DETERMINANTS OF CAPITAL STRUCTURE OF IRANIAN COMPANIES LISTED IN TEHRAN STOCK EXCHANGE: A STRUCTURAL EQUATION MODELING APPROACH

Nasrin Yousefzadeh,

Lecturer, Department of Accounting,
Vali-e- Asr University of Rafsanjan, Iran.

Zeinab Aazami

Lecturer, Department of Accounting,
Faculty of Management and Economics of
Baft, Shahid Bahonar University of
Kerman, Kerman, Iran.

Hilda Shamsadini,

Department of Accounting, Islamic Azad
University, Bam Branch, Iran

Mina Abousaiedi,

Department of Accounting, Kerman Branch,
Islamic Azad University, Kerman, Iran.

ABSTRACT

The objective of the current research is to study the effective factors on capital structures. In line with achieving this objective, financial information of 97 companies, accepted in Tehran Stock Exchange during the research period (2003 to 2011) was analyzed using the structural equations approach. In the current study, in order to measure the capital structure, we used from the long-term debts to assets market value ratio and studied the influence of the variables including growth, uniqueness, assets structures, profitability, earnings volatility, size, stock returns and industry classification on capital structure, the results indicated that growth, uniqueness and the profitability has a negative effect on the capital structure, but assets structure and size has a positive effect on the capital structure. The current studies also showed that there is no significant relation between earning volatility, the firm stock returns and the capital structure.

Keywords: Capital structure; Debt; Latent variables; Structural equation modeling.

Introduction:

Capital structure is one of the most important effective parameters on the companies' valuation. Capital structure is composed of the debts and owners' equity to finance the firm. Decision making about capital structure is one of the most challenging and difficult issues which has involved companies, but yet it is the most vital decision for them to be survived. Making these decisions currently is the main function of financial managers at stock companies which should be made in line with maximization the company's value. Therefore, questions such as:

What factors shall affect assigning the company's capital structure? Or originally, whether or not there is optimal capital structure, using that we can maximize the company's value?

It has involved the researchers' mind for many years and they came up with some theories to answer these questions, but they don't yet come up with a singular theory that can solve the capital structure problems.

Capital structure theories showed that as the companies' internal parameters are various, the risk of the firms and the manner to finance are different, so selecting capital structure shall depend on the internal characteristics and parameters of the companies. The results of empirical studies showed that the parameters such as the size of the firm, growth and investment opportunities, tangible fixed assets ratio, profitability, earning volatility, uniqueness, stock return and the qualitative variables has had influence on the company's performance specially the type of industry, mainly affect the process of assigning the companies' capital structure (Harris and Raviv, 1991).

But since the characteristics and factors related to the firms are mainly subjective, we usually use one or more observable variable to form an indicator or proxy for these latent variables. The observable indicators or proxies might not completely introduce the characteristics under measurement so considering measurement errors, they can be used as a scale for latent variables but this fact may create problems in empirical studies. By applying structural equation modeling (SEM) in financial structure studies, the said problem will be removed. By this technique, we can use several observable indicators or proxies for latent theoretical structures without encountering multi-collinearity issues in independent variables which is a common problem in regression analysis (Chang, et al., 2009). In the current research, applying structural equation modeling (SEM), we studied the determinants of capital structure in Iran economic environment and measure the effects of internal characteristics of a firm including growth, uniqueness, assets structures, profitability, earnings volatility, size, stock returns and industry classification on the capital structure.

Theoretical Basics:

In 1985, Miller and Modigliani, in the paper titled "The cost of capital, corporation finance and the theory of investment" made a great movement in capital structure. Although the said researchers revised their theory later on and the others also criticized the theory, yet their method of proving the theory was greatly new and introduced a new way in financial research. These two researchers argued that having sets of restrictive assumption and irrespective of tax and the contract costs, the strategy to finance the firm doesn't influence the current value of the firm. This theory is called "Non-Relational Theory" and also "Unambiguous Capital Structure Theory". Independence of financial leverage theory of Miller and Modigliani will be valid providing we can analyze the efficient market hypothesis but being the incomplete characteristics of capital market in real world; the capital structure of a firm may have an influence on its valuation. Thereafter, Miller and Modigliani published a paper in 1963 in which the hypothesis of firm tax-loss was mainly balanced. Miller and Modigliani proved that as for the interest payment reduces while calculations of the firm taxable income, the more capital liability we have, there would be the less tax debts and as a result the firm market value will be increased. Several years later, Miller (1977) continued this work without the cooperation of Modigliani and also predicted the personal tax. According to Kravis and Elnetzberger (1973), the firm tax exemption will somehow increase the bankruptcy due to increasing the predicted costs that the debts will increase equal to tax saving, then we can define the optimal structure which is called

