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Determinants of Capital Structure and Performance in Listed Companies of Tehran Stock Exchange

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Abstract

This study examines the determinants of capital structure and performance in the listed companies of Tehran Stock Exchange. Information of the financial statements of the sample companies were extracted using Rahavardnovin Software. Statistical population included listed companies in Tehran Stock Exchange since 2012-2017 from which 123 companies were selected as the sample. The model of the study was estimated using least squares method. Based on the results, the effect of company size, financial leverage, and advertisement cost on the performance was found to be significant. Also, the effect of company size, company age, sale volume, and total earnings on the capital structure was significant. In conclusion, some suggestions were offered.

Keywords: Capital structure, performance, advertisement cost, company size.

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Introduction

Studying corporate capital has turned into an interesting issue in the research area. If the company has high financial leverage, it will show the high risk of the companies.

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Reviewing literature shows that there are different factors in the companies affecting financial risk and selecting capital structure. Financing is a combined decision of debts and equity and a main issue for the financial managers. Modigliani and Miller (1985) were the first who suggested the idea of relatedness of capital structure. Financial theorists have examined this question from different aspects, gaining different results. In most of these studies, effective factors include tax, duties, bankruptcy, agency costs, and industry effects. The focus of many researchers of capital structure is on the factors that lead to an optimal combination of capital structure and corporate value added. The theory of debts states that strategic considerations in the product market lead to the formation of a high debt ratio, correlating debts and competition in the product market (Masiomick, 1988; Bernarder and Louis, 2006; Schoalter, 2009; Glaser, 2010).

Capital structure is the issue that most of companies encounter at the moment. The point is that what volume of capital structure should belong to the debt and what portion should belong to the equity which finally lead to minimizing capital cost and following that, increase stock value of the companies since the optimum capital structure is considered to be important (Jensen, 1976; Harris and Ravio, 1991; Rajan and Zingance, 2015).

Decisions on the financing and investment in the companies are the ones taken with providence. In the decisions of corporate financing, the company considers current cash to meet the obligations towards financial supporters. In the investment decisions, the company ignores some current benefits with the hope of gaining more future benefits. Investment on machinery and equipment, considered as the tangible fixed assets can be concerned as the examples of providence in gaining earnings and investment returns (Berger et al., 2014). Financing method of every company determines how its value is divided into borrowing capital and ownership capital. Thus, if capital structure is concerned as the combination of debt and equity, financial leverage shows that to what extent the company relies on the financing through creating debt (borrowing) instead of capital increase. Leverage ratios are the tools for determining the likelihood of the company default in meeting the obligations related to its debts (Wet, 2017). Too many debts of a company can increase default likelihood in meeting obligations and financial crises. But, from a positive view, one important method is financing with many tax benefits for the company. Since, debt is an acceptable tax cost which decreases tax and improves company performance (Rezaei et al., 2017).

Various factors affect debt amount. These factors include growth opportunities, profitability of the projects, and company size. This study examined effective factors in the capital structure and performance based on reviewing past studies. It utilized an approach to be a guide for the researchers in future studies. Thus, the main question of the study was if the determinants of capital structure significantly affect the performance of listed companies in Tehran Stock Exchange.

Capital structure

The combination of debts and equity is called capital structure. Decisions of capital structure regard two considerations:

1-Required capital amount, 2-Combination of financing resources

Combination of capital structure that results from different combinations of different financing resources affects capital cost and organizational financial risk. Thus, determining capital structure is important for the organizational owners and managers.

Capital structure is very important for the financial management of the organizations concerning its role and effect on equity, capital cost, and financial risk in the organization. One main goal of financial management in the organization is increasing organizational value and equity. One way to increase organizational value is decreasing the costs of financing. Concerning tax-decreasing nature of borrowing costs (obtaining facilities, issuing bonds), using it in the financing assets is very important. It is worth noting that using debt and raising the financial leverage of the organization lead to the increased financial risk and some costs such as the costs of bankruptcy, future non-flexibility, agency costs, and etc.

Regarding above-mentioned points and the relationship of capital structure and financial risk, equity value, and its direct relation with capital cost and organizational return, this issue is an important and controversial issue for the financial managers (Raeisifar, 2010). In fact, capital structure of an organization is the combination of the resources in the organization, affected by the factors such as control, return, dangers, timing, flexibility, and etc which are explained in evaluating financing methods. Concerning various theories on the capital structure and dominant conditions in the real world (especially in the developing countries like Iran) which are far away from a complete market, capital structure (combination of financial resources) of the organization affects its financial risk, its capital cost, and organizational value. By changing this combination (ratio of debt to equity), financial risk, capital cost, equity, and organizational value change as well (Soofiani, 2005).

