

THE STUDY OF RELATIONSHIP BETWEEN CAPITAL STRUCTURE, FIRM GROWTH WITH FINANCIAL LEVERAGE OF THE COMPANY LISTED IN TEHRAN STOCK EXCHANGE

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Abstract:

One of the most important issues that financial managers must consider in order to maximize shareholders wealth is to determine the best combination of company resources or the capital structure. The capital structure puzzle is one of the most important issues in the financial management and it is even more complicated than the dividend puzzle. The discussion of capital structure refers to the method of combination of companies financing sources, including debts, preferred stock and common stock.

In this research, the relationship between the ownership structure, corporate growth with corporate financial leverage is addressed in companies being accepted in Tehran Stock Exchange using deducted simultaneous equation systems and panel data relating to 2007 – 2011. Generally, research findings indicate a relationship between the ownership structure, corporate growth and companies 'administrative financial leverage.

Keywords: Capital Structure, Firm Growth, Financial Leverage

INTRODUCTION

The combination of shareholders or the ownership structure is one of the important issues in the corporate governance which affects managers' motivation and consequently, can significantly affect each company's efficiency. In the past, economists assumed that all groups relating to a stock company operated for a common purpose, but during the last three decades, many conflicts of interest among groups and the methods of companies' confrontation with these conflicts were mentioned by economists. These issues are totally called "the agency theory". Decision making on the ownership structure which means the corporate financing affects the corporate value like other decisions of managers. Managers as shareholders' representatives regulate the company's capital structure in order to have a positive effect on the process of corporate value's increase which is the increase of shareholders' wealth. Therefore, the determination of an optimal capital structure and financing in companies are significantly important. For this purpose, managers must be completely aware of the effect of variables which can affect the company's capital structure in order to take informed actions resulting from scientific theories with a proper motivation to achieve an optimal capital structure. On the other hand, the main issues mentioned in each approach and theory of capital structure focus on variables and internal factors of companies such as the method of management, shareholders' combination, accounting variables, and other issues. In these approaches, companies' external effective factors are less focused. The most important factors include the type of activity, social and political issues and some macroeconomic variables.

Now, the research question is that whether there is significant relationship between the ownership structure, corporate growth, and financial leverage of companies being accepted in Tehran Stock Exchange?

Research Literature.

Najjar and Tyler (2008) studied the relationship between the ownership structure and capital structure for companies being accepted in Tehran Stock Exchange. Their research results indicate that there is no significant negative relationship between the capital structure and institutional investors. They suggested that a mechanism for the external control which affects the corporate governance is the emergence of institutional investors as capital owners. Institutional investors supervise the company implicitly through data collection and management decisions pricing and explicitly through the control of company's performance.

Hassan et al. (2009) also showed that the size the board of directors and institutional shareholders had a significant negative relationship with debt – equity ratio.

Larry (2010) studied the relationship between the ownership structure and the type of company's participation with capital structure. This study was conducted in China during 2000 to 2006 using panel data and multivariate regression with the sample size of 789 companies. The result of this study indicates the less use of financing through debts in companies in which governance system mechanisms are implemented at a high level. In addition, the type of industry in which the company participates has positive effects on the capital structure following the ownership structure and corporate governance mechanisms.

Zhao et al. (2011) attempt to expand the knowledge of financial leverage, corporate growth and financial strength of companies being accepted in Sri Lanka stock exchange during 2000 to 2009 in an article. The key research question is that whether the effect of financial leverage on the corporate growth is positive or negative. Results indicate that there is a positive relationship between the financial leverage, and the corporate growth and financial strength. In addition, it reflects the view that there is a positive relationship between the financial leverage and other growth variables which have shown that the future growth of the company was negative.

Al Ali(2009) studied the relationship between the capital structure and ownership structure, and determined some features which affected the capital structure. The result shows a significant relationship between the capital structure and ownership structure. .

Hashemi and Bekrani (2011).studied the relationship between the capital structure decisions, and ownership structure and corporate governance system. Results of data analysis verified hypotheses of the study and finally, the main hypothesis of the study was verified using combined data. In other words, there is a significant relationship between the corporate capital structure decisions, and the ownership structure and the corporate governance system.

