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Factors affecting the profitability of the companies listed in the Tehran Stock Exchange

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ABSTRACT

In this study, six factors including industry type, size, age, the ratio of capital to assets, ratio of debt to assets and cost of advertising on the profitability of the companies listed in Tehran Stock Exchange has been reviewed. Profitability is defined as three measures of asset returns, the adjusted return on assets and return on capital. The population was companies that have been accepted on 2013 in Tehran Stock Exchange and during the period of the study also maintained its membership in the Stock Exchange. To test the hypothesis, the multiple regressions with dummy variable are used. Results indicate that if the criterion of profitability, return on assets and adjusted returns on assets to be defined, variables such as the size, ratio of capital to assets and ratio of debt to assets will impact on profitability. But the industry type, age and advertising costs has no effect on profitability. Also, if the measure of profitability to be considered as the return of capital, industry type and company size will impact on profitability. But the age, ratio of capital to assets, ratio of debt to assets and cost of advertising does not impact on profitability.

1. Introduction

Since the objective of any investment is to postpone consumption to consuming more and better in the future, that is why people are investing more in the pursuit of wealth and interests. Today in the economic and business fields, forecasts has been proposed as one of the most important branches of science and rapid progress in this area has been done. Leaders from various economic and business sectors in the face of a multitude of variables are always looking for the mechanism that can assist them in making decisions. For the same reason that most governments and central banks in many countries in their decision-making and policy, in addition to the status quo are doing long-term and short-term forecasts. So we can say this is a feature of economic and trade issues which are strongly influenced by social, cultural, political, and many unknown factors where quantitative methods are difficult to measure (Pe Tom, 2010). The most important forecasts and analysis that scientists in the field of trade and economy are expected to follow is the behavior of price and return on equity securities while they are constantly optimizing these projections. Tehran Stock Exchange began its reactivation after the Iran-Iraq war during the First Development Plan in1990. At the time of reactivation and development of First Development Plan where the privatization program and construction were its main topics boom the stock market as soon as possible. Today, nearly 22 years have passed since the reactivation stock and listed companies have increased dramatically and many natural and legal persons involved in this market. So we can say that many natural and legal persons are always looking to buy a stock at a low price and more sell. This is consistent with the expected price. Predicting stock prices and stock returns using the techniques and methods is done. But in the present, forecasting using linear and nonlinear time series that is the most common methods of forecasting price, in the last two decades has attracted the attention of many researchers (Karjalainen, 2007). Profit is also the important information in economic decisions. Studies have been conducted on the benefits comprises one of the most voluminous and most research efforts in the history of accounting. Profit as a guide to dividend payments, management effectiveness assessment tools and a tool to forecasting, decision-making evaluation often used by investors, managers, financial analyst. Accordingly, many researchers have tried to identify the factors affecting the company's profitability.

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1.1. Literature

Wang and Hong (2006) study concluded that companies that offerings their products over the internet and delivered at the customer location have been growing profits. Karjalainen (2007) conducted a study in Australia, Canada, Germany, Finland, France, Japan, Sweden, the Netherlands and the United Kingdom concluded that however there is no significant relationship between the costs and development of research and current benefits, the relationship between R and D expenditures and future profitability is positive.

Verbeek and Debackere (2006) also concluded in a similar study that US companies doing research and development costs, increase their future profitability.

Bernotas (2005) in their study showed that there is significant relationship between ownership structure and corporate governance and profitability. Lin and Rowe (2005) examined the profitability of Chinese companies. With consider factors such as growth rate of non-stock companies, stagnant assets, debts ratio and international trade they concluded that non-Stock Companies growth is positively correlated with Stock Companies profitability. Profitability in areas where non-Stock companies had more is higher than those with less non-Stock Companies. Free trade which was measured by the share of exports has a positive effect on profitability. Stagnant Assets to total assets ratio has negative impact on its profitability. The relationship between debt and profitability ratio depend on income measurement criteria. Overall, the analysis showed that high debt ratio on profitability has a negative effect.

Jefferson and Rawski (1994) in their research showed that profitability of Stock Companies in areas where the efficiency of non-Stock companies has grown decreased.

Raiser (1997), using data from 5 years (1985-1982 and 1992-1990) concluded that non-Stock Companies growth reduced the profitability of Stock Companies.