Static Trade-off Theory. Theory of agency costs will add the agency costs of the shareholders and creditors to the debts costs. Miller and Modigliani argued that managers and investors have similar information about the firm; though, the managers often have more information than the investors. This phenomenon is called "Information Asymmetry". The results of asymmetric information and Pecking order Theory are the replacements for financing the firm. According to this theory the firms take steps to meet their requirements. In other words, when we face information asymmetry between managers and investors out of the organization, managers prefer to finance the firm out of the resources inside the firm than outside resources (Kimiagari and Einali, 2008). Market Timing Theory is a new theory presented by Baker and Wurgler in 2002. Baker and Wurgler express the timing theory in a simple way as follows:
"The capital structure is formed due to cumulative results of the previous efforts of the firm for equity securities market timing"
The main result of market timing theory is that: the adverse and inappropriate pricing of debts and stock tools while the firm needs to be financed is the first factor which determines the decisions made about the firm capital structure.
Almost, by passing more than five decades from publishing Miller's and Modigliani's Theories, yet a single theory has not formed to solve the capital structure problem. Although, capital structure theories indicate that due to the variety of the companies' internal parameters, the manner to finance, capital structure and following them the risk of the firm is different, so selecting capital structure shall depend on the internal characteristics and parameters of the companies. But, since the characteristics and factors related to the companies are mainly latent, in empirical studies, we usually use several observable indicators or proxies for measurement.
These observable indicators or proxies can then be viewed as measures of latent variables with measurement errors. Traditionally, researchers use either one or more observable variables to form a proxy to measure a single latent theoretical variable. However, the use of these indicators as theoretical explanatory variables in both cases may cause errors-in-variables problems (Maddala and Nimalendran, 1996).
Structural equation modeling is a general and powerful multivariable analytical technique related to multivariable regression and in exact words it is the developed version of the general linear model which let the researcher to test a set of regression equations simultaneously. Variables of this equation set may be as observable variables or as latent variables which are not measurable but they are in association with observable variables (Hooman, 2008).

Titman and Wessels (1988) point out some problems in regression analysis associated with estimating parameters with proxies for unobservable theoretical attributes. First, the lack of unique representation of the attributes may lead researchers to select variables based on statistical goodness-of-fit criteria, and therefore, bias economic interpretation. Second, the lack of unique representation of proxy variables for theoretical attributes means that a proxy may be measuring the effects of several different attributes. Third, the regression analysis introduces an errors-in-variables problem due to the imperfect representation of proxy variables for interested attributes.

Review Literature:

Titman and Wessels (1988), introduced problems of regression analysis in connection with parameters estimation through indicators of latent theoretical characteristics, at the same time they used structural equation modeling approach to determine the effective factors on financial structure for the first time. They, applying structural equation, tested the effects of eight theoretical latent structures including non-debt tax shield, growth, uniqueness, type of industry, size of the firm, collateral value of assets, earning volatility and profitability on leverage hidden structure. They used six measures of capital structure (long-term, short-term, and convertible debt divided by market and by book values of equity).the results showed that there is no significant relation between non-debt tax shield, earning volatility, collateral value of assets and the firm future growth.

Rajan and Zingales (1995) studied the determinants of public stock companies capital structure at seven great countries in the world such as USA, England, Canada, France, Germany, Italy and Japan. The results showed that there is a negative relation between the financial leverage with profitability and book-to-market ratio and there is a positive relation with tangible fixed assets and size of the firm. Bhole and Mahakud (2004) studied the trends and determinants of cooperate capital structure in India during the years 1966 to 2000, the results proved that there is a negative relation between financial structure and costs of debts and non-debt tax shield and a positive relation with the size of the firm and collateral value of assets.

