J. Basic. Appl. Sci. Res., 2(7)6517-6522, 2012

ISSN 2090-4304
Journal of Basic and Applied Scientific Research
www.textroad.com

The Investigation of Experimental relationship between Capital Structure and Profitability in Accepted Companies of Tehran Stock Exchange (TSE)

Mojgan Derayat

Department of Accounting, Islamic Azad University, Iran.

ABSTRACT

Tehran Stock Exchange market is one of the emerging capital markets that play an important role in Iran's economy. This study investigates the relationship between capital structure and profitability of accepted companies in Tehran stock exchange. In this study, the sample data collected from active companies in stock exchange between 2006 and 2010. According to the tests results, direct relationship between the variables explaining the type of capital structure used in companies and return on assets ratio as an indicator for the company's profitability, has confirmed. Moreover, the type of industry is affecting in the presence or absence the relationship between capital structure and profitability of companies. Therefore, implementing dummy variables technique and examining the model on each industry indicates that, the existence and extent of this relationship is different for different industries.
KEYWORDS: Capital Structure, Profitability, Tehran Stock Exchange.

1- 1. INTRODUCTION

Owners of a firm often face with two types of risks, i.e. Business risk and financial risk. Business risk depends on nature of the firm operations and financial risk depends on financing methods. Business risk directly depends on uncertainty associated with acceptable long-term returns power investments in firm. Acceptable return, related to uncertainty associated with the demand for products and management of firm in reflecting right reaction against unexpected events. In the financial risks associated with firm, some of the complexities of real-world make debt financing superior to other methods of financing and in some other cases, lead to the preference of financing through common stock over other methods. The term capital structure modification refers to type and proportion of different types of securities issued by the firm. Optimal capital structure is the set proportions (of securities) which would maximize the total value of firm.

Financial managers in dealing with this issue, "How can determine the maximum value of firm?" have to formulate their appropriate policies. In this case, one of the information resources could be the fluctuations of securities prices of firm in stock exchange. If after the announcement of a new financial plan, the company's stock price declines, it can be concluded that the new financial plan will puts the company's value out of optimum range. Meanwhile, financial institutions providing credit and financial facilities can share their views about firm's financial plan with financial managers. If the firm forced to pay high interest profit (nonconventional), and it can be a sign of previous high debts. Other sources of information can be reconsidering the classification of firm's bonds and lowering it via financial analyst institutions. The capital structure as one of the controversial topics in financial management and accounting, in fact refers to the combining the commitments of a company. More precisely, capital structure defined as the contribution of different sources of financing capital structure under titles like common and preferred stock, debt, and totally all resources owned by company. The main difference between debt and equity can be summarized to the priority of their payment and tax issues. This means that, companies must first pay creditors debts and then pay stock dividends and moreover, payments to creditors will reduce the tax but it is not true in dividend. About benefits of each, these points can be noted that although distributing debt securities has a high risk (not on time paying may lead to cash or kind fines), but in the other hand had tax benefits to the company. In versus, equities flotation has lower risk. However in a reasonable period of time, the firm might not force to pay dividends, but ultimately does not leads to a reduction in taxes. However, it is evident that company managers attempted to use debts to increase return equity. This increase occurs through the balance of financial costs and tax savings. An important issue about debts is estimating the amount of allowed financing through debts to raise equity returns and reducing bankruptcy risk. Since the main purpose of a company is to maximize shareholder wealth, so to achieve this goal it requires examining financing tools such as flotation common stock, bonds, and debt. Since the results obtained from

studies in different countries around topics related to capital structure and profitability were different and taking into account the importance of this issue in financial and accounting issues and that there is no clear relationship between these variables, this study tries to show the effect of each financial tools on company's assets returns.

The aim of this study is to test the major financial management theories that through examining the relationship between capital structure and profitability of accepted firms in Tehran Stock Exchange. In addition, by finding this relationship, we can discover the importance choosing an optimal capital structure by financial and economical managers in Iran's capital market. Although, debts or flotation common stock, which represent a firm's of capital structure have common features, i.e. funding resources are located outside of the firm and its operations, while retained earnings (another part of the capital structure of the firm) represents an internal source of financing. Until firm's management could convince individuals to invest or grant credits and loans to firm, there should be no restrictions to finance through external sources. However, retained earnings are internal resources and their amounts limited by annual profits acquired by the firm after deduction of distributed incomes. With regards to the characteristics of each of the methods of financing that will determine the firm's capital structure and their effects on the profitability, financial managers will be able to choose the best capital structure for a firm.

