The Relationship between Non-financial Factors, Capital Structure and the Performance of the Listed Companies on the Stock Exchange

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ABSTRACT

Capital structure is considered to be the most important parameter affecting the valuation of companies and their orientation in the capital markets. Companies in a similar industry are expected to employ fairly similar policies and strategies for financing and determining their own capital structure since they have the same activities as well as internal and external factors affecting them. Accordingly, the present study investigated the impact of the industry type and the company age on the capital structure and the impact of capital structure on the financial performance of 203 companies listed on the stock exchange. Finally, the financial ratios of 1007 institution-year in 27 industry codes were evaluated. The structural equation modeling was employed to test the hypothesis using partial least squares software. The results showed that there is no significant relationship between industry and the capital structure. However, there is a significant relationship between the age of the institution and the ratio of debt to equity at the level of P = 0.05. Moreover, no significant relationship was seen between the capital structure and the performance at the level of P = 0.05.

Keywords: Financial Factors, Non-financial Factors, Capital Structure, Company Performance
JEL Classifications: G2, G3

1. INTRODUCTION

Financial factors are the main causes of the failure of institutions. An optimal financial structure always shows its effectiveness in increased shareholders' wealth. The duty of each financial manager is to optimize the structure of the assets, liabilities and shareholders' equity in order to maximize shareholders' wealth. Therefore, the companies are required to carry out new investments, but in order to invest, they need financial resources. Financing in different ways results in the change of the debt and owners' equity combination; called capital structure combination (Gord et al., 2015). Companies have different preferences in terms of financing and the nature of financing sources at any stage of their life cycle (La Rocca et al., 2011). Generally, given the financing policy, financing sources of the company is divided into two parts: Internal and external financing (Sarlak et al., 2015). The capital structure policy balances the risk and return. On the one hand, higher debt increases the risk of the profitability of the company, and on the other hand, it leads to higher expected rate of

return (Diacon and Ennew, 2001), (Setayesh and Ghayouri, 2010). When making large investments, companies use debt and financial leverage to avoid the cost of capital. Receiving loans or selling bonds causes an interest that affects earnings per share; hence, the higher company financial leverage is, the higher financial risk of the company will be (Denis and Mackoen, 2012). Therefore, the most effective factor in the analysis of investment is its return and risk compared with other investment opportunities. The goal of every investor is to choose a security which has higher return in case of equal risk, and has the least risks in case of equal return compared with other investment opportunities (Mahmoud and Ghayouri, 2011). Financial statements analysis that often employs financial ratios which are prepared based on the balance sheet, profit and loss account and cash flow statement can act as an element initiating to resolve the problems prior to negatively affecting the institutions. Therefore, financial ratios reflect the strength or weakness of institutions or their efficiency compared with the leading institutions or even the last year's institution performance (Mahmoodi et al., 2013).

1.1. Factors Influencing Capital Structure

As previously stated, the capital structure of a company is a combination of short-term debt, long-term debt and equity whereby assets are financed and incorporates items on the left side of the balance sheet (Afza and Hussain, 2011). Given the conditions inside or outside the company, determining the capital structure is influenced by various factors, measuring all of which affecting capital structure is not possible. Factors affecting capital structure decisions are very diverse (Harris and Raviv, 1991). These factors are divided into two groups: Internal and external factors.

1.1.1. Internal factors

Internal factors are factors that are the result of the company's operations, and are related to its activities and features. Industry type, company size, growth opportunities, sales volume, business risk, operating leverage, marketing strategy, management capabilities, etc., encompass internal factors which will affect the company's capital structure.

1.1.2. External factors

Factors that are not the result of the company's operations are called external factors which affect the company's capital structure. They include taxes, bank interest rates, the general level of business activities, access to market funds, the behavior of lenders and rating institutions, inflation, the actions of competitors (Asadi et al., 2015).

Lack of attention to the relationship between risk and return expected by the investors will result in the market inefficiency, and the Iranian capital market, the main symbol of which is Tehran stock exchange, will always be inefficient and out of balance. This non-conformity leads to the outflow of capital from the emerging market or the prevention of the inflow of new capital to it. Therefore, a model which explains the logical relationship between risk and return will contribute to the efficiency of the exchange, but it should also be noted that one of the problems in using financial ratios to assess the financial situation of the companies is that each set of financial ratios assesses a particular aspect, for instance, part of this ratio measures the ability of an organization's liquidity while another part assesses profitability of the organization, another group assesses the ability to develop, and others assess the organization's operations (Athanassopoulos and Ballantine, 1995). On the other hand, the characteristics of the industry and the company itself also seem to be noteworthy factors in evaluating the company's performance, and it is essential that these factors be studied at once. Therefore, this study investigates the relationship between the capital structure and performance of non-financial companies listed on the stock exchange by using structural equation modeling (SEM).