Chang et al., (2009), also using structural equation modeling approach, studied the determinants of capital structure. In their study, they proposed that a reason for not existing meaningful relation between earning volatility, collateral value of assets and the firm growth with capital structure in Titman and Wessels's study (1988) and its poor outcomes shall be the fact that the indicators used do not sufficiently introduce the nature of characteristics proposed by the financial theories. While improving the indicators, in order to improve the results, they used *Multiple Indicators* Multiple Causes (*MIMIC*) method which is

a special method in structural equation modeling. The results of their studies indicated that the eight latent theoretical characteristics which were studied in Titman and Wessels's study (1988) have influence on the firms' capital structure. This study also showed that the firm growth is the most important determinant of capital structure and the long-term debts ratio is the most significant indicator of the firms' capital structure. Yang et al (2010) in their research, using structural equation modeling, studied effective factors on capital structure and stock return and determined the relations between them in Taiwan simultaneously. The researchers come up with the result that in the condition that the debt ratio has a positive influence on stock return, the stock return has a negative influence on capital structure. The research also showed that the growth opportunities, profitability and the exclusivity of the firm's products have a negative influence on leverage and assets structure; moreover, the size of the firm has a positive influence on financial leverage.

Bagherzadeh (2003) studied the capital structure patterns of the companies accepted in Tehran stock exchange during the years 1998 to 2002. The study indicated that the capital structure pattern of the stock companies depends on the variables such as the firm's fixed assets rate, the size of the firm and profitability. Kimiagari and Einali (2008) studied the effective factors on the rate of using leverage in capital structure of the companies accepted in Tehran stock exchange. The results indicated that there is a negative relation between the profitability, growth opportunities, tangible assets and the leverage; on the other hand there is a positive relation between the size of the firm, stock return and the leverage. The results also showed that managers and financial decision-makers do not pay attention to business risk, debt coverage ratio and debt tax earning in process of determining capital structure. Sajjadi et al (2011) studied the influence of the firm's characteristics on debt ratio of stock companies during the years 2004 to 2008. The results showed that there is a negative relation between the firm's growth and capital structure.

Determinants of capital structure:

The financial theories of capital structure suggest eight attributes that may affect the choice of a firm's capital structure. These eight latent attributes are derived from a variety of theories and they are growth, uniqueness, Collateral value of assets, profitability, earnings volatility, size, Stock returns and industry classification. This section briefly reviews how these latent attributes may affect the choice of capital structure and the adoption of indicators for each attribute, as discussed in Titman and Wessels (1988) and other literature.

Growth:

Jensen and Meckling (1976) and Myers (1977) argued that the managers, by issuing securities, have great motivation to transfer the wealth from the bondholder or long-term debtors to shareholders. Therefore, the agency cost for the firms with higher growth opportunities (firms with more investment choices) increases and it is expected that the debt rate has an inverse relation with growth opportunities. Furthermore, according to static balance theory, the firms that have more future growth opportunities, the less they will be in debt. Because the more growth opportunities a firm has, the greater risk it faces and also bear more costs for financial distress. (Kimiagari and Einali, 2008)

Indicators of growth include growth of total asset measured by percentage change of total assets (GTA) (Titman and Wessels, 1988), and market to- book ratio of assets (MTB) (Chang et al., 2009).

Uniqueness:

Titman and Wessels (1988) claimed that firms that produce unique or specialized products suffer relatively high costs in the event that they liquidate. Because their workers and suppliers probably have job-specific skills and capital, it is difficult for them to cash out or change to other operations. Thus, the uniqueness is negatively related to debt ratio.

Indicators of uniqueness are research and development over sales (RD/S) and selling expenses over sales (SE/S) (Titman and Wessels, 1988). The rationale to use RD and SE as proxies of uniqueness is that firms selling more unique products are likely to spend more on research and development and on advertisement, which increase the RD/S and SE/S ratios.

Collateral value of assets (asset structure):

Based on the trade-off theory of capital structure, firms with lower bankruptcy cost would have higher target debt ratios. Companies with larger tangible and safe assets may find it easier and less costly to liquidate assets when going bankruptcy than firms with high level of intangible assets. Moreover, issuing secured debt can reduce costs arising from information asymmetry between managers and outside investors, therefore firms with assets that can be used as collateral may be expected to issue more debt to take advantage of this opportunity. In addition, if a large portion of a firm's assets are tangible and can be used as collaterals, it will reduce the risk of the lender while facing the agency cost of debt. Therefore, the greater the proportion of tangible assets on the firms' balance sheet, the more willing lenders will be to supply loans, leading to these firms' higher leverage.

