Syria Gulf Bank
				Fransabank Group	Qatar National Bank	
Insurance	7	0	7	Al Aqeelah Takaful Insurance	Syria International Insurance	United Insurance Co.
				Syria Kuwait Insurance	Solidarity Alliance Insurance Co.	National Insurance Co.
				Orient Insurance Co.		
Services	11	6	5	Damascus Cargo Village	Syrian Arab Co. Of Tourist Establishments	Al-Ahliah Tours
				MAS Distribution Co.	United Group	
Industry	6	2	4	Fresh Mountain Juice Co.	Badia Cement Co.	Al-Ahliah Vegetable Oil Co
				Syrian Arab Co. for Industry and Agriculture		
Agriculture	7	3	4	Kalamoun Co. for	Syrian Arab Co.	Agricultural Engineering

				Animal and Agricultural Investment	for the Development of Agricultural Products	Co. for Investments
				Near East Olive Products Co.		
Telecommunication	2	0	2	MTN Syria	Syriatel Mobile Telecom	
Foreign Exchange	6	6	0			
Total	53	20	33			

Source: Author according the Syrian Commission on Financial Markets and Securities ((www.scfms.sy).

Econometric models

To test the hypotheses and analysis the relationships between the level of leverage and eight explanatory variables representing: profitability; liquidity; volatility; growth; tangibility; size; age; and firm taxes, we use panel data regression model which incorporates data on both cross-sectional and time series dimension.

Rajan and Zingales (1995) estimate their regression by using maximum likelihood and a censored Tobit model. They argue that the ordinary least square (OLS) results are very similar to those results that are obtained using the alternative techniques. Bevan and Danbolt (2002) have confirmed these findings. As a result, we present and discuss the OLS results only.

$$LEVit = œ + \beta_1 PROit + \beta_2 LIQit + \beta_3 RISKit + \beta_4 GROit + \beta_5 TANGit + \beta_6 SIZEit + \beta_7 AGEit + \beta_8 TAXit + eit$$

Where :

- i = 1, 2, 3, 4, 5 ....., 33. It is the firm (i) in the cross section.
- t = 1, 2, 3, 4, 5. the time (t) in the time series during the period (2007-2011).
- LEV: Leverage is measured by long-term debt over total assets;
- PRO: Profitability is measured by the ratio of earnings before interest and taxes to total assets;
- LIQ: Liquidity is measured by the ratio of current assets divided by current liabilities;
- RISK: Earnings Volatility is measured by the standard deviation of operating income over total assets;
- GRO: Growth Opportunities is measured by the ratio of the change in total assets between time t and t-1 divided by total assets at time t-1;
- TANG: Tangibility is measured by the ratio of property, plant and equipment divided by total assets;
- SIZE: Firm Size is measured by the natural logarithm of total assets;
- AGE: Firm Age is measured by the natural logarithm of the number of years since its creation;
- TAX: Firm tax is measured by the ratio of tax divided by operating profit;
- œ: is the intercept; and

– εε: is the random error term.

Before estimating the coefficients of the models, we test if there is the problem of collinearity between independent variables (multicollinearity). Table (2) tabulates the results of the Pearson correlation matrix. This correlation test shows the absence of multicollinearity between the variables since all the estimated coefficients have values less than 0.80 (Amin, 2008).

Table 2: Correlation coefficient Matrix

Variables	SIZE	AGE	ROA	RISK	LIQ	GRO	TANG	TAX
SIZE	1							
AGE	.311**	1						
PRO	.076	.189*	1					
RISK	-.261**	.261**	.224**	1				
LIQ	.084	-.157*	-.066	.046	1			
GRO	.143	-.216**	-.102	-.119	-.048	1		
TANG	-.002	.575**	.163*	.519**	-.143	-.176*	1	
TAX	.271**	-.136	-.084	-.322**	.064	.086	-.241**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Author.

Thus we examine the multicollinearity further by variance inflation factor (VIF) and tolerance value. VIF value indicates the impact of the remaining variables on the standard error of a regression coefficient while tolerance value is defined as 1/VIF (Hair et al., 2010). The lower the VIF and the higher tolerance value, the lower the multicollinearity. Generally the acceptable threshold for VIF is 10 and for tolerance value is 0.10. Since in all eight models, VIF values are below 10 and tolerance values are above 0.10, we can conclude that there is no multicollinearity problem for our models (Table 6).