2. LITERATURE REVIEW

Numerous separate studies have been conducted to investigate the relationship between non-financial factors on capital structure as well as the relationship between capital structure and company's performance. For example, (Long and Maitz, 1985), (Abor, 2008) and (Guney et al., 2010) have shown that the company's capital structure is affected by the financial and non-financial features of the companies. Jensen believes that companies have different levels of profitability in different stages of their life cycle. They take measures to finance with regard to their profitability, free cash flow and future plans (Jensen and Mackling, 1976). Increased debt levels will also increase the cost of bankruptcy which ultimately will affect the value of the company (Mwangi et al., 2014).

Lorderer and Waelchli examined the relationship between the company age and financial performance in Norwegian Business School. They found that companies through ages lose their competitiveness, flexibility and willingness to do research and develop therefore, older companies will not have a good performance. Preliminary studies on the life cycle were presented based on the theory of the trees in the green forest of Marshall (Lorderer and Waelchli, 2009), including the studies conducted by (Deangelo et al., 2006) and (Fama and French, 2001). In the set of conducted research, the life cycle is defined according to the profitability, investment opportunities and the company size. However, the research done in the area of capital structure led to contradictory results. Sarlak et al. study shows that company's capital structure is largely subordinate to variables such as profitability, business risk and non-debt tax savings, growth opportunities and tangible fixed assets, but there is a negative relationship between profitability and debt levels. La Rocca et al. concluded that companies have more assets in their maturity compared with other life cycle stages and this study reported positive relationship between the structure of assets and liabilities. The findings of Istaitieh and Rodringues also show that larger companies tend to take greater advantage of the leverage ratio because of more diversity in their structure and lower risk of bankruptcy (Istaitieh and Rodringues, 2003).

Islam and Khandaker discussed how to make decisions about financial leverage. Thus, 1620 Australian companies were divided into the mining and non-mining companies over a 13-year-period - from 2000 to 2012. The author believed that the industry had been of economic priorities in the respective country; consequently, different impacts of the financial leverage are measured. The findings of this article show that there is significant difference between mining and non-mining companies in terms of the financial leverage chosen. It is proved that mining companies are more sensitive to tangible assets and profit because the companies' profitability and tangible assets have no significant relationship with non-mining companies. The overall results show that industry type is important in taking decisions related to organizational leverage (Islam and Khandaker, 2015). Guney et al. (2010) Chinese corporate data was studied during 1994-2006 in 12 different industries and the findings showed that there is a nonlinear relationship between the capital structure and competitive market depending on the type of industry, size of the company and the growth opportunities.

Habibi et al. highlighted that the size, asset structure, growth opportunities, profitability, liquidity and volatility play a decisive role in decision-making on the capital structure. Moreover, the factors investigated in this study have different impacts on the capital structure depending on the country development level, and the impact of factors have also been different at different times (Habibi et al., 2014).

However, the evidence from experimental studies showed that the real financing behavior is not consistent with the theories in the literature on the capital structure.

3. METHODOLOGY

This research employs a descriptive applied survey research method.

3.1. Study Population

Companies listed on the stock exchange which have the following properties are involved in the study:

- Their financial and non-financial information during the period of 2008-2012 is available through the official reports of the stock exchange.
- At least the company's 4-years information should be available in the period.
- The companies listed before 2008.
- The companies included in the study are not involved in investment and financial intermediation.

Given the above limitations, 203 institutions and at last 1007 institution - year in 27 industry groups were studied.

3.2. Variables

In this study, the three main factors are:

- Performance financial ratio including net profit to sale, gross profit to sale, operating profit to sale, ROE, ROA
- Capital structure financial ratios including fixed asset to net worth ratio, debt ratio, debt to net worth ratio
- Non-financial factors including the age of the company started, when listed on the stock exchange, and its industrial group.

All financial and non-financial information has been collected from reports of stock exchange. Table 1 shows the institution - year frequency in each industry group.

In order to study the age, institution -year was classified into 9 age categories, under 5 years of age up to 45 years. Table 2 shows the frequency of categories of institution - years in the Tehran stock exchange.

