STUDYING THE RELATIONSHIP BETWEEN CAPITAL, INFORMATION ASYMMETRY AND DEBT CAPACITY AND EFFECT OF TYPE OF INDUSTRY ON ITS IN LISTED COMPANIES BY IRAN STOCK EXCHANGE

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Abstract: It had been always focused the access to optimal composition of capital structure in the commercial units. According to pecking order theory of Myers which is one of the most well-known models of financing decision, debt ratio of company has been fluctuated in different periods due to financing resources and it determines structure of capital along with the indexes of information asymmetry and industry type in which companies activate. Accordingly, purpose of this research is to study about the pecking order theory of financing in the capital structure due to the subject of debt capacity and information asymmetry and comparison of these relationships based on the type of industries between the listed companies in Iran Stock Exchange. This research is a descriptive and correlating study and it involves in the classification of regression analysis. Additionally, since it is examined the relationship between the variables in this research, methodology of the present research is an Ex Post Facto research. Statistical population of the research consists of all listed companies in Tehran Stock Exchange from 2011 to 2016 and it has been used the systematic elimination method for determining sample size that one has been selected 203 companies in the above period. Sample companies have been classified on the relevant industry and compared together that one has been determined 156 companies in the large industries (or focused) and 47 companies in the small ones. Data has been also obtained from the databases in Iran Stock Exchange or derived from the financial invoices and relevant notes. Results of hypothesis I show that the listed companies in Iran Stock Exchange follows pecking order theory to cover their financial deficit. Similarly, problems of information asymmetry in the small companies is less than the large ones according to the results of hypothesis II and companies with the higher future growth have lower borrowing than companies with the lower growth. Meanwhile, pecking order theory between companies which are not faced with a problem of debt capacity has a more objective application according to the results obtained by hypothesis III, and this result is, by examining the type of industry in hypothesis IV, obtained that the relationship between the structure of capital on the pecking order theory, information asymmetry and debt capacity in the companies which activate in the large industries is much stronger than those activating in the small industries that it confirms effect of type of industry on the relationship.

Keywords: Pecking order theory; debt capacity; information asymmetry.

1. INTRODUCTION

To provide different models and theories, analysts seeks ways to achieve to an optimal composition of structure of capital so that they maximize company's value and minimize the cost of capital as much as possible. One of the most well-known models of companies' financing decisions in the financial literature is Myers Pecking Order Theory. Based on this theory, it is argued that

financing from accumulated profit is more desired than obtaining a loan, and obtaining a loan is more desired than financing through the sale of shares. Therefore, according to this theory, the debt ratio of company is fluctuated in different periods due to the financing resources and indicators such as growth opportunities, tangible fixed secured assets, company size, profitability, liquidity and business risk and type of industry are factors determining the structure of companies' capital (Lemmon & Zender, 2010). In this article, it is examined to apply the pecking order theory of financing in the structure of capital due to the subject of debt capacity and information asymmetry between the listed companies in Iran Stock Exchange. How companies organize their capital structure, had been a matter of a lot of literature during the past years. From Muller and Modigliani theories to the bankruptcy cost theory all had studied this subject. If it is focused on the capital structure of companies in another way and financial capacity and cash flow of companies to provide debt are considered as a benchmark for determining the structure of capital, it will posed the matter of debt capacity and one can solve this financial historical problem in another way. Debt to assets ratio as an index for measuring debt capacity is one of ways by which one can proceed to properly use the investment opportunities and also to prevent loss of resources (Saeedi & Abshet, 2014). To expect the maximum of debt capacity in any opportunity of investment, investors can set their own financing planning and begin their own activities using the minimum probability of failure to repay debts (Noorvash et al., 2011). Two theories, pecking order and static balance, on how of companies' financing have been posed in the financial literature. The pecking order theory of financing is based on this argument that the phenomenon of information asymmetry between the intra- and extra-organizational individuals influences on the companies' capital structure so that it provides a type of priority in the companies' financing decisions (Eslami Bidgoli & Mazaheri, 2010). The information asymmetry in market is led to the adverse selection in the transitions and, finally, to the inefficiency of market (Khana & Palpo, 2010). The adverse selection always follows costs. Pecking order theory forecasts that companies prefer to provide their required fund from the resources which have the least risk of adverse selection. In the meantime, financing from

issuing shares will bring the most cost for companies. Therefore, issuing debt in the ordinary conditions will be considered as the best external financing resources based on this theory (Aghaei et al., 2015). Consequently, in this theory, debt ratio is fluctuated in different periods due to the companies' financing and level of their need (Myers & Majluf, 2006). Among the advantages of use of debt is including: the interest expense which reduces taxable profit and effective expense of loan, repayment of debt is cheaper in the period of inflation because lenders do not have the right to vote, shareholders can control company by lower money, long-term debt can preserve future financial stability of company. Among its disadvantages is including: payment of interest expense, regardless of the profit or loss and payment of the original debt in due date. The excessive use of debt also increases risk of capital structure and provides problems such as probability of bankruptcy and non-payment of debt (Eslami Bidgoli & Mazaheri, 2010).