Indicators of collateral value of assets include the ratio of inventory plus gross plant and equipment to total assets (IGP/TA) (Titman and Wessels, 1988), and the ratio of depreciated fixed assets to total assets (FA/TA) (Yang et al., 2010).

4. Profitability

According to pecking order theory (Myers, 1984), firms prefer internal finance. If external finance is required, firms issue the safest security first. That is, they start with debts, then possibly hybrid securities such as convertible bonds, and lastly common equity as a last resort. The pecking order explains that the most profitable firms generally borrow less, not because they have low target debt ratios but because they do not need external funds. Less profitable firms issue debts because they do not have internal funds sufficient for their capital investment programs and hence use debt financing as first priority according to the pecking order of external financing. Thus there should be a negative relation between profitability and leverage.

In contrast, according to trade-off theory, agency, tax and bankruptcy costs lead the profitable firms to use the leverage. By increasing the profitability, the bankruptcy costs will be decreased. The less the firm pays for interest, using tax profit, it would be more profitable. Therefore, it mainly uses debts to finance. According to Jensen and Meckling theory (1976) bigger debts shall help to control the agency issue. This study indicated that there is a positive relation between the profitability and the debt ratio.

We use the ratios of operating income over sales (OI/S), operating income over total assets (OI/TA) (Titman andWessels, 1988), the ratio of cash flow from operating activities over total assets (CFO/TA) and return on assets (ROA) (Rajan and Zingales, 1995) as indicators of profitability.

Volatility:

With positive bankruptcy costs, a larger variance in earnings implies a higher possibility of bankruptcy and indicates a lower debt ratio. Thus, a negative coefficient on earnings variance may indicate the existence of bankruptcy or financial distress cost, and the magnitude of this coefficient measures the importance of bankruptcy cost in determining an optimal capital structure.

We use the standard deviation of the percentage change in operating income (STDGOI) (Titman and Wessels, 1988), the coefficient of variation of ROA (CV(ROA)), and the coefficient of variation of OI divided by total assets (CV(OITA)) as indicators of volatility (Chang et al., 2009).

Size:

A number of authors have suggested that leverage ratios may be related to firm size. Warner (1977) and And et al., (1982) provide evidence that suggests that direct bankruptcy costs appear to constitute a larger proportion of a firm's value as that value decreases. It is also the case that relatively large firms tend to be more diversified and less prone to bankruptcy. These

arguments suggest that large firms should be more highly leveraged. In line with these results, the Static Trade-off Theory showed that since the larger firms involve in more various activities and the risk of not paying the debts is lower, they have bigger debt ratio. Larger firms usually have credit and reputation in debt market and the creditors will pay lower debt for the agency costs. Therefore, there is a positive relation between financial leverage and the size of the firm. On the contrary, a negative relation has been predicated between these two variables in the Pecking order Theory. Since the larger firms are well-known, they rarely face information asymmetry problem and contrary to small firms, they simply can issue shares when needed (Kimiagari and Einali, 2008).
Indicators of size are logarithm of sales (LnS), (Titman and Wessels, 1988), and logarithm of market value of equity (LnME) (Yang et al., 2010).

Stock Returns:

Stock returns may explain firms' equity issuance. Equity market timing refers to the practice of issuing shares at high stock prices and repurchasing at low prices. Baker and Wurgler (2002) presented empirical evidences that low-leverage firms tend to raise funds when their valuations were high, and conversely high leverage firms tend to raise funds when their valuations were low. Jegadeesh (2000) also found that equity issuers have low subsequent returns, which is consistent with the idea that firms issue equity when the cost of equity is relatively low. In this paper, we examine the relationship between debt ratio and stock return at the same testing year. If a firm performs well, its stock returns will increase and it may use more equity financing than debt. Therefore, we can expect a negative relationship between the year t stock return and the year t leverage level.