Ejngton (2000) in a study entitled "The secret of survival of the firm" studied the factors affecting the profitability of the 100 manufacturing industries in the United States. He examined the role of variables such as sales rate, efficient management, quality of labor and production unit in the correct location to increase corporate profits and conclude that elasticity of demand for goods, the extent of the market and how the pricing of goods and in short, the sale of goods in the market have a significant effect on corporate profits.

Feeny (2000) in a study entitled "Factors affecting the profitability of the industry" examined the factors affecting the profitability of 142 Australian companies. The data are cross-sectional study based on an average of three years in the period 1994-1997. He studied the effect of capital intensity on the companies' revenue estimating the effect of factors such as firm size, capital stock, sales rate, quality management and labor on income and finally concludes that intense effect of the studied capital is different on the income of various industrial activities. Also, there is a significant relationship between the type of industrial activities and the factors affecting on their profitability.

Rietveld and Schipper (1996) studied the factors affecting the growth of the sugar industry, tile, metal casting, machinery, furniture and textile in six cities in Central Java province of Indonesia. They selected the 193 companies from small industries and estimated and compared the effect of variables such as the sale rate (size), number of employees, capital stock, employees education, company's age and government support on the industry profit growth using conventional and logit model with each other and concluded that among the variables, the effect of government support on the industry profit growth had been more significant.

Komonen (2000) in a study entitled "Factors affecting the profitability of manufacturing companies" studied the effect of factors such as the sale (size), the number of labor, raw materials, capital and maintenance costs of other factors on manufacturing companies profits. The study results showed that sales and labor costs have a greater impact on the profits of manufacturing companies than the other factors. Considering that in this study, parameters such as the type of industry, firm size, age, the capital to assets ratio, ratio of debt to assets and advertising costs studied as factors affecting the profitability, now, research on each of these parameters are briefly described.

1.2. Type of industry

Acquaah and Chi (2007) in their study concluded that industry type and internal factors such as human resource management capabilities impact on corporate profitability, however, the effect of internal factors is more.

Olavarrieta and Friedman (2007) studied the impact of three factors of industry type, internal factors (innovation, brand and company history) and market conditions (boom, record) on the profitability of the companies. Their results showed that innovations have a substantial impact on the profitability. Market conditions also effect on profitability, however, has little impact on the industry.

Buzell and Gale (1987) argue that a growth of one industry impact on the individual performance of the member companies. Also, Scherer and Ross (1990) also argue that industry associations due to determine the supply of product to market and product pricing policy impact on the profitability of companies. Schmalensee (1985) by selecting companies with more than $ 500 million in assets and McGahan and Porter (1997) by selecting companies with more than $ 10 million in sales in its investigation concluded that industry plays an important role in the profitability of the company.

Hansen and Wernefelt (1989), Rumelt (1991) and Mauri and Michaels (1998) concluded that the effect of firm resources and variables play more important role than the industry type on its profitability.

Claver et al. (2002) in their study of Spanish firms concluded that the effect of firm resource for every size (small, medium and large) is more than the effects of the industry type.

Rumelt (1991) extending the data used in the study of Schmalensee (1985) perform a more detailed search. But, more importantly, he reviews the data point to a 4-year period to test the effectiveness of the company's resources and divided the effect of industry type into the permanent and transitory components. The results showed that the impact of the company's resources on profitability is much more than the impact of industry type and the industry type has no significant effect on profitability.

Wernerfelt and Montgomery (1988) using the coefficient of Tobin's Q found evidence showing that the effect of factors such as the type of industry, resources and variables of the company on the profitability is important.

Cubbin and Geroski (1987) concluded that about half of all corporate profits changes had been not in line with average changes in the industry profit. Therefore, the industry type has an impact on profitability.

Roquebert et al. (1996) studied the manufacturing companies. Their results showed that the impact of the company's resources is triple than the impact of the industry type.

MacGahan and Porter (1997) examined the Rumelt model (1991) to 14 financial period (94-1981). Their results similar to Roquebert et al. (1996) showed that the effectiveness of internal variables is three times greater than the impact on the industry type. They conclude that increasing industry diversity in the economy has increased the importance of the industry type effect.

Mauri and Michaels (1998) studied the impact of industry type and internal sources on the profitability for 5 years financial period from 1988 to 1992. Based on the research results, the internal resources impact on profitability, however, the industry type has no impact on its profitability.