On the other hand, the study of information asymmetry resulted from the lack of information transparency in market is important because information asymmetry is always considered as a real economic cost for the company so that it can be appeared in the form of a higher investment cost for the company and it is the main driver of financing decisions according to the pecking order theory (Abdu, 2015). In accounting theory, asymmetry of information is very important because the securities markets are subject to threats from information asymmetry (Setayesh et al., 2012). In fact, groups with the private information increase the information asymmetry and likely difference in the suggested price of buy and sale and, as a result, cost of transactions (Frijenz et al., 2007). On the findings of Myers and Majluf (1984), factor forming the structure of capital is tendency of companies for the require financing and also difficulties of information asymmetry (Myers & Majluf, 1984). Based on these, one can find relationship between structure of capital, information asymmetry and debt capacity. Rather, this relationship is likely different in different industries. Since some industries is more significant than others in the capital market. It weakens and reinforces the mentioned relationship in different industries. The larger industries are usually more significant than the smaller ones. Therefore, it should be examined the given relationships

and application of pecking order theory, on the one hand, and it should be compared these relationships in different industries, on the other hand. Accordingly, in the present article, the following questions are arisen: Is the pecking order theory of financing applied to the listed companies in Tehran Stock Exchange? Does information asymmetry influence on the application of pecking order theory for financing (structure of the optimal capital) in the listed companies in Tehran Stock Exchange? Does debt capacity influence on the application of pecking order theory for financing (structure of the optimal capital) in the listed companies in Tehran Stock Exchange? And how type of industry can influence on determining these relationships?

2. RESEARCH LITERATURE

Structure of Capital

Structure of capital has been arisen as the most important parameter influencing on the valuation and orientation of economic enterprises in the capital market. The current evolved and changed environment has partly depended the companies' rating in terms of credit to their structure of capital, and it has made their strategic planning necessary to select the effective resources for achieving the goal of "maximizing the wealth of shareholders". Understanding of companies' structure of capital, on the one hand, is important to shareholders and potential investors and information on the structure of capital, on the other hand, is used by creditors (Baker & Wurgler, 2002). A company's structure of capital shows relationship between the debt and equity of shareholders. Debt produces limitations for managers while capital increases flexibility and decision-making ability. Use of debt in the financial structure increases the expected efficiency of shareholders, but it can also increase the risk of company. Investment structure which can maximize value of company or minimize total cost of capital is called "optimal capital structure" (Booth, 2001)

Methods of Financing

Financing is usually carried out in three main methods. One is to use the assets from the operation of companies which it is often referred as accumulated profit if profit

and loss. This type of financing is counted the cheapest method of financing because there is no foreign claims against it. Another method of financing is to obtain loan from the banks and credit institutions. In this method, receiving the facility from another economic enterprise which seeks to provide the interest of its shareholders imposes a lot of costs over the recipient of that facility. Third method of financing is to present the companies in the Stock Exchange market. This method, today, has been known as the best and cheapest of financing method all over the world (Huang & Ritter, 2009).

Effective Factors on the Structure of Capital

A company's structure of capital is influenced by the numerous internal and external factors. Internal factors are those which influence on the capital structure decisions inside a company and external factors are those which influence on the capital structure decisions outside a company. Internal factors are involved in removing the transitory financial needs by short-term resources, degree of risk, increasing the shareholders' profit, losing the control of company's operation and financial flexibility and external factors are involved in the overall level of activity, level of interest rate, level of stock price, access to the financial markets, policy of profit and interest tax and type of industry in which a company activates (Booth, 2001).

Information Asymmetry

Information asymmetry occurs when one of transaction parties has more information about conditions of transaction than the other. In this case, an economic system is informationally asymmetric (Nikoomaram et al., 2009). In accounting theory, if the price reflects fully all the information available on the market to everyone, there is still possible that intra-organization individuals have more information than extra-organization ones. In this time, these individuals use advantage of having information and gain more benefits (Setayesh et al., 2012). When foreign investors are aware of this issue, it is evident that they won't pay the amounts which they had prepared to pay for the securities if full information, and thus they have a reaction against the possible losses from the confidential information (Coomera & Lucas, 2014).