Results and discussion:

Descriptive statistics

Before interpreting the coefficients of the regression models, it is worth to examine the summary statistics of the variables, table (3) summarizes the descriptive statistics of all the variables used in our study. We present averages, standard deviations for the entire sample. Over the period 2007-2011, the average value of long-term debt is estimated at 0.4794. This indicates that Syrian companies have effectively used long-term debt in their capital structures. We can conclude that the composition of the capital structure of the Syrian sampled companies is close to the optimal theoretical formula of capital structure (50% private funds, 50% debt), which is considered acceptable by the creditors, because the lower the debit ratio the greater the margin of safety for creditors in the event of bankruptcy and the sale of the company's assets.

Moreover, the average values of return on assets is equal to 2.95%, it can be seen that Syrian companies have a low rate of profitability. The growth rate on average is 21.77%. The average of tangible assets represents about 30% of total assets.

Table 3: Descriptive statistics

Variables	LEV	SIZE	AGE	PRO	RISK	LIQ	GRO	TANG	TAX
Mean	0.4794	20.87	1.6398	0.0295	0.0226	3.014	0.2177	0.3022	0.1780
Std. Dev.	0.3229	5.176	0.9328	0.0586	0.0171	5.3816	0.6467	0.3309	0.2793

Note: Variables are defined in Table 1.
Source: Author

Table (4) presents the results of the panel data models. As shown, the values of R-square is 0.631, which demonstrates that the independent variables mutually represent about 63.1% variation in debt ratio in the OLS.
The model of regression is significant at 5% because the Sig. of F-Value (0.000) is less than 5%. In this case, there is at least one variable in the model does have an impact on the leverage (table 5).

Table 4: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.795[a]	.631	.610	.2016901	1.674

Source: Author

Table 5: ANOVE

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.799	9	1.200	29.497	.000[b]
Residual	6.305	155	.041		
Total	17.104	164			

Source: Author

Table (6) summarizes the different results obtained. According to our study, the coefficient value of variable profitability equal to 0.123. In the table of t statistical test results, also it is shown that the variable profitability has t significance in the amount of 0.026. Because t significance < 5% (0.026 < 0.05), then there's a positive significant relationship between profitability and leverage (column 2), whereby a 1% increase in profit (ROA) will increase companies' tendency to use leverage by 0.123 %. Therefore, the Hypothesis 1 is verified.
The results are consistent with the trade-off theory and with findings reported by Dakua (2018); Cevheroglu-Acar (2018); Helmy and Hairudin (2019), that high profitable companies have lower bankruptcy risk and are more able to apply for and acquire more debt; whereas inconsistent with findings reported by Ahmadimousaabad et al., (2013); Ab Wahab and Ramli (2014); Awan and Amin (2014); Handoo and Sharma (2014); Khan et al., (2015); Ani and Amri (2015); Farrukh and Asad (2017); Goh et al., (2018); Asheesh et al., (2019); Sudiyatno et al., (2019).
Regarding the firm's ability to repay short-term liabilities measured by liquidity, the results show the coefficient value of variable liquidity (LIQ) is equal to -0.023. In the table of t statistical test results, the variable liquidity has t significance in the amount of 0.000. Because t significance < 5% (0.000 < 0.05), then there's a negative significant relationship between liquidity and leverage, whereby a 1% increase in ratio of liquidity will decrease companies' tendency to use leverage by 0.123%. Therefore, the Hypothesis 2 is verified, This result is relatively conforming with those of Ab Wahab and Ramli (2014); Farrukh and Asad (2017); Cevheroglu-Acar (2018); Helmy and Hairudin (2019); Asheesh et al., (2019); Sudiyatno et al., (2019) ; and Sakr and Bedeir (2019),

This finding corroborates the postulated hypotheses of the pecking order theory that companies tend to use their liquid assets to finance their investment in preference to raising external debt (Deesomsak et al. (2004). Joint stock companies in Syria with enough liquid assets can utilize these funds to finance business activities and expecting to have lower leverage.