Chang and Singh (2000) had been selected the share of sales in the market as profitability and analyzed the variance of the independent variables effects on it. The data have been had for the years 1981-1989. The sample firms based on the sale divided into three groups of large, medium and small. For large firms, the impact of the company's internal resources and the impact of industry type was 47.6% and 19.3%, respectively. For medium firms, the impact of the company's internal resources and the impact of industry type was 8.8 % and 40.6 %, respectively. For small firms, the impact of the company's internal resources and the impact of industry type was 8.9 % and 54.2 %, respectively.

Claver et al. (2002) in their study of small, medium and large Hispanic manufacturing companies (classification based on sales) for the 5 fiscal period between 1994-1998 concluded that the impact of company resources on the profitability for large, medium and small firms was 46%, 32% and 44%, respectively. Also, the impact of industry type on the profitability for large, medium and small firms was 8%, 11% and less than 2%, respectively.

Eriksen and Knudsen (2003) in their study were examined the 1994-19948 data on Danish small, medium and large (classified according to the number of employees). Their results showed that the effect of company resources is greater than the effect of industry type and the industry type has no effect on the profitability.

Caloghirou et al. (2004) examined the Greek small, medium and large firms (classified according to the number of employees) for 3 fiscal periods from 1994 to 1996. Their results showed that however both the industry type and the company's internal resources impact on the profitability, the effectiveness of the company resources is greater. Moreover, for small and medium businesses, the impact on the industry type is less than large corporations.

1.3. Company size

Cinca et al. (2005) in a study showed that there is positive and significant relationship between the size of the European companies and profitability ratios.

Lawrence et al. (2006) argue that Australian firm size and general price level index impact on the profitability. Bokhari et al. (2005) studied showed that in the UK, the larger companies compared to smaller companies are more stable profitability and profitability of smaller companies are more subject to market conditions and fluctuations.

Penrose (1995) believes that larger firms because of the large volume of activity are more profitable than smaller companies. Because larger firms have specialists forces and these forces assess the activities of various departments and remove redundant and non-economic activities.

Shepherd (1986) states that large companies share a certain proportion of their market and in imperfect competition in the market and because of the power they have can play a decisive role in terms of price and supply of product to market placements.

Majumdar (1997) examined the impact of company size on the profitability of Hindi Companies for the years 1988 to 1994. His findings showed that large firms are more profitable than small firms.

The results Feeny (2000) as a cross-sectional data based on an average of three years in the period 1994 to 1997 showed that the company size has no significant effect on profitability.

The results of Komonen (2000) also suggested that the firm size affects the profitability of production units.

Rietveld and Schipper (1996) examined the factors affecting the profitability of companies in six

cities in Central Java province of Indonesia. Their results showed that there is not relationship between size and profitability.

1.4. Company age

Increasing the life of the company has increased staffing experience and this in turn lead to product manufacturing process will be done in less time and lower cost. It will also allow for more productivity and profitability (Bhagwati and Bhoothalingam 1993). Another study shows the opposite case. Majumdar (1997) examined the impact of firm life on the profitability of Hindi companies for the years 1988 to 1994. His findings showed that younger firms are more profitable than older firms. Rietveld and Schipper (1996) in their study concluded that there is no relationship between the company's life and its profitability.

1.5. Capital to assets ratio

Fu et al. (2000) argue that use of capital in the financial structure considerably diminishes the bankruptcy risk. Reduce the risk of bankruptcy for businesses are useful for many aspects. Customers, suppliers of raw materials, creditors and shareholders to decide pay particular attention to the risk of bankruptcy.

Fu et al. (2000) studied the relationship between capital, debt and profitability of small and large Taiwanese companies. Results were similar for small and large companies with respect to this difference that the relationship between capital and the profitability of large corporations was higher than smaller companies. Also, by comparison of the capital structure of the companies was found that large companies have less capital ratio than small companies and large companies debt ratios is higher than small companies. The results of other research also showed positive relationship between profitability and capital. Geroski et al. (1997) examined the growth of the company for the current period with regard to long-term profitability. The results showed that there is a positive relationship between capital growth and profitability.

Echevarria (1998) studying 500 large companies for 20 years (1971 to 1990) conclude that there is a positive relationship between capital and profitability.

Davidson and Dutia (1991) studied the financial data of small companies in the period 1983 -1987. The results showed that however capital plays an important role in the profitability of small companies, because of unable to finance had to get a loan with a high proportion and this reduces their profitability.

Similarly, Ballantine et al. (1993) and Hughes (1997) investigated the relationship between financial structure and profitability of small firms. The results of both studies showed a significant positive relationship between capital and profitability.