Debt Capacity

The financial ratio representing debt capacity and it helps us to forecast cash status of company and as well management decision is debt-to-asset ratio. Debt-to-asset ratio is a leverage which shows the risk of investors and long-term creditors in a firm. In fact, this ratio measures the amount of use of debt in financing of a company (Woodroof, 2007).

Background

Abdu (2015) has tested pecking order theory between Nigerian companies in two steps of growth and maturity in a research called "studying the decisions of capital structure and its effect on the Nigerian capital market". Results showed that maturity of company is an alternative representative for debt capacity and it well describes pecking order theory, financing behavior of companies after control of company's maturity. Coomera and Lucas (2014) studied "selection of capital structure an information asymmetry and its relationship to the debt capacity of companies in India". In this research, it was a sample size from 1992 to 2011 and result shows that sample companies in the time of financing decision, even after control of debt capacity don't follow the pecking order theory. Ogden and Wu (2012) carried out a research called "revaluating the impact of growth opportunities on the leverage". They considered the profitable growth opportunities as a significant factor in the explanation of companies' financial leverage with respect to the existing literature and, particularly, pecking order theory. Results show that there is a non-linear relationship between company's growth opportunities and financial leverage. Aghaee et al. (2015), in their research, studied the effective factors on the capital structure so that its result shows that debt ratio which is one of the most important determining ratios of companies' debt capacity has a direct connection to the profitability and structure adjustment in Iranian companies. Saeedi and Abesht (2014), in their research, carried out debt capacity in the listed companies in Tehran Stock Exchange. Result shows that companies should be always attention to their debt capacity in the time of producing the debt in order to not face with the bankruptcy conditions. In this study, the effective factors on the debt capacity and its size were determined including total asset-to-fixed assets ratio, day value of company, sale price, type of industry and debt to asset ratio. Etemadi and Montazeri (2014), in their research, carried out the effective factors on the companies' capital structure with emphasis on the competition of production market. In this research, independent control values representing the other effective factors on the capital structure consist of profitability, company's size, security value of assets, growth of company, non-debt tax shield, unity of assets, ability of domestic resources production and current ratio. Results showed that the effect of profitability in the static model, the first criterion of assets' security value and current ratio on the capital structure has been significant and negative and the effect of production market competition and as well as the non-debt tax shield on the capital structure has been significant and positive. In the dynamic model, the effect of profitability, the first criterion of assets' security value and current ratio on the capital structure has been significant and negative and the effect of production market competition, a previous period capital structure and as well as the size of company on the capital structure has been significant and positive. Hejazi et al. (2013) studied the relationship between the financial deficit and capital structure. Result shows a positive relationship between two factors that it implies to exist the pecking order theory of financing between the listed companies in Tehran Stock Exchange. Singh and Coomar (2012), in the study of "Indian companies' capital structure" found that the given companies carry out their transactions according to the pecking order behavior when they need a financial decision. By examining American companies, Lemon and Zender (2010) concluded that companies which have no difficulty on the debt capacity, they will follow pecking order theory to determine their capital structure. Serasquerio and Paulo (2010) examined relationship between the growth and debt opportunities in Portuguese companies. Their results showed that relationship between the growth and debt opportunities isn't linear. When companies have lower growth opportunities, it is positive the relationship between the growth and debt. Their results showed that relationship between the debt and growth opportunities is influenced by the complex dimensions of capital structure decisions. By examining American companies in the time of selection of capital structure, Shiam-Sander and Myers (1999) concluded that they strongly support the pecking order theory. David Alen (1991) focused on the capital

structure of 48 listed companies in the Australian Stock Exchange". Results supported to forecast the preferred theory by considering the financing resources and to maintain the proper debt capacity and they didn't support to forecast the static balance theory.

Type and Methodology

This study is descriptive and correlating and it is posed in the classification of the regression analysis. Similarly, since it is examined relationship between the values in this research, its methodology is a type of Ex post facto research.

Statistic Population and Sample Size

Statistic population of the present research consists of all the listed companies in Tehran Stock Exchange from 2011 to 2016. In this research, it was used systematic elimination method for increasing the ability to compare the companies in the sample and, hence, it was use the following criterion:

1. Companies which has been listed in Iran Stock Exchange in 2011 and companies which didn't excluded from the Exchange from 2011 to 2016.

2. Companies which hadn't been a part of investment companies, banks, financial and credit institutions and insurances.

3. The end of their financial year is March 19.

4. Companies which haven't fiscal year in the period from 2011 to 2016.

Based on the above conditions, 203 companies were selected during a period from 2011 to 2016. Sample companies are classified in term of the relevant industry and compared together so that 156 companies are involved in large (considerable) industries and 47 companies in small ones.