2- 2. LITERATURE REVIEW

Miller and Modoliani in 1958 provide theories expressing that, under certain assumptions, including a fully competitive market, no income tax, no bankruptcy costs, no agency costs, existence of information asymmetry between capital market participants, and replacing external and internal financial resources managers cannot simply change the company's value changing the composition of financing sources. In other words, firm value is independent of its capital structure. Jensen and Meckling (1976) in a comprehensive study about capital structure investigated the theoretical factors and patterns of choosing capital structure from the perspective of agency theory and the conflict of interest between different stakeholders of a firm. In this study, the" Static Trade-off Theory of capital structure" has been explained implicitly. According to Jensen and Mecling, optimal capital structure can be achieved by balancing the benefits of debt and debt agency costs. Myers and Majluf (1984) in their study investigated the determinants of capital structure from the perspective of information asymmetry hypothesis. This study claims that, if there is information asymmetry between company and capital market, profitable companies prefer internal financing sources to external ones. But if more resources required, they first use debts and finally use stocks flotation. Rajan and Zingales (1995) in their comprehensive study about capital structure investigated the determinants of firms' capital structure patterns from international perspective. Rajan and Zingales in their joint research examined the balance sheets of a large sample of public company in the world's seven major industrialized nations (America, Britain, Canada, France, Germany, Italy, and Japan). Using book values and shareholders' equity market, they calculated debt ratios and then estimate a multivariate regression model to examine the relationship between the four fundamental accounting variable (the value of fixed assets, market value to book value, the logarithm of sales, and profitability) with the company's capital structure. The results showed that, financial leverage in each of these countries have a negative relationship with both market value to book value and profitability and have a positive relationship with both firm size and value of tangible fixed assets. Therefore, with a little remission it can be said that, the factors related to the pattern of capital structure in these 7 countries, except Germany, have become popular. Booth et al (2001) developed their research on the capital structures of companies in various financial markets. They concluded that, factors affecting the selecting company's capital structure, despite major differences in their financial markets, are similar. Bevan and Danbolt (2002) in their joint study, reexamined Rajan and Zingales findings in the capital structure of British firms retested the sensitivity of Rajan and Zingales explanatory variables to various criteria and their elements. The results showed that, Rajan and Zingales results are strongly dependent to the definition of leverage or debt ratio. Lara and Mesquita (2003) in their study using a multivariate regression model examined the relationship between capital structure and profitability of companies in Brazil and found the following results: According to the independent variables used in their research including coefficients of short term and long-term debts and equity, the results indicated a direct relationship between profitability of short-term debts and equity and an inverse relationship with the long-term debts. In results analysis they mentioned to high interest rate in Brazil and the instability of exchange policies an believe that, this situation has led the local industries to remains in uncertain state, prevents timely implementing management decisions, and avoiding to accept any advanced debt policies. Namazi and Shekhzadeh (2010) in their study investigated the effect of capital structure on profitability of accepted companies in Tehran Stock Exchange in various industries. The sample includes 108

companies from various industries and the average debt on assets ratio and equity data collected over a concentrated and annually in a 5 years period and then analyzed. In addition, the average ratio of debt on assets and return on assets (ROA) during the same period were collected and tested. In order to test the hypothesis a simple regression coefficient correlation was used. Results indicate that, generally, there is a positive relationship between capital structure and profitability, but this relationship is statistically weak. The relationship between capital structure and profitability also depends on the industry and the optimized capital structure can be determined in various industries.

3- 3. METHODOLOGY AND DATA

This research is deductive - inductive with regards to reasoning and is collection, descriptive - correlational - Ex post facto from data collection perspective.

In this study, two hypotheses will be tested as follows:

1. There is significant relationship between capital structure and return on assets of companies accepted in Tehran Stock Exchange.
2. The industry type is effective on the relationship between capital structure and on the rate of return on assets in the accepted companies in Tehran Stock Exchange.

The research community consists of all companies accepted in Tehran Stock Exchange, which have been active continuously from 2006 to 2010. In order to uniformity, only companies in which, the financial year end in Persian date Esfand 29 (last day of the year) were included. Therefore, in this study companies are considered to have the following conditions:

A) Be present in Tehran Stock Exchange Between 2006 to 2010.
B) Their financial year ends to Persian date Esfand 29 (in Persian date).
C) The equity of these companies in the study period had a creditor balance
D) The number of firms in each industry is more than 4 companies.

As a result the sample for this study covers 135 companies in nine industries.