Asadi et al. (2011). studied the relationship between the capital structure and the ownership structure in companies being accepted in Tehran Stock Exchange. In order to test the hypothesis using the panel data statistical method, it was attempted to provide four patterns based on variables. The empirical evidence indicates that there is a significant negative relationship between the capital structure and the ownership one. According to results, although it is not clear that whether the capital structure leads to the ownership structure or vice versa, it seems that investors and creditors must consider the capital structure and or the ownership structure at the time of decision making on the investment and accreditation.

Sadeghi et al.(2012). studied the relationship between the ownership structure and the performance of companies being accepted in Tehran Stock Exchange using deducted simultaneous equation systems and panel data relating to 2003 – 2009, and research hypotheses test indicates that in Tehran Stock Exchange, focus and ownership structure do not affect the performance of companies being accepted in

Tehran Stock Exchange, but the corporate performance has a significant effect on the ownership structure.

The Main Hypothesis

There is a significant relationship between the ownership structure, corporate growth with corporate financial leverage.

Sub Hypotheses

1. There is a negative relationship between institutional ownership and corporate financial leverage.
2. There is a positive relationship between profit growth and corporate financial leverage.
3. There is a negative relationship between Sales growth and corporate financial leverage.
4. There is a positive relationship between Asset growth and corporate financial leverage.

Method of Data Collection

Research Method:

This research is inductive, quantitative, field, applied and quasi experimental, and is conducted using ex post facto (through past information).

Statistical Population and Sample, and Data Collection:

In order to conduct the study, all companies being accepted in Tehran Stock Exchange were considered as the statistical population which included 463 companies until the end of 2011, and the statistical sample was extracted from among these companies. In this research, the statistical population consists of companies which have the following features:

1. The company's stock should be transacted in Tehran Stock Exchange from 2007 to 2011 (5 years) and it should have a continuous activity.
2. The company should not have any change in the activity during the mentioned fiscal years or should not have any change in the fiscal year.
3. The company should not be a part of banks or financial institutions (investment companies, financial intermediary, holding companies, leasing). (Elimination due to the specific nature of the activity and return of investment companies is also imposed in other subgroup companies).
4. The fiscal year of all companies should be on March 20.
5. The company should not have operating loss during these years and consequently, the dividend should be distributed in cash.
6. The required data should be available.
7. Finally, according to the aforementioned features, 140 companies were selected for the research during 2007 to 2011.

140 companies which were the members of population were selected as the sample.

Descriptive Statistics:

Features relating to variables used in the research, including dependent variables were presented separately. Statistics for the variables used in the research include mean, median, maximum, minimum, standard deviation, skewness, and Jarque – Bera test. Because of the difference between mean and median in some data and due to significance (probability) level of less than 5% in Jarque – Bera test for variables, there is a need for the adjustment and normalization of data. As some variables were normal, by using Johnson's data convert Minitab software, the above variables were normalized with the probability level of more than 5% and the slight difference between the mean and median showed the normalization of observations.

Table 1: Descriptive Statistics

	AG	LEV_BV	LEV_MV	LN_IO	PG	PIO	SG
Mean	1.104744	5.700615	-0.500275	18.15854	-1.091937	-0.020972	0.008824
Median	1.094174	5.700622	-0.490670	18.05331	-1.066275	-0.010922	0.022479
Maximum	1.698932	5.701635	0.742907	21.77518	2.426947	2.585380	2.381193
Minimum	0.522046	5.699731	-1.092912	14.01861	-3.929880	-2.675700	-2.425800
Std. Dev.	0.211252	0.000383	0.260056	1.368543	1.193756	0.958630	0.987543
Skewness	0.054409	-0.001047	1.56E-06	0.072302	0.002130	-0.018502	0.009759
Kurtosis	3.181868	2.654489	2.948714	3.071314	3.305916	2.933777	2.629841
Jarque-Bera	1.310088	3.481985	0.076715	0.733299	1.478142	0.167847	3.996007
Probability	0.519419	0.175346	0.962369	0.693052	0.477557	0.919502	0.135606
Sum	773.3205	3990.431	-350.1925	12293.33	-413.8440	-14.68045	6.158880
Sum Sq. Dev.	31.19470	0.000103	47.27284	1266.087	538.6704	642.3613	679.7438
Observations	700	700	700	700	700	700	700

Mana (inertial) Test of Data:

Im pesaran and Shin's test is used for Mana test; so, in order to have Mana data, Dickey-Fuller absolute value should be more than the critical value and if it is not Mana, the first data difference is used. The test results are presented in the following table. Results show that data are Mana.