Industry Classification:

Scott (1972) is one of the earliest empirical studies to that find optimal capital structures exist not only in theory but also in practice. His study confirms the traditional theory that the objective of minimizing the cost of capital leads to an optimal level of capital structure. The results indicate that different industries develop different capital structures due to the different levels of business risk for each industry.
In order to measure the effects of industry classification, we used a dummy variable equal to one for the pharmaceutical firms and equal to zero for all other firms in the model. We select pharmaceutical industry because the firms involved in are numerous and can provide more accurate statistical information. According to the results of Bradley, Jarrell and Kim (1984), Kester (1986) studies, pharmaceutical firms have higher costs of dissolution and as a result it is expected these firms have a lower leverage.

We use long-term debt to market value of total asset (LT/MVA) as measurement of firm's capital structure. According to Wald (1999), the reason to use the long-term debts ratio as an endogenous variable is that it provides the most stable measure of a firm's capital structure. Long-term debts are issued less frequently and thus can be used to measure a long-run leverage position. The total-debt/asset ratio may be more sensitive to unobserved financial crises, whereas the long-term debts ratio will change less if the firm suffers heavy losses.

Data and Methodology:
Data:

We used document mining method to collect information; the required information has been provided from Tehran Stock Exchange Database. Non-financial companies in Iran with complete historical data for the variables in study (at least five years) are used for analysis. The information about five fiscal years (2007 to 2011) was studied, but for calculating the standard deviation of the percentage change in operating income (STDGOI), the coefficient of variation of ROA (CV(ROA)), and the coefficient of variation of OI divided by total assets (CV(OITA)), we used the information related to the past five years and also to calculate the changes percent of total assets (GTA), we used the information related to the past one year. Therefore, the research was conducted during the period started from the opening of the year 2003 up to the end of the year 2011 and the statistical sample included 97 non-financial firms, were elected using systematic omission method of sampling.

Methodology:

The method of data analysis in this study is an extension of path analysis developed by Jöreskog and Sörbom (1978) in an effort to combine the efficacy of path analysis in explicating underlying relations with a confirmatory factor analysis (CFA) approach used to identify the factors (latent variables) in such relations. This method had been used by Titman and Wessels (1988) and Yang et al (2010) in finding the determinants of capital structure. It is an analysis of linear structural relations in the computer program LISREL. Multiple observed indicators of unobserved latent constructs are used to infer relations among the latent, unmeasured variables. This analysis provides a measurement model and a structural model. In the measurement model of exogenous variables, 17 measurements are utilized to refine 8 latent constructs (two of the constructs are indicated by one observed variable). To assess the adequacy of our multi-item measures, we first employ CFA method to check the convergence of the measures of each construct. These loadings, or lambdas, in the measurement model then may be interpreted as validity coefficients reflecting

the degree to which the observed variables adequately measure the specified underlying construct. In the structural model, measured debt ratio is specified as function of the attributes defined in the measurement model. In the structural model, the endogenous (capital structure) and eight exogenous latent variables are involved. The model estimates the impact of each of the attributes on debt ratio. We used t Test and Fitting Test to study the effective factors on the capital structure.

Empirical results and analysis:

We use the following goodness-of-fit indices for our model evaluation: RMSEA, Standardized Root Mean Square Residual (SRMR), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI). there are two types of goodness-of-fit indices: absolute fit indices and incremental fit indices.As adopted in this study, the absolute fit indices include RMSEA and SRMR, while incremental fit indices include NNFI, CFI, and IFI. Nowadays, RMSEA is strongly recommended by scholars such as Browne and Cudeck (1993), Hu and Bentler (1999), MacCallum et al. (1996), and Steiger (1990); alternatively, SRMR is recommended by Hu and Bentler (1999). NNFI and CFI are recommended by Hu and Bentler (1999) and Marsh, Balla, and Hau (1996), and IFI is recommended by Hu and Bentler (1999).

The above five goodness-of-fit indices are widely accepted. The cutoff criteria follow conventional rules of thumb: RMSEA$\leq$0.08; SRMR$\leq$0.08; NNFI$\geq$0.90; CFI$\geq$0.90; and IFI$\geq$0.90 (Hooman, 2008).

The goodness-of-fit indices calculated in research measurement and structural models has been indicated in Table 1.