1.6. Ratio of debt to assets

Managers for the benefits of financed by debt willing to provide this way the financial needs of companies, however, financing through debt followed by interest costs and this will cause companies to pay a portion of their income in future years for the cost of financing. As a result, their future profitability will reduce (Seyednezhad and Aghaei, 2002). Chen and Strang (2005) in their study concluded that Chinese increases leverage impact on their profitability.

Eriotis (2007) in their study concluded that increases the ratio of debt to assets of Greek companies reduce their profitability.

Fu et al. (2000) investigated the relationship between capital and liabilities of large and small firms in Taiwan. The results showed that debt has a negative effect on profitability. Results were similar for both large and small companies.

Rajan and Zingales (1995) investigated the relationship between book value of debt to equity with the sales and return on asset ratio in America, England, Italy, Germany, France, Japan and Canada using regression and correlation coefficients and concluded that the observed correlation between variables often is ambiguous and unresolved.

Chehab (1995) examined the constituent elements of the capital structure. The result suggests that debt levels being inversely related to profitability and risk of business units.

Lin and Rowe (2005) results on the Chinese companies for the years from 1997-2001 showed that the relationship between debt ratio and profitability depend on the criteria for measuring profitability. As a measure of profitability is cases such as profit margin on assets, interest expense coverage ratio and profit margin on sales, debt ratio has a negative effect on profitability and firms with high debt ratio are less profitable than firms with low debt ratio. On the other hand, if profitability is measured by return on capital, the relationship between profitability and debt ratio is significant and a combination of debt and capital is optimal for profitability. When the return on assets used for profitability, debt ratio has a negative effect on profitability. In the overall regression model, the relationship is significant and analysis shows that high debt ratio has a negative effect on profitability.

Davidson and Duita (1991) examined the financial data of small firms in the years 1983-1987. The result suggests that using too much debt is a major cause of reduced profitability of small companies.

1.7. Advertising costs

The purpose of advertising is to introduce products to customers and customers based on the advertising become familiar with quality, price and service of the companies. This will cause customers to purchase, select those products which gained information about them through advertising.

Therefore, advertising has a direct impact on sales and increased sales are effective on the company's profits (Robinson, 1996).

Esther (2006) by examination the various ways of advertising concluded that TV ADVERTISEMENT has the greatest impact on profitability.

Lee (2002) in their study concluded that there is a significant positive relationship between advertising and sales volume and increased profitability.

Comanor and Wilson (1967, 1974) found that the impact of advertising on profitability is positive. The result suggests that there is a strong positive relationship between advertising and profitability.

Nickell and Metcalf (1987) using data from British firms concluded that there is a positive relationship between advertising and profitability.

Jones et al. (1973) and Orr (1974) obtained similar results in the survey data on Canadian companies.

Han and Mannry (2004) studied the relationship between the cost of advertising and stock price in South Korea companies during the period 1988-1998. The result suggests that there is negative relationship between advertising expenditures and stock prices.

Tellis (1998) indicated that advertisment is ineffective in the period of doing it. However, some limitations such as the information of a class of manufacturing companies and a very short time period was limited the survey results.

Graham and Frankenberger (2000) examined the relationship between advertising rate and profitability of US companies during the years 1985-1994. The result suggests that advertising has a positive impact on income up to three years. The greatest impact is on the year in which the advertising is done and it will reduce over time. Also, with a more detailed analysis they concluded that the impact of advertising on business and service firms is up to two years and for manufacturing companies with respect to the size the advertising effect has been had for four years.

2. Research Hypotheses, population, sample and hypotheses testing

After reviewing the literature and theoretical framework and the firm's current situation following hypotheses were formulated:

- H1: There is a relationship between the industry type and profitability.
- H2: There is a relationship between the firm size and profitability.
- H3: There is a relationship between the firm age and profitability.
- H4: There is a relationship between the Capitals to assets ratio and profitability.
- H5: There is a relationship between the Debt to assets ratio and profitability.
- H6: There is a relationship between the advertising costs and profitability.

The study population of this study is the companies listed in Tehran Stock Exchange in 2013 and has maintained its membership in the Stock Exchange during three fiscal periods. Also, financial and investors companies due to the nature of operations is different from other companies and companies active in the textile industry due to the losing during the research, have been excluded. After identification of the sample companies, first, a pilot study based on the hypothesis of the study was performed.