Method of Data Collection

Data are obtained from the available databases in Iran Stock Exchange or directly derived from the financial statements and relevant notes. It has been used test of Levin, Lin and Chu for examining stationarity of the independent and dependent variables in the given period that, with respect to the probability of given variable is less than 5%, variables are reliable and stable.

Hypotheses of Research

This article intends to present experimental evident on the relationship of capital structure, information asymmetry and debt capacity between the listed companies in Iran Stock Exchange. Financing of companies is one of challenging issues in the field of capital supply market. Capital structure has been posed as the most important parameter influencing on the companies' value and their orientation in the capital market. According to the pecking order theory, managers consider more preferable financing inside the company than financing outside the company. That is, at the outset, companies prefer to use internal fund, i.e., funds resulted from their activities (accumulated profits or savings). Then, if the internal resources are not sufficient for the required purposes, they will use external resources. Among external resources, they also consider debt more preferable than issue of shares and, finally, they proceed to supply the resources from the increase of capital if it is completed the debt capacity (Myers and Majluf, 1984). Therefore, it has been focused, in the first stage, to study application of pecking order theory among the listed companies in Tehran Stock Exchange and it has been set as follows:

> **Pecking Order Theory of financing is applicable among the listed companies in Tehran Stock Exchange.**

Given that the foundation of pecking order theory is resulted from the phenomenon of information asymmetry between intra- and extra-organizational individuals and it is main stimulus of financing decisions according to the mentioned theory, thus, it is very important to study the effect of this factor on the application of pecking order theory and, accordingly, it has been set hypothesis II of this research as follows:

> **Information asymmetry influences on the application of pecking order theory for financing among the listed companies in Iran Stock Exchange.**

To examine the effect of information asymmetry on the application of pecking order theory for financing, it has been used two criterion of company size and growth opportunities. According to the pecking order theory of financing, information asymmetry between

intra-organizational investors of a company and capital market is lesser for large companies, because they have more ability for issue of securities which respond to the disclosure of available information of management like stocks. Large companies are faced with less difficulties of information asymmetry and, unlike the small companies, they can easily issue stocks if necessary. Therefore, there is an inverse relationship between company size and debt ratio (Myers & Majluf, 1984).

Due to the above cases, it is considered sub-hypothesis I from the main hypothesis II of the research as follows:

> **Company size influences on the application of pecking order theory for financing among the listed companies in Iran Stock Exchange.**

It is expected that pecking order theory is further formed among the companies with the higher growth opportunities compared to the similar and peer companies, but with the lower growth opportunities. Therefore, this theory forecasts that there is a positive relationship between the growth opportunities and debt ratio (Myers & Majluf, 1984).

Due to the above cases, it is considered sub-hypothesis II from the main hypothesis II of the research as follows:

> **Growth opportunities of a company influence on the application of pecking order theory for financing among the listed companies in Iran Stock Exchange.**

Companies with the higher debt capacity have easily access to the debt market and companies with the lower debt capacity limit in access to the debt market. Accordingly, a company which has debt capacity can easily increase its debt in the market (Shiam-Sander & Myers, 1999). Thus, it is expected that pecking order theory overperforms to describe the financing behavior of companies with the higher debt capacity. With respect to the above points, hypothesis III is considered as follows:

> **Debt capacity influences on the application of pecking order theory for financing among the listed companies in Iran Stock Exchange.**

Having examined all of the above cases, it should be seen that type of industry in which companies activate how effect will have on the mentioned relationship. That is, it should be analyzed whether the existing conditions in any industry can influence on the relationship between capital structure (application of pecking order theory), information asymmetry and debt capacity. Because some of industries may be less subject to the damage of information asymmetry due to more attention, and vice versa. As a result, the main hypothesis IV of this research is as follows:

> **Type of industry influences on the relationship of capital structure, information asymmetry and debt capacity among the listed companies in Iran Stock Exchange.**

Variables and Way of its Measurement

In this research, financial deficit is calculated as total debt and shareholders rights changes and it is used the book value of assets in the denominator for co-scaling of companies. Dependent variable is the company's net debt that it, in this research according to the method of Frank and Goyal (2003) and Huang and Ritter (2009), is calculated by items of balance sheet and as follows:

Net debt of company i in the year t is equal to the debt changes of company i in the year t compared to the year $t-1$ is divided by total assets of company in the year $t-1$.