Financial performance

Performance evaluation has been challenging researchers and users for the years. In the past, business organizations used just financial indices as the performance evaluation tools until in the early 1990s, Kaplan and Norton represented some inefficiencies of them in evaluating organizational performance after examining and evaluating management accounting systems. This inefficiency resulted from increased organizational complexity, environmental dynamism, and market competition (Tavallaei, 2008). Johnson and Suenen studied 478 companies from 1982-1998. They considered 10 indices for the successful companies among which profitability and liquidity were related with the working capital. Profitability is an important index in evaluating financial performance of the companies, estimated by the criteria such as asset return, gross operating return, and etc. (Fathi, 2009). Using financial ratios for predicting and evaluating financial performance has a long history. In 1920, Donaldson designed Dupont model to evaluate financial performance based on profitability. He examined assets′ management, liquidity, and efficiency of the company besides profitability using traditional financial ratios in this model. By the time pass, using financial ratios to predict and evaluate performance, profit, or loss of a

company, continuing activities, and especially in the weak and broke companies in different models has increased (Hashemi, 2011).

The main reason for selecting assets′ return and equity as the variables for evaluating company performance is that these ratios are directly correlated with the company strategy and management performance (Mahdavi, 2012).

Literature

Many studies have examined capital structure and financial performance. Nabiei Brojeni and Noorzavi (2015) examined the determinants of capital structure of listed companies in Tehran Stock Exchange, stressing hierarchy theory. Thus, using disclosed financial information of 101 companies in Tehran Stock Exchange since 2001-2011, their related models were provided. Hypotheses of the study were tested through the least squares method. Results confirmed using the principals of hierarchy theory in the static form for financing decisions of the studied companies. All independent variables in the model had a significant correlation with the debt ratio which accorded with the suggested theories. Among the tests of the hypotheses, just the positive effect of fixed assets and negative effect of net working assets were confirmed. Gorji and Raei (2016) conducted a study titled" Identifying the speed of modifying capital structure using dynamic model of optimum capital structure", emphasizing competition in the product market. Results showed that Iranian companies move towards target debt ratios (about 48% based on the instrumental variables and 26% based on GMM method). These high adjustment modalities confirmed high explicability of the parallelism theory among Iranian companies. The other goal of this study was examining the effect of competition in the product market (calculated by Tobin *Q)* on the capital structure of Iranian companies. Results of the estimated model using GMM showed the positive correlation of these two variables which was consistent with limited liability model. In a study titled" Evaluating financial performance with DEA approach", Mirghafoori et al. (2017) used DEA model and Grey theory. For this purpose, first, effective criteria in evaluating financial performance of Telecommunication Department were extracted and the weight of each one was determined using grey numbers. Then, using DEA approach, a model was offered for evaluating and ranking the companies of Telecommunication Department. Results showed that companies of Telecommunication Department in Markazi, Tehran, and Khoozestan provinces have had the best financial performances respectively. Khajavi et al. (2017) conducted a study on the relationship of capital structure, ownership structure, and performance using DEA approach. Results showed that capital structure and ownership structure of the companies have positive and significant effects on their efficiency. Also, results showed that efficiency of the companies have positive and significant effects on determining their capital structure.

Maditinis et al. (2016) examined the relationship of the components of intellectual capital, financial performance, and market in Stock Exchange of Greece. To calculate intellectual capital, the coefficient of intellectual value added was used. Results showed no significant correlation of intellectual capital, financial performance, and market; but, the correlation of human capital and equity return was confirmed. Lai Thi and Hidenobu (2017) examined the effect of public ownership, capital structure, and profitability with

evaluation analysis before and after Liman shock. Results showed that related foreign countries didn't have significant profits during bloom period but in post-bloom period they showed higher profit for the better technology of production and management. Results showed that correcting Vietnamese market needs developing a system which guarantees information transparency and independent government of the companies, increased financial openness, and more privatization of public companies.

Masdiah et al. (2017) studied capital structure and profitability in family and non-family companies with evidences from Malaysia. Findings showed that the higher profits of the companies depend on equity as the main alternative of financing. Also increased leverage was correlated with decreased profitability.

Reviewing the literature and considering previously mentioned theories, the following hypotheses were stated:

H1. Company size affects debts ratio significantly.

H2. Company age affects debts ratio significantly.

H3. Tangibles′ ratio affects debts ratio significantly.

H4. Sale volume ′s ratio affects debts ratio significantly.

H5. Total earnings affects debts ratio significantly.

H6. Ownership structure affects debts ratio significantly.

H7. Company size affects performance significantly.