Then, the information needed to formulate a statistical sample extracted and placed in the Eq. 1:

$$n = \frac{N Z_{\frac{\alpha}{2}}^2 \sigma_x^2}{\varepsilon(N-1) + Z_{\frac{\alpha}{2}}^2 \sigma_x^2} \quad (1)$$

And a sample of 60 companies was determined. Table 1 summarizes the sampling process.

Table 1: Statistical sample

Industry Name	Number of population	Contribution in the population (%)	Number of samples	Contribution in the sample (%)
Mining and other mineral	60	20.8	12	20.0
Food Products	43	14.9	9	15.0
Machinery, equipment	37	12.8	8	13.4
Metal products	42	14.5	9	15.0
Chemical products	52	1.70	11	18.3
Other Industries	55	19.0	11	18.3
Total	289	100.0	60	100.0

Due to the fact that the period of study is very low, in multiple regressions analysis the panel data that is the data in time-series and cross-sectional cannot be used. To solve this problem, the average data is calculated and using multiple regression with the least squares method (OLS) the tests have been performed. For profitability, the three measures have been used. Therefore, a multiple linear regression model that can be entered all the variables into it and do the necessary analysis is designed as follows:

$ROA_i = \beta_0 + \beta_1 Ind_i + \beta_2 Size_i + \beta_3 Age_{1i} + \beta_4 DA_i + \beta_5 CA + \beta_6 Ad_i + U_{j1}$

$ROAT_i = \beta_0 + \beta_1 Ind_i + \beta_2 Size_i + \beta_3 Age_{1i} + \beta_4 DA_i + \beta_5 CA + \beta_6 Ad_i + U_{j2}$

$ROE_i = \beta_0 + \beta_1 Ind_i + \beta_2 Size_i + \beta_3 Age_{1i} + \beta_4 DA_i + \beta_5 CA + \beta_6 Ad_i + U_{j3}$

where:

ROA_i: Return on the asset based profitability

$ROAT_i$: Profitability based on return on assets whit the adjusted cost of financing
ROE_i: Profitability based on return on capital
Size i: Company size
Age1: Company age
DA_I: Capital to assets ratio
CA_I: Debt to assets ratio
Ad_i: Advertising costs

Using these models, the significance of the coefficients associated with each variable was examined. In the event that any of the β coefficients are significant with respect to the test, it is argued that the variable is associated with profitability.

3. Hypotheses testing

According to three criteria to measure profitability, tests were conducted for each criterion as follows.

3.1. The first test of profitability (return on assets)

(A) Kolmogorov-Smirnov test: This test was performed to study the normal distribution of the data with the statistical hypothesis:
H0: The data are normally distributed
H1: Data are not normally distributed
Kolmogorov-Smirnov test was used to test the above hypothesis. The results showed that given the value of the test statistic (sig=0.065) and compared with the critical value in the error level (%5), it can be seen that the test statistic falls in the rejection region H1. Consequently, it can be argued that the dependent data are normally distributed.
(B) The collinearity test data: These tests have been made to study the collinearity between independent variables with the following statistical assumptions (Table 2):
H0: Independent data is collinearity related
H1: Independent data is not collinearity related

Based on the Table 2, all independent variables except the capital to assets ratio and debt to assets ratio have not collinearity. Because, given the value of the test statistic (sig) and compared with the critical value in the error level (%5), it can be seen that the test statistic falls in the rejection region H0. However for two variables of capital to assets ratio and debt to assets ratio, given the test statistic (sig) and compared with the error level (%5), the test statistic falls in the accepted region H0. As a result, the two variables are related multicollinearity in -1. For this reason, in the multiple regressions, both variables cannot simultaneously enter into the model. Therefore, the regression was performed in two stages. In the first regression, debt to assets ratio variable (due to multicollinearity with capital to assets ratio variable) has been removed and tests were performed. Then, in the second regression, debt to assets ratio variables entered in the model and capital assets ratio variable were removed from the model.

Table 2: Information about the collinearity of the independent variables

Variables	Test results	Size	Age	Capital to assets ratio	Debt to assets ratio	Advertising Costs
Size	correlation coefficientsig	1	0.131 0.320	-0.098 0.456	0.098 0.456	0.185 0.123
Age	correlation coefficientsig	0.131 0.320	1	-0.026 0.842	0.026 0.842	0.177 0.175
Capital to assets ratio	correlation coefficientsig	-0.098 0.456	-0.026 0.842	1	1.00 0.000	0.110 0.403
Debt to assets ratio	correlation coefficientsig	0.098 0.456	0.026 0.842	-1.00 0.000	1	-0.110 0.403
Advertising Costs	correlation coefficientsig	0.185 0.123	0.177 0.175	0.110 0.403	-0.110 0.403	1

First test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, at first the debt to assets ratio variable excluded and test for independent variables, industry type, size, and capital to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table 3.