Model of Research

Overall model used in this research is the main model of financing pecking order of Shiam-sander and Myers (1999):

$$\Delta D_{i,t} = \alpha t + \beta_{PO} \, DEF_{i,t} + \mu_{i,t}$$

wherein,

> Dependent variable: $\Delta D_{i,t}$ = Net debt of company i in the year t and

> Independent variable: $DEF_{i,t}$ = financial deficit of company i in the year t and

> β_{PO} is coefficient of pecking order theory of financing.

According to the research carried out by Frank and Goyal (2003) and Huang and Ritter (2009), if companies fully follow the pecking order theory of financing, β_{PO} is at most equal to 1 and αt is approximately equal to 0, therefore, the above model is estimated in the level of data totality along with the test of hypothesis I and we focus on the relationship between its coefficients and being significant using the statistical tests.

Along with the test of hypothesis II and due to two criterion used for measuring the amount of information asymmetry, the above model is estimated in two groups of large and small companies and as well as companies with the higher growth opportunities and companies with the lower growth opportunities:

Sub-Hypothesis I: In order to divide company-years into large and small, company-years are sorted on the natural logarithm of assets and company-years presented in the bottom one third are identified as small companies and company-years presented in the top one third are evaluated as large companies. Then, the above model is evaluated among the large and small company-years and β_{PO} coefficients are compared.

According to pecking order theory of financing, large companies are faced with less information asymmetry and, unlike small companies, can easily issue stocks if necessary. Therefore, there is a reverse relationship between the company size and debt ratio (Shyam-Sander & Myers, 1999). Thus, it is expected that β_{PO} coefficient among small companies is larger than large ones.

Sub-Hypothesis II: In order to divide company-years into the companies with the higher and lower growth opportunities, company-years is sorted on the market value to shareholders' book value ratio and company-years presented in the bottom one third is identified as companies with the lower growth opportunities and company-years presented in the top one third is evaluated as companies with the higher growth opportunities. Then, the above model is evaluated between companies with the higher and lower growth opportunities and β_{PO} coefficients are compared together. According to the pecking order theory of financing options, companies with the higher growth opportunities can use more debt due to decrease the costs of bankruptcy. On the other

hand, information asymmetry increases regarding the quality of investment projects in the companies with the higher growth opportunities that it allows to more use debt. Thus, it is expected that companies with the higher growth opportunities use the debt as the first resource of external financing and there is a positive relationship between growth opportunities and debt ratio (Frank and Goyal, 2003). Therefore, in this research, it is expected that β_{PO} coefficient is more in the level of companies with the higher growth opportunities than those with the lower growth ones. Along with the test of hypothesis III of this research, the above model is estimated into two groups of companies with the higher and lower growth opportunities. In order to divide company-years into the higher and lower debt capacity, company-years are sorted on the debts to assets ratio and company-years presenting in the bottom one third are identified as companies with the lower debt capacity and company-years presenting in the top one third are evaluated as companies with the higher debt capacity. Then, the above model is estimated among company-years with the higher and lower debt capacity and β_{PO} coefficients are compared together. According to the pecking order theory of financing, companies with the higher debt capacity allow to more use the debt. As a result, it is expected that β_{PO} coefficient in companies with the higher debt capacity is larger than those with the lower debt capacity (Lemon & Zander, 2010). In order to test the fourth hypothesis of research in different industries, the given model has been also tested and it is compared among the different industries together. Active industries are divided into the large industries (considerable) and small industries (free) on the current conditions of the country and, ultimately, they are compared together and results are analyzed.

Statistic Methods used for Estimation of Research Models

In order to estimate the research models has been used the panel techniques. To select between the integrated and panel models, it is used Leamer F-Test. It is also carried out all tests related to normalize data, heterogeneity of variance, composite co-linear and self-correlation and their removal. It has been used T-Test for comparing and detecting difference and causal relation to study the effect of independent variable or causal relation. Using

coefficient of determination (R^2), suitability of the fitted regression line is used based on a set of data. To test the significance of the whole model which has several variables, it is used the F-Test. In other words, to examine the accuracy of regression model is used F-Test.

Examining the Stability of Research Variables

Before estimating the model, it should be examined stability of its variables. Results of stability test has been inserted in the following table. On the test "Levin, Lin & Chu", independent and dependent variables have been in the level of stationarity in the given period because the value of possibility of all variables has been less than 5%. Thus, there won't be problem of false regression.