In this study, three independent variables considered are as follows:

CLT: obtained by dividing current liabilities on the sum of the debts.
ETL: the ratio of equity to total debt.
NCE: the ratio noncurrent liabilities on equity.

The dependent variable in this study was the rate of return on assets (ROA) and obtained by dividing equity before interest and tax deduction (EBIT) on total assets.

To test the first hypothesis, namely, the relationship between capital structure and profitability of all companies, the multiple regression equation, is used as follows:

$$ROA_{ij} = \beta_0 + \beta_1 CLT_{ij} + \beta_2 ETL_{ij} + \beta_3 NCE_{ij} + e$$

Where, I Is the examined firm and j is the related year.

And for the second hypothesis, the effect of industry type on the relationship between capital structure and profitability of companies, the two methods of dummy variables techniques and investigating the model on each industry were used. Multiple regression equations related to this hypothesis as follows:

A) Dummy variables technique:

$$ROA_{ij} = \beta_0 + \beta_1 DU_1 + \beta_2 DU_2 + \ldots + \beta_8 DU_8 + \beta_9 CLT_{ij} + \beta_{10} ETL_{ij} + \beta_{11} NCE_{ij} + e$$

DU_n: If the ith company is located on the nth industry it equals to 1 and otherwise is zero.

B) Examining model in each industry:

$$ROA_{ij1} = \beta_0 + \beta_1 CLT_{ij1} + \beta_2 ETL_{ij1} + \beta_3 NCE_{ij1} + e$$

$$ROA_{ij2} = \beta_0 + \beta_1 CLT_{ij2} + \beta_2 ETL_{ij2} + \beta_3 NCE_{ij2} + e$$

$$ROA_{ij9} = \beta_0 + \beta_1 CLT_{ij9} + \beta_2 ETL_{ij9} + \beta_3 NCE_{ij9} + e$$

4. RESULTS

According to Table 1, the coefficients of t and the significance number (Prob.) of each independent variable, indicate that CLT and ETL independent variables and constant coefficient, C, are statistically valid. Because the significance number of these variables is smaller than the 0.05 significance level. Therefore, hypotheses H_{01} indicating no significant relationship between capital

structure and return on assets in the companies rejected and thus the hypothesis H_{11} Indicating that there is relationship between capital structure and return on assets, with 95% of confidence level is confirmed and the final regression equation as follows:

ROA = 0.071 + 0.071CLT + 0.013ETL

Table 1- Results of the research model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.071545	0.022163	3.228054	0.0013
CLT	0.071601	0.022891	3.127888	0.0018
ETL	0.013927	0.003974	3.504835	0.0005
NCE	-0.002700	0.002051	-1.316577	0.1884
AR(1)	0.814364	0.018046	45.12656	0.0000
R-squared	0.815575	Mean dependent var		0.274580
F-statistic	889.9815	Durbin-Watson stat		1.827036

The test results of second hypothesis:

In order to assess the effect of industry in presence or absence of a relationship between capital structure and profitability of companies, first using dummy variables technique the effect of each industry in total regression measured which results will present in the following. It is worth mentioning that, dummy variables are, in fact, virtual variables with a value of zero or one which defined as the number of industries minus one (in order to prevent Multicollinearity). Therefore, in total, 8 virtual variables, DU1, DU2, ..., DU8, are defined.

As can be seen in Table 2, in this model, in addition to first hypothesis regression equation results, indicating the significance of independent variables, CLT, and constant, C, other results based on differences in the constant number, C, in various industries, could be derived . Therefore, the only significant dummy variables in this model are DU1, DU2, DU3, DU5, and DU7. Because the significance number of these variables are smaller than the 0.05 significance level. This means that, in the industries correspondent these dummy variables, assuming that coefficient of CLT variable is constant; the constant number, C, sum with obtained coefficients for each of these variables and represents the ultimate constant number in the regression equation of the industry. Therefore, hypotheses H_{02} (ineffectiveness of industry type in presence of a significant relationship between capital structure and return on assets ratio) rejected and thus, hypothesis H_{12} (effect of type of industry in presence of significant relationship between capital structure and return on assets ratio) is confirmed in the 95% confidence level. According to the explanations provided, the final regression model for each industry, with regards to sorting presented in Table 2 as follows