Table 3: Information related to test hypotheses about the first measure of profitability

Dependent variable: the return of assets			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-0.509	-2.073	0.045
Capital to assets ratio (C/A)	0.382	2.997	0.004
Size	0.029	2.164	0.035
R^2=0.312 Adjusted-R^2= 0.265 F=6.013			

Using stepwise regression and the results of which are reflected in the Table 3 and the level of significance (%5), we can conclude that there is a significant relationship between size and capital to assets ratio with profitability. However, there is no significant relationship between the industry type,

company age and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROA= +0.029 C/A 0.382-0.509 +size

Second test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, in the second test, capital to assets ratio excluded and debt to assets ratio variable along with other independent variables was examined. Test for independent variables, industry type, size, debt to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table4.

Table 4: Information related to test hypotheses about the first measure of profitability

Dependent variable: the return of assets			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-0.127	-2.073	0.045
Debt to assets ratio (D/A)	-0.382	-2.997	0.004
Size	0.029	2.164	0.035
R^2=0.312 Adjusted-R^2= 0.265 F=6.013			

Specification Error of model in Table 4 using Ramsey, s RESET Test was examined. The Specification Error was rejected in the significance level of 5%. With the White test, autoregressive heteroskedasticity was evaluated. Autoregressive heteroskedasticity is rejected in the significance level of 5%. Using stepwise regression and the results of which are reflected in the Table 4 and the level of significance (%5), we can conclude that there is a significant relationship between size and dept to assets ratio with profitability. However, there is no significant relationship between the industry type, company age and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROA= -0.127-0.382 D/A+ 0.029 size

3.2. Test related to second measure of profitability (Adjusted return on assets)

(A) Kolmogorov-Smirnov test: This test was performed to study the normal distribution of the data with the statistical hypothesis:

H0: The data are normally distributed

H1: Data are not normally distributed

Kolmogorov-Smirnov test was used to test the above hypothesis. The results showed that given the value of the test statistic (sig=0.08) and compared with the critical value in the error level (%5), it can be seen that the test statistic falls in the rejection region H1. Consequently, it can be argued that the dependent data are normally distributed.

First test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, at first the debt to assets ratio variable excluded and test for independent variables, industry type, size, capital to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table 5.

Table 5: Information related to test hypotheses about the second measure of profitability

Dependent variable: Adjusted return on assets			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-0.482	-2.025	0.048
Size	0.031	2.411	0.019
Capital to assets ratio (C/A)	0.287	2.381	0.021
R^2= 0.320 Adjusted-R^2= 0.289 F= 6.292			

Using stepwise regression and the results of which are reflected in the Table 5 and the level of significance (%5), we can conclude that there is a significant relationship between size and capital to assets ratio with profitability. However, there is no significant relationship between the industry type, company age and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROAT= -0.482+0.031 size+ 0.287 C/A

Second test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, in the second test, capital to assets ratio excluded and debt to assets ratio variable along with other independent variables was examined. Test for independent variables, industry type, size, debt to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table 6.

Specification Error of model in Table 6 using Ramsey, s RESET Test was examined. The Specification Error was rejected in the significance

level of 5%. With the White test, autoregressive heteroskedasticity was evaluated. Autoregressive heteroskedasticity is rejected in the significance level of 5%.

Table 6: Information about the general test

Dependent variable: Adjusted return on assets			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-0.195	-2.073	0.046
Size	0.031	2.411	0.019
Debt to assets ratio (D/A)	-0.287	2.381	0.021
R^2= 0.320 Adjusted-R^2= 0.289 F= 6.292			

Using stepwise regression and the results of which are reflected in the Table 6 and the level of significance (%5), we can conclude that there is a significant relationship between size and depth to assets ratio with profitability. However, there is no significant relationship between the industry type, company age and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROAT= -0.195+0.031 Size- 0.287 C/A

3.3. Test related to third measure of profitability (Return on capital)

(A) Kolmogorov-Smirnov test: This test was performed to study the normal distribution of the data with the statistical hypothesis:
H0: The data are normally distributed
H1: Data are not normally distributed

Kolmogorov-Smirnov test was used to test the above hypothesis. The results showed that given the value of the test statistic (sig=0.112) and compared with the critical value in the error level (%5), it can be seen that the test statistic falls in the rejection region H1. Consequently, it can be argued that the dependent data are normally distributed.