Table 6: Determinants of long-term debt: Main results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	Constant	.103	.084		1.234	.219		
	SIZE	.031	.004	.495	7.970	.000	.618	1.619
	AGE	.021	.027	.061	.778	.438	.382	2.617
	PRO	.123	.290	.022	6.426	.026	.859	1.165
	RISK	-2.599	1.203	-.138	-2.160	.032	.580	1.725
	LIQ	-.023	.003	-.380	-7.296	.000	.875	1.142
	GRO	.020	.026	.041	.782	.435	.882	1.134
	TANG	-.448	.076	-.459	-5.912	.000	.395	2.531
	TAX	.018	.062	.016	.293	.770	.835	1.197

a. Dependent Variable: LEV
Source: Author

The coefficient value of variable business risk (earning volatility) is in the amount of by –2.599. In the table of t statistical test results, the variable earning volatility has t significance equal to 0.032. Because t significance < 0.05, then there's a negative significant relationship between firm risk and leverage, whereby a 1% increase in the standard deviation of operating income over total assets will decrease sampled Syrian companies' tendency to use leverage by 2.599%. Therefore, the hypothesis 3 is verified.
This is due to the fact that Syrians companies use prudent debt to protect against financial distress and the risk of bankruptcy. They are, therefore, able to pay interest and debt securities at maturity. This may imply that the more variation in the earnings, especially negative, the more the probability of financial problems because the firm may not be able to meet its financial obligations. This result is in line with the predictions of the trade-off and pecking order theories. It corroborates the results obtained by Awan and Amin (2014); Farrukh and Asad (2017); and Sakr and Bedeir (2019),
According to our study, the coefficient value of variable growth opportunities is in the amount of by 0.2. Consequently, the results indicate that Syrian sampled companies with a high rate of growth of their total assets tend to borrow more than companies with a low rate of growth. But. the t statistical test of variable growth opportunities has t significance in the amount of 0.435. Because t significance > 5% (0.435 > 0.05), then there's a positive non-significant relationship between growth opportunities and leverage. Then growth opportunities does not have an effect towards variable the capital structure. Thus, it can be concluded that hypothesis 4 is rejected.
This result is relatively conforming with this of Cevheroglu-Acar (2018) in Turkish context**.** We believe that the reason for the absence of a relationship between the growth rate and the leverage in Syrian joint stock is that these companies resort to the loans not to expand the investment process, but the policy of financing for these companies seeks to achieve the goal of survival and not the goal of growth.

The results of the research conducted show that tangibility assets is a determinant factor in the funding decision of Syrian companies, but in contradiction with theoretical prediction, where the coefficient value of variable tangibility equal to –0.448. In the table of t statistical test results, this variable has t significance equal to 0.000. Because t significance < 5% (0.000 < 0.05), then there's a negative significant relationship between tangibility and leverage. This indicates that joint stock companies in Syria may not tend to use their fixed assets as collateral against debt. Therefore, the hypothesis 5 is verified. Same results regarding tangibility was found by Dakua (2018); Helmy and Hairudin (2019) ; Sakr and Bedeir (2019) ; and Simatupang et al., (2019).

This unexpected negative relationship can be explained by the issuance of the Legislative Decree No. (61) in the year 2007, which allows to Syrian companies to revalue their fixed assets based on market value. In a result, the rise value of fixed assets of Syrian companies could affect the relationship between tangibility and leverage and make it negative.

To test the firm's ability to grant collaterals, the coefficient associated with the size variable reflecting the size of the firm has a positive and significant (β_6 = 0.031 and t significance = 0.000 < 0.05). According to the results of empirical analysis, leverage of Syrian sampled companies is positively correlated with size, this result supports the view of size as an inverse proxy for the probability of bankruptcy. Therefore, the hypothesis 6 is verified

We can explain this positive relationship by the fact that diversifications in their resources, large companies tend to have less bankruptcy risk; because of their low probability of bankruptcy, creditors tend to provide them with more funding. Furthermore, firm size is considered as a proxy for information asymmetry between managers and investors in the capital market whereby large companies are regarded as more transparent, inclined to have higher leverage which enable them to issue larger amounts of debt with less issuing costs. Our results are consistent with results of Ahmadimousaabad et al., (2013); Ab-Wahab and Ramli (2014); Cevheroglu-Acar (2018); Helmy and Hairudin (2019) ; and Sakr and Bedeir (2019).

According to our study, the coefficient value of variable firm age is in the amount of by 0.021. Consequently, This result suggests that older companies may be more in debt than their counterparts. But. the t statistical test of this variable (0.438) > 0.05 (P value), then there's a non-significant relationship between firm age and leverage. Therefore, the hypothesis 7 is rejected.