Automotive parts manufacturing	ROA = 0.076 + 0.085CLT + 0.014ETL
Metal products industry	ROA = -0.008 + 0.085CLT + 0.014ETL
Basic metals industry	ROA = 0.013 + 0.085CLT + 0.014ETL
Machinery and equipment industry	ROA = 0.029 + 0.085CLT + 0.014ETL
Food & Beverage industry	ROA = -0.0003 + 0.085CLT + 0.014ETL
Other industries	ROA = 0.127 + 0.085CLT + 0.014ETL

Table 2- Results of estimations for different industries

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.127334	0.024890	5.115794	0.0000
CLT	0.085784	0.022628	3.790981	0.0002
ETL	0.014308	0.004267	3.352871	0.0008
NCE	-0.002021	0.002028	-0.997018	0.3191
DU1	-0.051529	0.019842	-2.596990	0.0096
DU2	-0.135628	0.021187	-6.401469	0.0000
DU3	-0.114463	0.027664	-4.137524	0.0000
DU4	-0.050565	0.040903	-1.236219	0.2167
DU5	-0.098447	0.021007	-4.686458	0.0000
DU6	-0.045697	0.036557	-1.250029	0.2117
DU7	-0.127698	0.027381	-4.663800	0.0000
DU8	0.050163	0.029907	1.677283	0.0939
AR (1)	0.757509	0.019114	39.63171	0.0000
R-squared	0.837464	Mean dependent var		0.276907
F-statistic	342.2118	Durbin-Watson stat		1.822316

According to the statistical results of testing the model in each industry as described in Table 4, the following results on each of the industries are notable:

The relationship between capital structure and asset returns in the five industries of basic metal industry, machinery and equipment, food and beverage products, non- metallic minerals products, and chemical products confirmed. Therefore, hypothesis H_{0i} indicating the lack of relationship between capital structure and return on assets ratio in a company, were rejected for these industries and the hypothesis H_{1i}, indicating the relationship between capital structure and return on assets ratio in a company with 95% of confidence level is confirmed. Final regression model, in these industries as follows

Basic metals industry	ROA = 0.099 + 0.156ETL
Machinery and equipment industry	ROA = 0.221 + 0.074ETL
Food & Beverage Industry	ROA = 0.187 + 0.154ETL
Non-metallic mineral products industry	ROA = -0.002 + 0.066ETL
Materials and chemical products industry	ROA = 0.129 + 0.019ETL

In These 5 mentioned industries, the only variable that had statistical validity and its effectiveness on dependent variable, ROA, has been confirmed is ETL variable that defined by dividing equity on sum of firm's debts.

In other industries, there is no relationship between defined capital structure indicators and return on assets in companies and thus, in these industries the hypothesis H_0 (Lack of relationship between capital structure and return on assets in a company) will be confirmed.

5. Conclusion

Relationship between capital structure and profitability of companies that was the first issue in this study that been proved is the existence of a direct relationship between the variables explaining the type of capital structure used in companies with return on assets ratio as an indicator for the profitability of companies. These results indicate that, given that the debt composition of the sample companies comprising about 85% short-term debt and 15% long-term debt, there is a direct relationship between ratios of short-term debt on total debt and return on assets in a company. This direct relationship is also governed between the ratio of equity on total debt (which mainly comprises short-term debt) and return on assets of the company. Presence of such a relationship in various forms are confirmed in other studies, including Meyers and Majluf (1984), Rajan and Zingales (1995), Lara and Mesquita (2003) Bagherzadeh (2003), and Mohammad Namazi and Shirzadeh (2010 also).

The second hypothesis of this study is the effect of industry type on the relationship between capital structure and profitability. According to examining the effect of industry type on above relationship, the type of industry is effective in the presence or absence of the relationship between capital structure and profitability of companies. Both methods of testing the second hypothesis indicate the existence and extent of such relationship in different in different industries.

The effect of industry type on relationship between capital structure and profitability of companies has been confirmed in other studies, including Yazdani and Jahan Khany (1995) and Mohammad Namazi and Shirzadeh (2010).

Results of testing theories of financial management: As mentioned, this study aimed to investigate the static or dynamic equilibrium. The results indicate that, the more was the ratio of equity on debt; more profitability is expected and in fact profitability is a function of equity on debt ratio. However, if the company has decided to use debt as a part of financing source, the bulk it was short-term debt. According to the results of this study and referring the static or dynamic equilibrium theory we can expect an optimal combination of different types of financing for the firms. Thus by optimized adjusting the ratios of debt and equity, the maximum profitability can be achieved. In fact, management decisions of a firm made based creating a kind of balance in using the types of financing in order to maximize the firm's profit.