Table 1: Goodness-of-fit indices calculated in research measurement and structural models

	RMSEA	SRMR	NNFI	CFI	IFI
measurement model	0.049	0.050	0.945	0.983	0.988
structural model	0.078	0.074	0.903	0.931	0.942

The above five goodness-of-fit indices are widely accepted. The cutoff criteria follow conventional rules of thumb: RMSEA$\leq$0.08; SRMR$\leq$0.08; NNFI$\geq$0.90; CFI$\geq$0.90; and IFI$\geq$0.90. The measurement and structural models of pooled sample have met all five goodness-of-fit criteria. With the support of acceptable goodness-of-fit measures, we have great confidence in the interpretation of resultant parameter estimates.

Fig. 1 represents the path diagram of the structural model.

Fig. 1: Path Diagram of the Structural Model
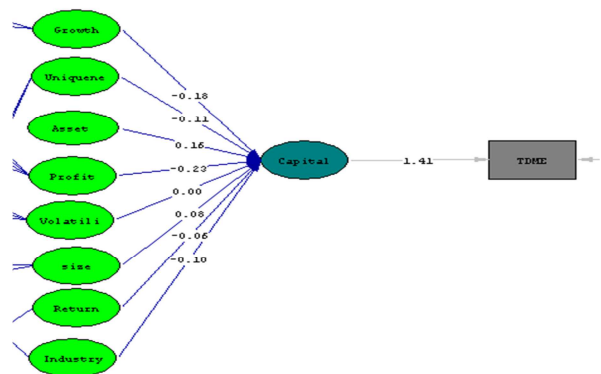
Table 2: Measurement model: factor loading for independent variables.

Indicators	Attributes							
	ξ_1 growth	ξ_2 Uniqueness	ξ_3 Asset structure	ξ_4 Profitability	ξ_5 Volatility	ξ_6 Size	ξ_7 Stock returns	ξ_8 Industry
GTA	0.22(2.52)							
MBA	0.64(3.45)							
SE/S		1.15(6.22)						
RD/S		0.37(4.33)						
IGP/TA			0.21(1.76)					
FA/TA			2.16(2.08)					
OI/S				0.95(13.58)				
OI/TA				0.92(13.19)				
CFO/TA				0.50(6.63)				
ROA				0.63(8.68)				
STDGOI					0.71(9.03)			
CV(ROA)					0.98(11.35)			
CV(OITA)					0.79(9.75)			
LN(S)						0.55(2.02)		
LN(ME)						1.69(2.08)		
R							1	
IDUM								1

Based on our sample, the estimates of the parameters of the measurement model is presented in Table 2. These estimates are generally in accord with our prior ideas about how well the indicator variables measure the unobserved attribute.

Note: **GTA:** growth of total asset measured by percentage change of total assets; MTB: market-to-book ratio of assets; RD/S: research and development over sales; SE/S: selling expenses over sales; IGP/TA: inventory plus gross plant and equipment to total assets; FA/TA: depreciated fixed assets to total assets; OI/S: operating income over sales; OI/TA: operating income over total assets; CFO/TA: cash flow from operating activities over total assets; ROA: return on assets; STDGOI: standard deviation of the percentage change in operating income; CV(ROA): coefficient of variation of ROA; CV(OITA): coefficient of variation of OI divided by total assets; LnS: logarithm of sales; LnME: logarithm of market value of equity; R: stock returns; IDUM: industry Classification.

In measurement model, if the factor loading of each indicator with its structure having t quantities is equal or more than 1.96, the indicator has the required accuracy to measure that hidden structure (Hooman, 2008).

According to the information inserted in table 2, all indicators except for the ratio of the inventory plus gross plant and equipment to total assets (IGP/TA) considering that t > 1.96 can be used for measuring the related latent variables. Of course, we do not measure the t quantity for the indicators which only have one observable indicator, so all variable except for IGP/TA indictor are entered in to structural model.

The result of parameter estimates in structural model is shown in Table 3.

In structural model, if the absolute magnitude of t statistic is equal or more than 1.96, the variable will have an influence on capital structure.

According to table 3, regarding the trade-off theory, the firm growth opportunity has a negative and significant influence on the leverage; the findings are in conformity with the studies done by Yang et al (2010) and Kimiagari and Einali (2008).