The researcher believes that the reason for the absence of the impact of the variable age in the financial structure of the Syrian joint stock companies, is that the majority of these companies are new. About 75% of the sampled companies were established after 2000, As indicated by many researchers, the age of the firm is considered the primary measure of its reputation, because it gives an idea of the company's ability to continuity and thus its ability to obtain loans.

Finally, the value of the firm is effected by an important factor called "the tax shield". The tax shield is a reduction in taxable income for firm achieved through claiming allowable deductions such as mortgage interest, medical expenses, charitable donations, amortization, and depreciation, And the financial leverage is the important element of the tax shield which a firm can benefits due to the high proportion of debt in its capital structure. However, this does not apply to the Syrian business environment. The results of the study indicate that although there is a positive relationship between the variable firm taxation and leverage (β_8 = 0.062), but this relationship is not significant (t significance = 0.77 > 0.05). Thus, it can be concluded that hypothesis 8 is rejected.

This is due to the fact that is many Syrian sampled companies may not achieve any tax shield, because they are not required to pay tax because they enjoy the tax exemption.

Conclusion:

In this study, we examine whether the capital structure's determinants offered by the financial theories and previous empirical studies are able to explain the capital structure decisions of Joint stock companies in Syria for the period 2007-2011, this period has been chosen before the Syrian crisis. Hypotheses, based on comparing the relationships between long debt and eight explanatory variables that represent: profitability, liquidity, volatility, growth prospects, tangibility, size, age, and taxes, were developed to test which company characteristics best explained Syrian companies' capital structure.

The findings reveal that profitability, liquidity, volatility, tangibility, size, are significant firm-level determinants. The study found that there is a significant positive relationship (at 5% significance level) between capital structure and the variables of profitability and size. Also, there is a significant negative relationship (at 5% significance level) between capital structure and the variables of volatility; liquidity; and tangibility. While, there is no relationship with firm's age; expected growth; and taxes.

In addition, the study concluded that the debt ratio in the Syrian sampled companies is about (48%). The debt ratio in Syria seems to be relatively comparable to emerging countries such as Pakistan, Iran, Brazil, and Turkey (Booth and Aivazian, 2001) as well as Gulf countries (Omet and Mashharawe, 2004) ; and Egypt (Sakr and Bedeir, 2019). But, we can observe that the Syrian debt ratio is low compared with that in other countries such as the United States, Germany and East Asia, where the ratio exceeded 80%. In fact, the decline in this ratio can be explained by the negative impact of the business risk on debt ratio. Thus, the financial managers in Syrian companies take into consideration the degree of business risk when taking the decision of capital structure. In other words, the risk of bankruptcy is an explanatory factor for the financial behavior of Syrian companies. This result means that the bankruptcy cost model gives an explanation for the choice of capital structure in the Syrian business environment.

This explanation is supported by the negative relationship between liquidity and debt ratio in the Syrian sampled companies, If these companies receive positive financial flows, they will tend to get ride of the debts (repayments of the debt and interest) in order to reduce the financial risk. Jensen (1986) presented the resolution of the excess free cash flow problem by using debt, because the manager has to pay the cash flow to debt holders.

In summary, this study contributes the empirical evidence for practitioners such as financial managers, who should have the responsibility to ensure their companies are able to finance at the lowest possible cost and increase value for the companies by making financial decisions effectively and efficiently.

Finally, several comments should be made with regard to possible limitations and prospective extensions of this study. First, we excluded companies having missing data on any variable in years between 2007 and 2011. This causes the econometrical and methodological concerns (such as small sample size or survivorship bias) as well as prevents us from presenting an overall capital structure portrayal for companies in Syria. Second, the study explores only eight corporate characteristics variables; other factors influencing the leverage of the firm such as; the number of foreign shareholders, corporate governance, ownership structure and auditors' opinion could be explored in further researches. Third, current study is also limited by the imperfection of the proxies employed for variables. future work should improve the measure of proxies.

Finally, future research can build on our study and extend it in several dimensions. First, in terms of study time to include the period of the current economic crisis (2011-2019); where the political and economic issues that took place in Syria may affect the behaviour of the financial managers whether positively or negatively. Second, in terms of the study application to other sectors (such as SMEs and public sector companies). Third, several macro-economic factors that influence capital structure decisions, such as: stock market development, financial stability of country, corporate tax, terrorism threat, direct foreign investment, could be included in future researches.

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