From the other hand, if we suppose the increase of ratio of equity on debt done through internal resources and debt securities redemption, the theory of a financing options hierarchy will be confirmed, so that the companies, based on accepting the agency theory and information asymmetry hypothesis, are more inclined to internal financing, but if we suppose that the increasing equity on debt ratio requires flotation of new stock, we will encounter with ambiguity in the interpretation of parts of this theory (Hierarchical financing) and that these companies are turning to debt than stock flotation, should be very skeptical.

Now if we consider the increase of equity on debt ratio due to the flotation of new stocks and assume that the theory of capital structure and market's on time reaction has accepted, probably we

could claim that, in the Iran's market, in addition to the low capital cost, the market value is higher than its book value and investors mainly assured to the future profits.

It should be noted that, the results of this research lead us to look free cash flow hypothesis with suspicion. Because in this hypothesis, the best financing tool is using debt due to prevent any misuse of internal resources by managers, but the results of this study show otherwise.

Considering that, the profitability indicator used in this study is return on assets (ROA), it is recommended to use other profitability and financial value indicators such as EVA, MVA, ROE, and etc. to assess the relationship between capital structure and profitability of companies in the future studies. Also, other different ratios can also be used as determinants of capital structure.

Considering the limitations presented above that lead to the elimination of a number of companies and industries, it is recommended to examine such relationships in future studies if these restrictions will be removed.

According to the 7-year period of this study, the data of some companies was not available during the period study or some of these companies were not in stock market in some years. This limitation causes influenced the collected data and thus, result in the removal of these companies from samples.

However, in order to assess the industry effect on presence or absence of relationship between capital structure and profitability of companies and generalizability of the obtained results, the industries with less than 5 companies were excluded. Therefore, the lack of available information about the companies in these industries which led to their removal was one of the limitations of this study.

REFERENCES

1. Bagherzadeh, S., (2006): "Explaining the pattern of capital structure of accepted companies in Tehran Stock Exchange", Financial Research, No. 16 (Winter 1382), pp: 47-23
2. Bevan, Alan and Danbolt Jo. (2002). "Capital Structure and Its Determinants in the UK": A Decompositional Structure. Applied Financial Economics 12. pp. 159-170.
3. Booth, L.; Aivazian V. and Demirguc-kunt, A. e Maksimovic, V. (2001). "Capital Structure in Developing Countries". Journal of Finance 56 (1). pp. 87-130.
4. Brill, Richard, Myers, Stewart, (2010): "Financial Management (Volume I)", translated and adapted by S. Bagherzadeh, Tehran; Zarrin kub.
5. Jahankhani, Ali, Yazdani, Naser, (1995): "The effect of industry type, size, business risk and the degree of operating financial leverage on the accepted companies in Tehran Stock Exchange" management study; No. 18 and 17, pp: 186-169
6. Jensen, M. and Meckling, W. (1976). "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure", Journal of Financial Economics 3. pp. 305-360.
7. Lara, J, E. and Mesquita, J, M, C. (2003). "Capital Structure and Profitability: The Brazilian case", Vancouver: Academy of Business and Administration SciencesConference, July 11-13, 2003.
8. Mahmoud, Malekipour Gharbi, (2006): "Analytical Evaluation of financial leverage on the profitability of accepted companies in Tehran Stock Exchange" MS Thesis of accounting, Shahid Beheshti University.
9. Mashayekh, Shahnaz, Shahrokhi Seyyedeh Samaneh, (2006): "Factors affecting capital structure"; accountant; years 21; Number 176 (September), pp: 19-13
10. Myers, S. and Majluf, NS (1984). "Corporate Financing and Investment Decisions When Firms Have Information That Investors Don't Have", Journal of Financial Economics 13. pp. 187-221.
11. Namazi, Mohammad, Shirzadeh, Jalal, (2005): "The relationship between capital structure and profitability of accepted companies in Tehran Stock Exchange (with emphasis on industry type)"; Accounting and Auditing, No. 42 (Winter), pp: 95-75
12. Rajan RG and Zingales, L. (1995). "What Do We Know about Capital Structure?" Some Evidence from International Data. Journal of Finance 50 (5). pp. 1421 to 1460.
13. Riahi Belkaui, A.. (1999). "Capital Structure-Determination, Evaluation and Accounting", First Edition, Quorum Books, London.
14. Vafadar, Mohammad, (2007): "The effect of the capital increase on trading volume and stock prices of accepted companies in Tehran Stock Exchange", Thesis, Islamic Azad University - Tehran Central Branch, 78-77.