According to structural model, the uniqueness has a negative and significant influence on the capital structure; the findings are in conformity with the studies done by Titman and Wessels (1988). As suggested by financial distress cost theory, firms with more unique or specialized operation (characterized as having relatively large research and development expenditures and high selling expense) have lower debt ratio because of the higher liquidation cost and more difficulty in transferring assets to other operations. Our findings basically support this hypothesis.

The information inserted in table 3 indicates that regarding the trade-off theory, assets structure has a positive and significant influence on assets structure; the findings are in conformity with the studies done by Rajan and Zingales (1995), Chang et al (2009), Yang et al (2010) and Bagherzadeh (2003).

Regarding the variant effect of the firm profitability on the capital structure, negative factor loading indicates that there is a negative and significant relation between profitability and capital structure and this effect verifies pecking order theory predictions; the findings are in conformity with the studies done by Titman and Wessels (1988), Rajan and Zingales (1995), Yang et al (2010).

The results presented in table 3 also indicate that contrary to the predictions in pecking order and trade-off theories, there is no significant relation between earning volatility and capital structure. It seems that

Table 3: Estimates of structural coefficients

Dependent variable	Attributes							
	ξ_1 growth	ξ_2 Uniqueness	ξ_3 Asset structure	ξ_2 Profitability	ξ_3 Volatility	ξ_6 Size	ξ_7 Stock returns	ξ_8 Industry
Capital Structure	- 0.177	- 0.115	0.163	- 0.228	0.00417	0.0800	- 0.0582	-0.0963
	(-4.035)***	(-2.660)**	(3.770)***	(-5.267)***	(0.105)	(1.998)**	(-1.473)	(-2.372)**

The structural equations are:

$$y = \Gamma_1 \xi_1 + \Gamma_2 \xi_2 + \Gamma_3 \xi_3 + \Gamma_4 \xi_4 + \Gamma_5 \xi_5 + \Gamma_6 \xi_6 + \Gamma_7 \xi_7 + \Gamma_8 \xi_8 + \varepsilon$$

The structural equations equation indicates the determinants of capital structure (y) are growth (ξ_1), Uniqueness (ξ_2), Assetstructure (ξ_3), Profitability (ξ_4), Volatility (ξ_5), Size (ξ_6), Stock returns (ξ_7), industry classification (ξ_8) and error term (ε).

Capital structure is measured or by long-term debt over market value of asset (LT/MVA)

**Significant at 5% level; ***significant at 1% level

[a] t-Statistics are in parentheses

the earning volatility, as an index of bankruptcy possibility, is not of the interest of financial decision-makers at the time of giving loans; the findings are in conformity with the studies done by Titman and Wessels (1988) and Yang et al (2010).

Existence of positive factor loading of the size of firm shows that this factor has positive influence on the leverage. The influence of the size of firm on capital structure, verifies the trade-off theory predictions but not the pecking order theory predictions; the findings are in conformity with the studies done by Rajan & Zingales (1995) and Bagherzadeh (2003). But

contrary to the predictions of market timing theory, stock return has no influence on capital structure.

In our findings, Industry classification is also one of the determinants of capital structure in Iran stock market. we find that the pharmaceutical firms tend to have less debt due to higher financial distress cost, which is consistent with the findings suggested by Bradley et al (1984), Kester (1986).

Conclusion:

Capital structure is the most important effective parameter in the valuation of the companies and also their presence in capital market. In the current changing environment, grading the firms, considering the credits, depends on the capital structure. This fact of strategic planning has led them to meet the goal of "Maximizing the Shareholder's Wealth" by selecting the effective resources. effective factors on capital structure may influence the firm efficiency within this goal. Therefore, mangers' comprehensive awareness of these determinants can help them to make the optimal decision; attention to the managers' financial strategy will lead the firms to establish their reputation in financial markets and to be given appropriate credits by capital markets creditors.

Due to the variety of internal parameters of the firms, the capital structure theories has emphasized that the manner to finance, capital structure and following them the risk of the firms is different and choosing the type of capital structure shall depend on internal parameters and characteristics of the firms. In order to study the effective factors on capital structure, we used structural equation modeling approach in the current research.