First test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, at first the debt to assets ratio variable excluded and test for independent variables, industry type, size, capital to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table7.

Table 7: Information related to test hypotheses of the third measure of profitability

Dependent variable: Return on capitals			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-1.616	-2.095	0.045
Size	0.115	2.556	0.013
Second industry	-0.184	2.025	0.048
R^2= 0.280 Adjusted-R^2= 0.243 F= 5.625			

Using stepwise regression and the results of which are reflected in the Table 7 and the level of significance (%5), we can conclude that there is a significant relationship between industry type and size with profitability. However, there is no significant relationship between company age, capital to assets ratio and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROE= - 1.616+ 0.115 Size-0.184 Ind_2

According to the model, just the second industry (machinery and equipment) affect the profitability of companies operated in the industry. However, other industries not impact on profitability.

Second test

With regard to multicollinearity relationship between capital ratio and debt to assets ratio, in the second test, capital to assets ratio excluded and debt to assets ratio variable along with other independent variables was examined. Test for independent variables, industry type, size, debt to assets ratio and cost of advertising that is expected to impact profitability have been done. The results of the linear model estimation using ordinary least squares (OLS) are shown in Table 8.

Using stepwise regression and the results of which are reflected in the Table 8 and the level of significance (%5), we can conclude that there is a significant relationship between industry type and size with profitability. However, there is no significant relationship between company age, debt to assets ratio and the cost of advertising with profitability. Thus, the following model shows the relationship between the independent variables and the dependent variable:

ROE= - 1.616+ 0.115 Size – 0.184 ind_2

4. Comparison of tests and conclusions

According to tests conducted for each measure of profitability, the results are summarized in Table 9.

According to this fact that the results of the first and second criteria of profitability was similar to

approve or reject the hypothesis, The conclusion and comparison with the findings of previous research is offered jointly for the first and second criteria of profitability.

Table 8: Information related to testing the overall hypothesis of the third measure of profitability

Dependent variable: Return on capitals			
Model	(Coefficient)	(T-Statistic)	(sig.)
Constant regression	-1.616	-2.095	0.045
Size	0.115	2.556	0.013
Second industry	-0.184	2.025	0.048
R^2= 0.280 Adjusted-R^2= 0.243 F= 5.625			

Table 9: Summary of results

Measure of profitability Independent Variables	Return on assets	Adjusted return on asset	Return on capital
Type of Industry	Rejected	Rejected	Accepted
Company size	Accepted	Accepted	Accepted
Company age	Rejected	Rejected	Rejected
Capital to assets ratio	Accepted	Accepted	Rejected
Debt to assets ratio	Accepted	Accepted	Rejected
Advertising Costs	Rejected	Rejected	Rejected

4.1. The results for the first and second criteria of profitability (return on assets and adjusted return on asset)

In the first hypothesis, it was expected that the industry type impact on profitability. The results show that industry type has no impact on profitability. The results of the research is corresponded with the Hansen and Wernefelt (1989), Rumelt (1991) and Mauri and Michaels (1998), Eriksen and Knudsen (2003) and Acquaah and Chi (2007). However is not corresponded with the results of Schmalensee (1985) and McGahan and Porter (1997), Wernerfelt and Montgomery (1988), Cubbin and Geroski (1987), Chang and Singh (2000), Claver and others (2002) and Olavarrieta and Friedman (2007).

In the second hypothesis predicts that the size of the company impact on profitability. The results show that there is a positive relationship between the size of the company and its profitability. The results are consistent with the results of Majumdar (1997), Komonen (2000), Cinca et al. (2007) and Lawrence et al. (2006). However is not corresponded with the results of Rietveld and Schipper (1996) and Feeny (2000).

In the third hypothesis predicts that the company age impact on profitability. The results show that there is not a relationship between the company age and its profitability. The results are consistent with the results of Rietveld and Schipper (1996). However is not corresponded with the results of Majumdar (1997).

In the fourth hypothesis predicts that the capital to assets ratio impact on profitability. The results show that there is a positive relationship between capital to assets ratio and its profitability. The results are consistent with the results of Davidson and Duita (1991), Ballantine et al. (1993), Geroski et al. (1997), Echevarria (1998), Hughes (1997) and Feeny et al. (2000).