H8. Debts ratio affects performance significantly.

H9. Advertisement cost affects performance significantly.

Methodology

This study had a survey approach. It also used descriptive and library methods for applied goals. To analyze data, (simple and stepwise) regression was applied using Eviews software. This method is proper to use when time series and cross-sectional data are available. Statistical population of this study included all listed companies in Tehran Stock Exchange. Using systematic sampling, 123 companies with the following conditions were selected as the sample:

1. They were active in the Tehran Stock Exchange since 2012.

2. Their fiscal year ended in the last month of winter.

3. Their fiscal year didn't change during study period.

4. Their stocks were traded in Tehran Stock Exchange at least once.

5-Investment companies, banks, and insurances were excluded from the sample.

6. Their financial information were available since 2012.

The model of testing first 6 hypotheses was as follows:

$$Y_{i,t}=\alpha_0+\beta_1 LNTA_{i,t}+ \beta_2 LNAGE_{i,t}+ \beta_3 TANGIB\text{-}TA_{i,t}+ \beta_4 SALESTA_{i,t}+ \beta_5 OS_{i,t}+ \beta_6 CR_{i,t}+ \beta_7 PBR\text{-}BSE_{i,t}+ \beta_8 SALESVOL_{i,t}+ \epsilon_{i,t}$$

Where,

$Y_{i,t}$ includes three following criteria:

1) Total ratio of the loans divided into the total assets of company *i* in year *t*

2) Total ratio of long-term loans divided into the total assets of company *i* in year *t*

3) Total ratio of short-term loans divided into the total assets of company *i* in year *t*

$LNTA_{i,t}$ is the company size and equals natural logarithm of total assets of company *i* in year *t*

$LNAGE_{i,t}$ is the natural logarithm of company age from the time of entering stock market of company *i* in year *t*

$TANGIBLE\text{-}TA_{i,t}$ is the ratio of tangibles divided into the total assets of company *i* in year *t*

$SALESTA_{i,t}$ is the total sales divided into the total assets of company *i* in year *t*

$OS_{i,t}$ is the ownership structure and equals the total stocks divided into the stock number of company *i* in year *t*

$CR_{i,t}$ is liquidity resulting from total current assets divided into total current debts of company *i* in year *t*

$PBR\text{-}BSE_{i,t}$ is the market price of each share divided into the book value of each share of company *i* in year *t*

$SALESVOL_{i,t}$ is the standard deviation logarithm of sale divided into the total assets of company *i* in year *t*

The model of testing hypotheses 7-9 was as follows:

$$PROFTA_{i,t}=\alpha_0+\beta_1 PROFTA_{i,t-1}+ \beta_2 LEVERAGE_{i,t}+ \beta_3 LNTA_{i,t}+ \beta_4 ADVERT\text{-}SAL_{i,t,t}+ \epsilon_{i,t}$$

Where,

PROFTA$_{i,t}$ is the performance and equals with earnings before tax and interest of company *i* in year *t*

PROFTA$_{i,t-1}$ is the performance and equals with earnings before tax and interest of company *i* in year *t-1*

LEVERAGE$_{i,t}$ is the ratio of debts and equals with total debts divided into total assets of company *i* in year *t*

LNTA$_{i,t}$ is the company size and equals with the natural logarithm of the total assets

ADVERT-SAL$_{i,t}$ is the cost of advertisement divided into the total sale of company *i* in year *t*

Results

Table 1 shows descriptive statistics of research variables.

Table 1. Descriptive statistics of the research variables

	Range	Min	Max	Mean	SD	Kurtosis	Skewness
Lnta	11.59	9.32	20.91	14.11	2.59	0.748	-0.270
lnage	1.24	0.01	1.25	0.52	0.36	-0.311	-1.15
Tangibleta	0.51	0.49	1	0.99	0.024	-1.38	0.976
SalesTA	6.83	-0.02	6.81	0.62	0.56	1.10	0.324
OS	0.815	0.035	0.85	0.61	0.148	-0.06	-1.219
CR	20.90	0.01	20.91	1.45	1.55	1.34	1.447
PBRBSE	2.38	0.16	2.54	1.37	0.69	-0.044	-1.167
Salesvol	5.03	-1.9	3.13	1.05	1.12	0.748	-0.270
profta	45.82	-5.55	40.27	2.23	4.23	0.331	1.059
lev	1.25	0.05	1.3	0.80	0.65	1.956	1.40
advertsal	0.51	0.09	0.59	0.26	0.120	0.745	0.01
y	4.97	0.02	5	0.69	0.54	1.288	2.48

Hypothesis test

In combined data, for examining the capability of the combination, f statistics was estimated. Based on the results in Table 2, significance level of Chow test was obtained to be above 0.05. Thus, for estimating the model, combined data was used. Thus, there was no need to use panel data.