The results indicate that according to the theoretical basics and previous studies, growth opportunities, uniqueness, assets structure, profitability, firm size and the industry classification variables have influence on the capital structure but the earning volatility and stock return variables have no influence on capital structure. So, it seems that the earning volatility is the indicators of bankruptcy possibility, as a result financial decision-makers in Iran do not consider it when giving loan. Furthermore, contrary to the predictions in market timing theory, stock return has no significant influence on capital structure. This study shows that the firm profitability has a negative influence on the leverage. Therefore, in connection with the most important variable in trade-off theory and pecking order theory i.e. profitability, the predictions in the second theory about the companies accepted in Tehran Stock Exchange has been proved. On the other hand the trade-off theory has proved that the variables including firm growth opportunities, assets structure and firm size have influence on the capital structure. The results indicates that the firm growth opportunities and uniqueness have a negative influence on the capital structure and the firm assets structure and size have a positive influence on the capital structure.

References:

[1] Ang, J. , Chua, J., and McConnell. J. (1982). The Administrative Costs of Corporate Bankruptcy: A Note. Journal of Finance, 37, 219-26.

[2] Bagherzadeh S. (2002), Exposure of Financial Structure of Accepted Companies in Tehran Stock Exchange. Financial Survey, Fifth Year, No.16, p.33-47.

[3] Baker, M., and Wurgler, J. (2002). Market timing and capital structure. Journal of Finance, 57, 1–32.

[4] Bradley, M., Jarrell, G. A., and Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and evidence. *Journal of Finance*, *39*, 857–878.

[5] Bhole, L.M., Mahakud, J. (2004).Trends and Determinants of Corporate Capital Structure in India. Finance India, 18, 37-55.

[6] Chang, C., Lee, Alice C., and Lee, Cheng F. (2009). Determinants of capital structure choice: A structural equation modeling approach. The Quarterly Review of Economics and Finance, 49, 197–213.

[7] Harris, M., and Raviv, A. (1991). The Theory of Capital Structure, *Journal of Finance*, 46, 297–355.

[8] Hooman .H. (2008), Structural Equation Modeling with LISREL Software, Samt Publication, Second Edition, Fall 2008.

[9] Jegadeesh, N. (2000). Long-term performance of seasoned equity offerings: Benchmark errors and biases in expectations. Financial Management, 29, 5–30.

[10] Jensen, M. C., and Meckling,W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*, 305–360.

[11] Jöreskog, K. C, and Sörbom, D. (1978). LISREL: Analysis of linear structural relationships by the method of maximum likelihood (Version IV). Chicago: National Educational Resources, Inc.

[12] Kester, W. (1986). Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations. Financial Management. 15, 5-16.

[13] Kimiagari Ali Mohammad, and Einali Soudabeh (1998). Exposure of Financial Structure Executive Pattern, (Case Study of Accepted Companies in Tehran Stock Exchange), Financial investigation, No. 25, p.91-108.

[14] Rajan, G., and Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. Journal of Finance, 50, 1421–1460.

[15] Scott, D. F., Jr. (1972). Evidence on the importance of financial structure. *Financial Management*, *Summer*, 45–50.

[16] Sajadi S. H., Mohammadi K., and Solgi M. (2011). Study the Effects of Company's Exclusivity on Investment Structure of Accepted Company in Tehran Stock Exchange. Accounting Investigation, No.10, p.22-42.

[17] Maddala, G. S., and Nimalendran, M. (1996). Error-in-variables problems in financial models. In G. S. Maddala, and C. R. Rao (Eds.), Handbook of statistics. New York:Elsevier Science.

[18] Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, *5*, 146–175.

[19] Myers, S. C., and Majluf, N. (1984). Corporate financing and investment decision when firms have information investors do not have. *Journal of Financial Economics*, *13*, 187–221.

[20] Modigiliani, F, Miller, M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *J. American Economic Review,* 48,261-297.

[21] Titman, S., and Wessels, R. (1988). The determinants of capital structure choice. Journal of Finance, 43, 1–19.

[22] Yang, C., Lee, C., Gu, Y., Lee, Y., (2010). Co-determination of capital structure and stock returns—A LISREL approach An empirical test of Taiwan stock markets. The Quarterly Review of Economics and Finance ,50 , 222–233.

[23] Wald, John K. (1999). How firm characteristics affect capital structure. Journal of Financial Research, 22, 161–187.

[24] Warner, J. (1977). Bankruptcy Costs: Some Evidence. Journal of Finance, 32, 37-47.

*****