Table 1
Results of Stability Test of Levin, Lin and Chu for Research Variables

Variables	Value Statistics	Probability Value	Result
Size	−36.14	0.000	Stable
Growth	−22.10	0.000	Stable
Debt-to-assets ratio	−39.65	0.000	Stable
Net debt	−15.54	0.000	Stable
Financial deficit	−22.95	0.000	Stable

Examining the Normality of Remnants of Model

Normality of the remnants of regression model is one of regression assumptions that it indicates validity of regression tests and it is examined by Jarque-bera Test. Possibility value of computational statistics is 0.15 that it indicates normality of remnants of the main model.

Brush-Gadfari Test for Examining the Variance Homogeneity

One of tests used for examining the variance homogeneity is Brush-Gadfari test that it indicates the variance homogeneity of remnants of the main model given that in this research, possibility value obtained is 0.15. Because the computational statistic F is more than 5%.

Select of Appropriate Model on the Panel Analysis

According to the panel analysis carried out in this research, it has been selected the most appropriate model

among three models, non-effects model, fixed-effects model and random-effects model and it will discuss the significance of each of independent and control variables. it has been represented results of Leamer and Housman Test to detect an appropriate model in Table 2.

Table 2
Chow and Hausman Test for Selection of the Proper Model

Test of Effects	Chow or Limer Test			Hausman Test			Result
	Value	*Degree of Freedom*	*Probability Value*	*Chi-squared Value*	*Degree of Freedom*	*Probability Value*	
Value F	1.42	202.1014	0.000	3.38	1	0.066	Random-effects model
Chi-squared Value	304.23	202	0.000				

The probability value of Chow Test in the above model is less than 05.0 (value is 0.000), so, the width from the origin of all sections is not equal and the used model has the separate effects for the companies. Probability value for the Hausman Test is 0.66, then, the model is suitable to the random effects.

Describing the Test of Research Hypotheses

On the results of test for the hypothesis I, as presented in Table 3, there is a positive and significant relationship between the independent and dependent variables. In other words, the greater independent variable, the greater dependent variable will be also. Therefore, hypothesis I is confirmed. The results obtained from hypothesis I indicate a positive and significant relationship between the financial deficit and debt ratio of company and they also indicate that the pecking order theory of financing is applied among the listed companies in Iran Stock Exchange and, therefore, according to the mentioned theory, the given companies didn't seek optimal capital structure and used this theory to cover their financial deficit. They have initially used domestic resources including accumulated profits and savings and external resources such as loans and stock issuance if lack of domestic resources. In other words, companies use the policy of issuing stocks in order to cover financial

deficit as the last solution after using the other options of financing which have the least problem in the reverse selection than information.

Table 3
Estimation and Test of Model Parameters

Parameters	Coefficient Value	Value t	Probability Value	Result
Fixed value	0.07	12.74	0.000	Significant & Positive
Financial deficit	0.18	16.75	0.000	Significant & Positive
Value F		280.05	Probability Value F	0.000
Coefficient of determination		0.19	Watson Camera	1.93
Adjusted Coefficient of determination		0.186		

Fitting of Model Dividing the Company Size

Due to the fact that companies have been divided into two groups of small and large on the size, it has been used the simple linear regression method for analysis of models and the panel analysis method is not applicable in the type of data. Because companies may be in the group of large companies in terms of size for some years and in the group of small companies for other years. Value of coefficient of determination for small and large companies is, respectively, 0.12 and 0.24. Value of coefficient of Watson camera for small and large companies is, respectively, 1.93 and 1.68. According to the results of hypothesis testing, as presented in Table 4, there is a positive and significant relationship between the independent variable of financial deficit and dependent variable of debt ratio, and β_{PO} coefficient in the smaller companies is less than β_{PO} coefficient in the larger companies. It follows that there is a direct relationship between the company size and the debt ratio so that results obtained are in contradiction with the assumptions of pecking order theory of financing. According to the aforementioned theory, information asymmetry between intra0organizational investors of a company and capital market is less for the large company, because their ability is more likely to issue securities which respond to disclosure of available information of management, such as stocks. Large companies are faced with less difficulties of information asymmetry and, unlike

the small companies, can easily issue stocks if necessary. Therefore, there is a reverse relationship between the company size and debt ratio (Myers & Majluf, 1984). Because we used company size as a factor for measuring the effect of information asymmetry on the application of the mentioned theory in the given study, thus we conclude that information asymmetry doesn't influence on the application of pecking order theory for financing among the listed companies in Iran Stocks Exchange.