Data extracted from the financial statements and the notes of the company were imported into the Smart partial least squares (PLS3) to be analyzed using PLS-SEM. Many researchers have studied PLS methods in different fields and presented the results. These researchers include (Hulland, 1999) in strategic management, (Pavlou and Chai, 2002) in the internet businesses, (Hair et al., 2012) in marketing, and Lee et al. (2012) in accounting. The most important reason to the widespread use of this method is the superiority of this method for small samples as well as the provided non-normal data (Davari and Rezazadeh, 2014).

3.3. Exogenous (Independent) Latent Variables

It is a variable that affects another variable and plays an important role in predicting that variable in accordance with the model (Davari and Rezazadeh, 2014). In this study, exogenous latent variables are age and industry.

Table 1: Frequency according to the industry group

Industry	Frequency
Coal mining	5
Excavation	5
Extraction of metallic minerals	30
Other mining extractions	5
Drinks	132
Textiles	5
Tanning and dressing of leather and manufacture of footwear	5
Wood products	5
Paper products	20
Coke, refined petroleum products and nuclear fuel	14
Chemicals	204
Rubber and plastics	23
Cement	200
Basic metals	85
Machinery, electrical appliances	36
Construction of radio, television and communication equipment and apparatus	4
Counter manufacturing	5
Vehicle and parts manufacturing	94
Industrial contractors	5
Transport, storage and communication	10
Sea transport and shipping	10
Telecommunication	10
Tourism	11
Computer and related activities	15
Technical services	10
Metal products	25
Machinery and equipment	34
Total	1007

Table 2: Frequency according to the age category

Age category	Frequency
1.00	126
2.00	262
3.00	241
4.00	216
5.00	35
6.00	2
7.00	70
8.00	34
9.00	21
Total	1007

3.4. Endogenous (Dependent) Latent Variable

It is a variable that is explained by another variable. In other words, it plays a role in predicting the independent variables. In this study, the financial ratios of the capital structure are considered to be the first order endogenous latent variables, and performance ratios are considered to be the second order endogenous latent variables.

3.5. Observed Variables

The observed variables are the research questions (Davari and Rezazadeh, 2014).

Research questions:

Are the capital structure ratios, namely fixed asset to net worth ratio, debt ratio, debt to net worth ratio, related to the institutions' age?

Are the capital structure ratios, namely fixed asset to net worth ratio, debt ratio, debt to net worth ratio, related to the type of industry?

Are financial and performance ratios, namely net profit to sale, gross profit to sale, operating profit to sale, ROE, ROA ratios related to the capital structure?

Therefore, this study examines 10 observed variables in the form of three questions provided above.

To investigate the research questions, the following steps were taken.

The reliability index, including the factor loadings coefficients, the composite reliability (CR), convergent validity investigated using the average variance extracted (AVE) coefficient, the divergent validity investigated using the Fornell-Larcker criterion, calculating Z coefficients and t values, R-squared measure, redundancy and Q^2 criteria and finally computing goodness of fit (GOF) criterion and hypothesis testing using significant and standardized path coefficients related to the hypothesis.

Factor loadings coefficients are the numeric values that display the intensity of the relationship between a latent variable and an observed variable during the path analysis. The coefficients in Figure 1 show the basic research model with loadings.

The criterion for suitability of factor loadings coefficients is 0.4 (Davari and Rezazadeh, 2014). As can be seen, age, debt-to-equity ratio, and ROE have factor loadings >0.4. Results of the CR and R-squared and AVE are shown in Table 3.

CR is a more modern standard than Cronbach's alpha for the validity and reliability of a construct that are used in the PLS method.

In CR computation, indices with greater factor loadings are more important. About every construct, all indices are imported into computation with equal importance. A >0.7 CR indicates good internal consistency of the model. The findings show no CR larger than 0.7 in any of the indices.

In order to investigate the fitting of the model in PLS, AVE is used that represents the correlation of a construct with the indices. The greater the correlation is, the greater the fitting will be. Fornell and Larcker have accepted number 0.5 as the critical value. This means that if AVE is above 0.5, the convergent validity of the model is confirmed. As the findings show, none of the AVE indices is >0.5.

According to the findings of the initial model investigation, industrial constructs, debt ratio, fixed assets-equity ratio, net profit, gross profit, operating profit and ROA were excluded from the model. Figure 2 shows the new model with factor loadings operating on different paths.

As can be seen, each of the indices only have one construct with factor loadings >0.4. Figure 3 displays the CR of the indices.