Table 2: Mana (inertial) Test of Data

Im-Pesaran-Shin unit-root test				
Ho: All panels contain unit roots				
Ha: Some panels are stationary				
Augmented Dickey-Fuller test statistic				
t-Statistic	Fixed-N exact values		critical	
ADF	10%	5%	1%	
2.30	-1.770	-1.840	-2.00	LEV_BV
-2.28	-1.770	-1.840	-2.00	LEV_MV
-2.30	-1.770	-1.840	-2.00	LN_IO
-2.40	-1.770	-1.840	-2.00	PIO
-2.29	-1.770	-1.840	-2.00	PG
-2.20	-1.770	-1.840	-2.00	AG
-2.74	-1.770	-1.840	-2.00	SG

The Correlation Test:

According to the above hypotheses, the correlation coefficient calculations are done two by two for the research variables in the following table, and as it is observed, there is a negative relationship between the financial leverage, and institutional ownership and other explanatory variables, and the percent of the relationship with the sales growth is more than other variables. The market financial leverage has also a negative relationship with institutional ownership and other variables, and the percent of the

relationship with the sales growth is more than other variables. In addition, the market leverage has a direct relationship with the natural logarithm of the number of shares. Consequently, through the linear regression analysis and test based on the suggested models, we estimate and analyze coefficients.

Table 3: The Correlation Test:

	LEV_BV	LEV_MV	LN_IO	PIO	PG	AG	SG
LEV_BV	1.000000	0.716064	-0.050231	-0.085469	-0.031616	-0.082697	-0.159471
LEV_MV	0.716064	1.000000	0.002918	-0.148073	-0.007628	-0.191754	-0.273318
LN_IO	-0.050231	0.002918	1.000000	0.039443	-0.020769	0.150252	0.077660
PIO	-0.085469	-0.148073	0.039443	1.000000	-0.033640	-0.065231	0.032194
PG	-0.031616	-0.007628	-0.020769	-0.033640	1.000000	0.068821	0.227146
AG	-0.082697	-0.191754	0.150252	-0.065231	0.068821	1.000000	0.200939
SG	-0.159471	-0.273318	0.077660	0.032194	0.227146	0.200939	1.000000

Test models:

The first model: $LEV_{it} = \alpha_0 + \beta_1 IO_{it} + \beta_2 PIO_{it} + \beta_3 AG_{it} + \beta_4 PG_{it} + \beta_5 SG_{it} + e_{it}$

The second model: $IO_{it} = \alpha_0 + \beta_1 LEV_{it} + \beta_2 AG_{it} + \beta_3 PG_{it} + \beta_4 SG_{it} + e_{it}$

The third model: $LEV_{it} = \alpha_0 + \beta_1 AG_{it} + \beta_2 PG_{it} + \beta_3 SG_{it} + e_{it}$

The fourth model: $IO_{it} = \alpha_0 + \beta_1 AG_{it} + \beta_2 PG_{it} + \beta_3 SG_{it} + e_{it}$

1. Financial Leverage:

Leverage is the existence of fixed costs in the list of the company's expenses. The financial leverage is calculated through the total debts divided by the total assets. In this research, the financial leverage is used in two ways:

1. Total debts divided by the book value of assets
2. Total debts divided by the market value of assets

The Ownership Structure:

The ownership structure means that which (natural/legal) persons have influence and domination on the operational and strategic decisions of a company. Two indices are considered for the ownership structure: The first one is the natural logarithm of the number of shares for institutional investors, and the second one is the institutional ownership percent from shares which is obtained by the number of shares for institutional investors divided by the total shares of the company (Asadi et al., 2011).