Table 4
Estimation and Test of Parameters by Dividing the Company Size

Size	Parameters	Coefficient Value	Value t	Probability Value	Result
Small	Fixed value	0.08	9.40	0.000	Significant & Positive
	Financial deficit	0.12	7.30	0.000	Significant & Positive
Value F			53.22	Probability Value F	0.000
Coefficient of determination			0.12	Watson Camera	1.93
Adjusted Coefficient of determination			0.11.5		
Large	Fixed value	0.06	6.18	0.000	Significant & Positive
	Financial deficit	0.25	11.25	0.000	Significant & Positive
Value F			126.50	Probability Value F	0.000
Coefficient of determination			0.24	Watson Camera	1.68
Adjusted Coefficient of determination			0.24		

Fitting of Model by Dividing the Company Growth

In Table 5, models have been estimated by dividing the company growth. Significance probability value F in the both groups is 0.000. These is less than 0.05. Thus, zero assumption is ruled out at level of 95% confidence, that is, there is a significant model for companies with the low and high growth at level of 95% confidence. Based on the results of hypothesis testing, as presented in Table 5, there is a positive and significant relationship between the independent and dependent variable. In other words, the greater independent variable, the greater dependent

variable will be also. β_{PO} coefficient in the high growth companies is less than β_{PO} coefficient in the low growth companies and it means that there is a reverse relationship between the growth opportunities and debt ratio. It is in contradiction with the assumptions of pecking order theory of financing. According to this theory, companies which have the higher growth opportunities can use more the debt because of decreasing the costs of bankruptcy. On the other hand, information asymmetry increases regarding the quality of investment projects in the companies with the high growth opportunities that it allows to use more debt (Myers, 1984). Because we used growth opportunities of company as a factor for measuring the effect of information asymmetry on the application of the mentioned theory in the given study, thus we conclude that information asymmetry doesn't also influence on the application of pecking order theory for financing among the listed companies in Iran Stocks Exchange according to this factor.

Due to this fact that results from the both factors of size and growth opportunities is in contradiction with the assumptions of pecking order theory, thus, information asymmetry doesn't influence on the application of this theory among the given companies and hypothesis II of this research isn't confirmed.

Table 5
Estimation and Test of Parameters by Dividing the Company Growth

Growth	Parameters	Coefficient Value	Value t	Probability Value	Result
Low	Fixed value	0.05	6.63	0.000	Significant & Positive
	Financial deficit	0.29	13.60	0.000	Significant & Positive
Value F			184.91	Probability Value F	0.000
Coefficient of determination		0.31		Watson Camera	1.93
Adjusted Coefficient of determination		0.31			
High	Fixed value	0.08	8.83	0.000	Significant & Positive
	Financial deficit	0.14	7.68	0.000	Significant & Positive

Growth	Parameters	Coefficient Value	Value t	Probability Value	Result
Value F			58.96	Probability Value F	0.000
Coefficient of determination		0.13		Watson Camera	1.88
Adjusted Coefficient of determination		0.12.5			

Fitting of Model by Dividing Debt-to-assets Ratio of Company

In Table 6, models have been estimated by dividing the debt to assets ratio of company. Significance probability value F in both groups is 0.000. These values are lesser than 0.05. So, zero assumption is ruled out at level of 95% confidence, that is, there is a significant model at level of 95% confidence for companies with the low and high debt capacity. According to the results of hypothesis testing, as presented in Table 7, there is a positive and significant relationship between the independent variable of financial deficit and dependent variable of net debt. In other words, the greater independent variable, the greater dependent will be. β_{PO} coefficient in the high debt ratio companies is more than β_{PO} coefficient in the low debt ratio companies and it indicates that the given companies proceed to cover their own financial deficit due to the amount of their debt capacity. As a result, as it is expected, pecking order theory has over performed to describe financing behavior of the higher debt companies. Thus, debt capacity influences on the application of pecking order theory for financing among the listed companies in Iran Stock Exchange and hypothesis III of this research is confirmed.

Table 6
Estimation and Testing of Parameters by Dividing Debt-to-Assets Ratio of Company

Debt-to-assets ratio	Parameters	Coefficient Value	Value t	Probability Value	Result
Low	Fixed value	0.1	1.74	0.083	Insignificant
	Financial deficit	0.11	7.75	0.000	Significant & Positive

(Contd...)

(Contd...)