Due to the single-construct of the indices in the new model, the Cronbach's alpha, CR and the AVE are equal in all indices and more than 0.7, which indicates a perfect internal reliability of the model and strong correlation of the averages extracted.

R-squared is a measure for the structural model fitting, which is related to the endogenous (dependent) variables of the model.

Table 3: CR, AVE, R-squares

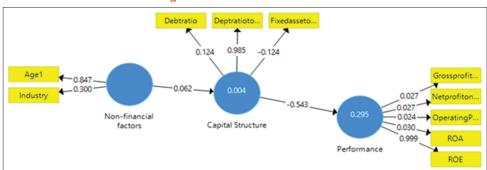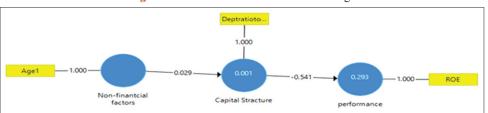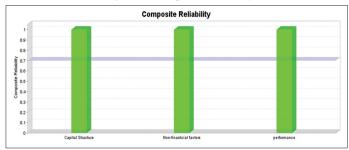| Factor	CR	AVE	R-squares
Non-financial factors	0.53	0.4	-
Capital structure	0.35	0.33	0.004
Performance results	0.27	0.24	0.29

Figure 1: The basic research model

Figure 2: Research model with factor loadings

Table 4: Results

Factor	Original sample	Sample mean	Standard deviation	T-statics	P value
Capital structure	−0.541	−0.511	0.305	1.775	0.077
Non-financial factors	0.029	0.03	0.014	2.062	0.04

Figure 3: Composite reliability

Research findings show the value 0.38 for this criterion, which indicates the average fitting of the model.

The findings show that $Q^2 = 0.038$, which demonstrates the average power of prediction.

To evaluate the overall fitting, the overall research model was fitted using the GOF. Given that Communality in this model was calculated 1, T of this criterion was calculated 0.61 using the formula 1. This value indicates a very strong fitting of the model.

$$GOF = \sqrt{\overline{Communalities} \times \overline{R^2}}$$

Hypothesis testing on the new model.

Table 4 shows the results of the investigation of the effects of age on capital structure and capital structure on the performance of the institution.

As can be seen, for the capital structure, the t-statistic is <1.96 and significant coefficient is over 0.05, but the t-statistic and significant coefficient in the non-financial factor construct is >1.96 and <0.05, respectively. Therefore, we can confidently say that 0.95% of the non-financial factors in the model affect the capital structure.

This means that non-financial factor variable explains approximately 3% of changes in the capital structure. The relationship between changes in the capital structure and performance has been specified 54%, but the confidence coefficient is <95%.

4. CONCLUSION

The findings showed that the debt ratio and the fixed assets-to-equity ratio are not related to the age of the institutions. Moreover, the industry type is not significantly associated with any of the capital structure ratios. However, the age of the institutions has a positive relationship with debt-to-equity ratio and up to 3% of the debt-to-equity ratio changes can be estimated by the changes in the institutions' age at the confidence level of 95%; This result is consistent with the results of the research by Sarlak et al. regarding the financial leverage ratios, although the life cycle was classified

into the growth, maturity and decline stages and no difference was observed regarding financing. Moreover, it is consistent with the results of Ahmad and Salimi that there is no relationship between the industry type and the capital structure (Ahmad and Salim, 2007). However, it is not consistent with the results of Islami and Khandaker, that considered the industry type a factor effective in financing and capital structure (Islam and Khandaker, 2015). Changes in debt and fixed assets-to-equity ratios cannot adequately explain the institutions performance. But the debt-to-equity ratio showed an inverse relationship of 54%, although this relationship was not significant at the P = 0.05.

The research findings are almost consistent with the results of Mwangi et al. that showed financial leverage has a negative relationship with the ROE and ROA ratios (Mwangi et al., 2014), as well as the results of Salim and Yadav, which confirm a significant negative relationship between total debt-to-total assets ratio and the ratio of long term debt to total assets and return on assets (Salim and Yadav, 2012). However, it is inconsistent with the results of Namazi and Shirzadeh that suggests a significant positive relationship between the financial leverage and the company performance (Namazi and Shirzadeh, 2006), and the research Fosu on the stock exchange that revealed a weak positive relationship between the capital structure and the company performance, and declared that the industry type is related to institution profiting (Fosu, 2013).

Researchers are recommended to import the effects of further internal and external financial and non-financial factors into the model in the future studies, and study their impact on the capital structure and performance simultaneously.

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