In the Fifth hypothesis predicts that the debt to assets ratio impact on profitability. The results show that there is a negative relationship between debt to assets ratio and its profitability. The results are consistent with the results of Davidson and Duita (1991), Ballantine et al. (1993), Holmes et al. (1994), Chehab (1995), Hughes (1997) and Fu et al. (2000), Lin and Rowe (2005), Chen and strange (2005) and Eriotis (2007). However is not corresponded with the results of Rajan and Zingales (1995).

In the sixth hypothesis predicts that the advertising rates of company impact on profitability. The results show that there is not relationship between advertising costs and profitability. The results are consistent with the results of Tellis (1998). However is not corresponded with the results of Comanor and Wilson (1967-1974), Jones et al. (1973), Orr (1974), Nickell and Metcalf (1978), Graham and Frankenberger (2000), Han and Mannry (2004), Esther (2006) and Lee (2002).

4.2. Results for the third criterion of profitability (return on capital)

In the first hypothesis, it was expected that the industry type impact on profitability. The results show that industry type has impact on profitability. The results of the research is corresponded with the Schmalensee (1985), Mc Gahan and Porter (1997), Wernerfelt and Montgomery (1988), Cubbin and Geroski (1987), Chang and Singh (2000) and Claver and others (2002). However is not corresponded with the results of Hansen and Wernefelt (1989), Rumelt (1991), Mauri and Michaels (1998), Eriksen and Knudsen (2003).

In the second hypothesis predicts that the size of the company impact on profitability. The results show that there is a positive relationship between the size of the company and its profitability. The results are consistent with the results of Majumdar (1997), Komonen (2000). However is not corresponded with the results of Rietveld and Schipper (1996) and Feeny (2000).

In the third hypothesis predicts that the company age impact on profitability. The results show that

there is not a relationship between the company age and its profitability. The results are consistent with the results of Rietveld and Schipper (1996). However is not corresponded with the results of Majumdar (1997).

In the fourth hypothesis predicts that the capital to assets ratio impact on profitability. The results show that there is not relationship between capital to assets ratio and profitability. The results are consistent with the results of Davidson and Duita (1991), Ballantine et al. (1993), Geroski et al. (1997), Echevarria (1998), Hughes (1997) and Feeny et al. (2000).

In the Fifth hypothesis predicts that the debt to assets ratio impact on profitability. The results show that there is not relationship between debt to assets ratio and its profitability. The results are consistent with the results of Rajan and Zingales (1995). However is not corresponded with the results of Davidson and Duita (1991), Ballantine et al. (1993), Holmes et al. (1994), Chehab (1995), Hughes (1997) and Fu et al. (2000), Lin and Rowe (2005).

In the sixth hypothesis predicts that the advertising rates of company impact on profitability. The results show that there is not relationship between advertising costs and profitability. The results are consistent with the results of Tellis (1998). However is not corresponded with the results of Comanor and Wilson (1967-1974), Jones et al. (1973), Orr (1974), Nickell and Metcalf (1978), Graham and Frankenberger (2000), Han and Mannry (2004).

5. Recommendations

The results showed a negative relationship between debt to assets and profitability of the company. It is recommend directors to design the capital structure of the company and how to finance the resources needed to pay serious attention to this topic and try to consider the cost-benefit terms t use bank loans. In addition, investors and shareholders when buying or selling shares should consider the debt to assets ratio as an influencing parameter and to adjust their investment decisions appropriate to the ratio. The results showed a negative relationship between the cost of advertising and corporate profitability. It is necessary the corporate managers pay attention to this issue and while review to the way of advertising try to use the effective advertising practices. Unlike other countries, the relation between the company age and profitability is negative in Iran. It is necessary for managers to pay attention to human resources and with planning and job training rich their staff experience. In this paper, the relationship between the size (sales) and capital to assets ratio with company's profitability is positive. It is recommended that while buy and sell shares, investors pay attention to these two parameters and adjust their decisions with respect to these factors. Each process has been discovered unknown aspects which are essential for future research examined. Some factors that were identified during the investigation of their relationship to profitability are as follows:

- In this paper, a linear relationship between the dependent and independent variables were examined. However, the relationship between the variables can studied using nonlinear relationships;
- Effect of other factors such as human resources, experience and expertise of the directors, trades Hall type, geographical location of the firm, education and in-service training on corporate profitability makers;
- Other factors affecting the profitability of the non-stock companies and compare it with the stock company;
- Effect of different means of advertising on sales and profitability;
- Assess the impact of macroeconomic variables on the profitability

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