Debt-to-assets ratio	Parameters	Coefficient Value	Value t	Probability Value	Result
	Value F		60.08	Probability Value F	0.000
	Coefficient of determination		0.13	Watson Camera	2.06
	Adjusted Coefficient of determination		0.12.7		
Large	Fixed value	0.13	15.40	0.000	Significant & Positive
	Financial deficit	0.27	13.15	0.000	Significant & Positive
	Value F		173.02	Probability Value F	0.000
	Coefficient of determination		0.30	Watson Camera	1.79
	Adjusted Coefficient of determination		0.30		

Table 7
Estimation and Testing of Parameters by Dividing Type of Industry

Debt-to-assets ratio	Parameters	Coefficient Value	Value t	Probability Value	Result
Small	Fixed value	0.98	1.63	0.081	Insignificant
	Other factors	0.109	7.59	0.000	Significant & Positive
	Value F		61.09	Probability Value F	0.000
	Coefficient of determination		0.11	Watson Camera	2.13
	Adjusted Coefficient of determination		0.11.5		
Large	Fixed value	0.11	15.62	0.000	Significant & Positive
	Financial deficit	0.32	13.35	0.000	Significant & Positive
	Value F		171.01	Probability Value F	0.000
	Coefficient of determination		0.31	Watson Camera	1.86
	Adjusted Coefficient of determination		0.31		

Fitting of Model by Dividing Type of Industry

In Table 7, models have been estimated by dividing the type of industry. Due to the variety, industries have been divided into two general groups of large and small industries and models have been tested for these groups. Number of member companies of large industry has been determined 156 and number of member companies of small industry is 47. As expected, significance probability value F in both groups is 0.000. These values are lesser than 0.05. Thus, zero assumption is rejected at level of 95% confidence, that is, there is a significance model at level of 95% confidence for companies of large and small industries. Based on the results of hypothesis testing, as presented in Table 7, there is a positive and significant relationship between the type of industry and capital structure, information asymmetry and net debt. In other words, the greater industry, the greater the severity of given relationship will be. β_{PO} coefficient in larger industries companies is greater than β_{PO} coefficient in smaller industries companies and it indicates that type of industry in which company activates influences on the relationship. In other words, this relationship hasn't been observed in the small industries while the larger the industry, the greater the severity of relationship will be. Therefore, hypothesis IV of this research is confirmed.

Results of Research and Propositions

As observed, results indicate that the listed companies in Iran Stock Exchange follow a pecking order to cover their own financial deficit and they primarily use internal resources such as accumulated profit and savings and they use less costly and risky methods such as financing of debt if lack of internal resources and, ultimately, it is applied policy of issuing stock as the last solution after using the other options of financing which has the least difficulty of reverse selection and sensitivity to information so that these results are in contradiction with the findings of Abdu (2015), Coomera & Lucas (2014), Lemon & Zender (2010) and Shiam Sander & Myers (1999). Similarly, according to pecking order theory of financing, large companies are faced with the lower information asymmetry and, unlike the small companies, can easily issue stock if necessary. Therefore, there should be a reverse relationship between the company size and debt ratio. But, results show that there is a direct relationship between the company size and debt ratio. Given that the

company size has been considered as a control variable to examine the effect of information asymmetry on the application of pecking order theory of financing and results obtained are in contradiction with the bases of this theory, thus, small companies are faced with lesser difficulties of information asymmetry and they cover a part of their own financial deficit by issuing stock, and large companies are faced with more difficulties of information asymmetry and, therefore, they primarily use the internal resources to cover their own financial deficit and, then, the external resources such as loan and, ultimately, issuing stock that these results are in contradiction with the findings of Shiam Sander & Myers (1999), Myers & Majluf (1984) and Lemon & Zender (2010). Also, other results indicate that more oncoming growth companies perform lesser financing of debt compared to the low growth ones. Companies with more growth opportunities have more risk and financial distressed cost, as a result, they proceed to finance further through the issuance of stock that these results are consistent with the findings of Coomera & Lucas (2014). Other result obtained from this research show that pecking order theory is objectively applied among companies which have not difficulty on the debt capacity, these results are consistent with the findings of Abdu (2015), Lemon & Zender (2010) and are in contradiction with the findings of Coomera & Lucas (2014). Meanwhile, by examining type of industries in the companies is concluded that in companies which activate in the large (considerable) industries, the relationship between the capital structure on the pecking order theory, information asymmetry and debt capacity is much stronger than companies which activate in the small industries that it confirms effect of type of industry on the relationship. Based on these results, it is proposed that it is primarily provided a field of establishment of organized market to issue securities in the public corporations by the relevant authorities in order to solve the difficulty of information asymmetry in the large companies. Meanwhile, companies should be also attention to their own debt capacity for better use of pecking order theory. Additionally, according to the results obtained that the large companies in the large industries are faced with more difficulty of information asymmetry than small companies in the small industries, it is proposed that investors further focus on the investment

in the small industries while large industries seek to solve the problem of information asymmetry. Because small industries in Iran have been less exposed to the risks form information asymmetry.

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