2. The Corporate Growth:

Growth is defined as a change in the annual percent of total assets, sales and profit. The corporate growth shows an expansion in the company's activities in terms of sales, profits and assets (Zhao, et al, 2012).

$$(\text{selected year value}_{(\text{total asset, profit, sale})} - \text{Based year value}_{(\text{total asset, profit, sales})}) / \text{Based year value}_{(\text{total assets, profit, sales})}$$

Endogenous variables: LEV, IO

Exogenous variables: PG, SG, AG

Results of diagnostic tests indicate that the models used are of the type of fixed effects. According to the diagnostic tests, we use the fixed effects model to estimate the model coefficients and also, because patterns are precise and the number of instrumental variables is more than endogenous variables, the two-stage least squares method is used. In order to test patterns, in the first stage, the reduced patterns, the third and fourth equations are separately estimated through the least squares method, and in the second stage, the first and second equations are fitted. Before the estimation of the first and second patterns, the following variables were estimated instead of endogenous variables (LEV & IO) according to the residual of the third and fourth equations and they were used as explanatory variables.

$$\text{IOHAT} = \text{IO} - \text{RESID}_3$$

$$\text{LEVHAT} = \text{LEV} - \text{RESID}_4$$

RESID₃: The remaining third model

RESID₄: The remaining four models

Autocorrelation Test:

According to results of Durbin-Watson test, in all patterns, there is the probability of autocorrelation. Based on the type of data (panel data), Volderij test (autocorrelation test) is conducted for the above four patterns.

H0: There is a correlation

H1: There is no correlation

According to the probability level, there is autocorrelation in less than 5% of most patterns. Therefore, due to the autocorrelation, the FGLS method is used to estimate the autocorrelation condition through Stata software and their coefficients are obtained.

The First Stage Tests (FGLS):

Patterns of Deducted Equations:

Patterns of deducted equations show the direct and indirect effects of variables.

Table 4: The third model - Marke leverage				
$\text{LEV}_{it} = \alpha_0 + \beta_3 \text{AG}_{it} + \beta_4 \text{PG}_{it} + \beta_5 \text{SG}_{it} + \beta_6 \text{Z}_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.00	-11.78	-.020	-.26	c
0.00	-5.52	-.025	-.14	AG
0.017	2.29	-.004	.011	PG
0.00	-12.29	-.0052	-.069	SG
Wald chi2(4) = 252.28 Prob > chi2 = 0.0000				
The third model- Book leverage				
$\text{LEV}_{it} = \alpha_0 + \beta_3 \text{AG}_{it} + \beta_4 \text{PG}_{it} + \beta_5 \text{SG}_{it} + \beta_6 \text{Z}_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable

0.00	2.4	.00016	5.70	c
0.00	-8.46	8.72	-.00007	AG
0.57	.57	7.45	4.22	PG
0.00	-7.94	5.81	-.0004	SG
Wald chi2(4) = 248.22 Prob > chi2 = 0.0000				
The fourth model				
$IO_{it} = \alpha_0 + \beta_2 AG_{it} + \beta_3 PG_{it} + \beta_4 SG_{it} + \beta_5 Z_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.000	104.57	.16	17.29	c
0.000	4.12	.14	.61	AG
0.002	-4.04	.017	-.052	PG
0.66	.44	.022	.014	SG
Wald chi2(4) = 26.69 Prob > chi2 = 0.0000				

Second test:) FGLS(

Table 5: The first model- Market leverage				
$LEV_{it} = \alpha_0 + \beta_1 IO_{it} + \beta_2 PIO_{it} + \beta_3 AG_{it} + \beta_4 PG_{it} + \beta_5 SG_{it} + \beta_6 Z_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.00	-12.25	.00	-.49	c
0.00	5.72	-.0014	-.0085	IOHAT
0.00	-6.14	-.007	-.042	PIO
0.00	-8.79	-.018	-.162	AG
0.002	2.98	-.004	.0125	PG
0.00	-15.90	-.004	-.062	SG
Wald chi2(6) = 2186.96 Prob > chi2 = 0.0000				
The first model- Book leverage				
$LEV_{it} = \alpha_0 + \beta_1 IO_{it} + \beta_2 PIO_{it} + \beta_3 AG_{it} + \beta_4 PG_{it} + \beta_5 SG_{it} + \beta_6 Z_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.000	4.4	.00012	5.70	c
0.002	-2.15	7.16	-.00002	IOHAT
0.298	-1.04	8.75	-9.11	PIO
0.000	-12.62	5.68	-.000071	AG
0.782	-.28	7.10	-1.96	PG
0.001	-2.26	9.00	-.00002	SG
Wald chi2(6) = 2856.71 Prob > chi2 = 0.0000				