Table 2, results of hypotheses test

	Model results for H1-H6		Model results for H7-H9	
Variable	Coefficient	SD	Coefficient	SD
C	(0.562) 0.478	0.826	(0.000) – 6.45	3.453
LNTA	(0.001) – 0.025	0.008	(0.048) 2.21	1.85
LNAGE	(0.000) 0.598	0.056	-	-
TANGIBLETA	(0.579) 0.442	0.797	-	-
SALETA	(0.004) – 0.093	0.033	-	-
OS	(0.317) – 0.127	0.126	-	-
CR	(0.000) – 0.096	0.012	-	-
PBRBSE	(0.435) – 0.021	0.027	-	-
SALEVOL	(0.002) 0.054	0.026	-	-
PROFTA(-1)	-	-	(0.000) 0.775	0.023
LEV	-	-	(0.031) – 4.21	2.1
ADVERTSAL	-	-	(0.000) 7.68	4.65
Determination coefficient	0.789		0.701	
Modified determination coefficient	0.751		0.697	
SD of regression	0.465		1.451	
Residual of sum square	131.46		410.25	
Log likelihood	-398.22		-524.22	
F	35.31		41.35	
F likelihood	0.000		0.000	

Table 3. Chow test ′s results

H1-H6		H7-H9	
Likelihood	Result	Likelihood	Result
(0.241) 1.54	Combined data	(0.124) 2.04	Combined data

Table 4. Results of hypotheses test

	Model results for H1-H6		Model results for H7-H9	
Variable	Coefficient	Sd	Coefficient	sd
C	(0.562) 0.478	0.826	(0.000) -6.45	3.453
LNTA	(0.001) -0.025	0.008	(0.048) 2.21	1.85
LNAGE	(0.000) 0.598	0.056	-	-
TANGIBLETA	(0.579) 0.442	0.797	-	-

SALETA	(0.004) – 0.093	0.033	-	-
OS	(0.317) – 0.127	0.126	-	-
CR	(0.000) -0.096	0.012	-	-
PBRBSE	(0.435) – 0.021	0.027	-	-
SALEVOL	(0.002) 0.054	0.026	-	-
PROFTA(-1)	-	-	(0.000) 0.775	0.023
LEV	-	-	(0.031) -4.21	2.1
ADVERTSAL	-	-	(0.000) 7.68	4.65
Determination coefficient	0.789		0.701	
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SD of regression	0.465		1.451	
Residue of sum square	131.46		410.25	
Log likelihood	-398.22		-524.22	
F	35.31		41.35	
F likelihood	0.000		0.000	

Discussion and conclusion

Based on the results, the effect of company size on the debt ratio was confirmed. Results of H_1 test agree with Salavati and Rasaeian (2007). They examined the relationship of capital structure and stock liquidity in Iran and found a negative and significant correlation of company size and debt ratio at 95% significance level. Results of H_2 test implying the effect of company age on debt ratio was confirmed which agrees with Najafi Omran (2008). They examined the determinants of capital structure of listed companies in Tehran Stock Exchange. Based on its results, company age and capital structure were positively and significantly correlated. This finding agrees with the given theories on the capital structure. H_3 implying the effect of the tangibles′ ratio on the debt ratio was not confirmed. But, the effect of sale volume to the debt ratio was confirmed in H_4. Also, H_5 implying the effect of total earnings on the debt ratio was confirmed; this result agreed with Pourzamani et al. (2010) who examined effective factors in the capital structure of their studied companies. Based on the results, the pattern of capital structure follows the reverse obtained liquidity. H_6 implying the effect of ownership structure on debt ratio was not confirmed. This result disagrees with Asadi et al. (2011) who found a negative and significant correlation between capital structure and ownership structure. This difference can be resulting from the variety of the studied companies in the study period. Also, results of Khajavi et al. (2017) showed a negative and significant correlation of capital structure and ownership structure. Based on the results, H_7 was confirmed. This finding agrees with Bandi et al. (2016) who found a positive and significant correlation of company size and performance. The effect of leverage on the performance in H_8 was confirmed. This result agrees with Nobani and Alhajar (2009) who found a negative correlation of leverage and performance. Finally, results showed that by increasing advertisement during the study period, the performance increased. Thus, H_9 implying the effect of advertisement cost on the performance was confirmed. It agrees with Badi et al. (2016), finding the correlation of determinants of capital structure and performance. In

their studies, capital structure and performance were positively and significantly correlated.

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