The second model- Marke leverage				
$IO_{it} = \alpha_0 + \beta_1 LEV_{it} + \beta_2 AG_{it} + \beta_3 PG_{it} + \beta_4 SG_{it} + \beta_5 Z_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.101	1.64	554.218	908.04	c
0.108	-1.61	97.218	-156.21	LEV_MVHAT
0.000	4.01	.146	.587	AG
0.002	-2.12	.0182	-.056	PG
0.912	.11	.024	.002	SG
Wald chi2(5) = 21.41 Prob > chi2 = 0.0000				
The second model- Book leverage				
$IO_{it} = \alpha_0 + \beta_1 LEV_{it} + \beta_2 AG_{it} + \beta_3 PG_{it} + \beta_4 SG_{it} + \beta_5 Z_{it} + e_{it}$				
p-value	Statistics	Std. Dev.	Coefficient	Variable
0.000	102.51	.167	17.28	c
0.000	2.59	.092	.222	LEV_BVHAT
0.000	4.72	.149	.704	AG
0.000	-2.60	.017	-.062	PG
0.176	1.25	.022	.044	SG
Wald chi2(5) = 41.05 Prob > chi2 = 0.0000				

According to results of the first and second patterns hypotheses test which was conducted based on the existence of autocorrelation, the regressions model is verified at the confidence level of 95%.

Research Conclusion and Suggestions:

Identification of the capital structure of companies in the stock exchange is very important which from different actors' points of view, the stock market is used in many different ways. As it was mentioned in the research objectives and as it was verified in the analyses, the capital structure is influenced by the growth (sale, profit and asset).

1. The research suggestion is based on the result of the first sub-hypothesis and the negative relationship between the institutional owners and the financial leverage. According to these results, companies owned by institutional investors tend to use less financial leverage because this high financial leverage shows financial risks. It is suggested that investors invest where institutional owners are high because high institutional owners lead to the less financial leverage. These findings can be optimally used in decision makings.
2. According to results of the second sub-hypothesis and the negative relationship between the profit growth and the administrative financial leverage, it is suggested that companies with a high profit growth reduce the utilization of the financial leverage in their financing, and investors invest in companies with a higher profit growth because there is a lower financial leverage and also lower risks and bankruptcy.
3. According to the third sub-hypothesis and the negative relationship between the sales growth and the financial leverage, it is suggested that companies with a high sales growth reduce the utilization of the financial leverage in their financing.
4. According to the results of the fourth sub-hypothesis and the negative relationship between the asset growth and financial leverage, it is suggested that companies with a higher asset growth reduce the utilization of the financial leverage in their financing. Because more risk is associated with higher financial leverage.

Suggestion for Future Research.

1. In addition, in this research, it is not clear that which variables cause others; so, it is suggested that in a separate research, it becomes clear that for investment or accreditation decisions, which one is considered to be the causative agent for the other.
2. Because of the difference among results of hypotheses test, the administrative financial leverage and the market financial leverage, it is suggested that more researches must be conducted in order to study these instrumental variables simultaneously.
3. As the ownership structure has different indices, including institutional ownership, managerial ownership, corporate ownership, etc., in this research, we only used the institutional ownership as the index of the ownership structure based on the research of Najjar and Tyler. It is suggested that in another research, other indices of the ownership structure are used.
4. The effect of industry and macro-economic and political variables can be entered into the pattern, and studied and analyzed.
5. Study of the financial leverage of small companies and its effect on the companies' growth

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