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The Survey Relationship between P / E and Q Versions of Conventional Turbines to Evaluate the Performance of Companies Listed in Tehran Stock Exchange (Companies Operating in the Automobile Industry)

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ABSTRACT

This study investigated the correlation coefficient P / E as a measure of performance evaluation index companies listed in Tehran Stock Exchange in the automotive and construction segments Tobin Q is the current version. The study Listed Companies the Tehran Stock Exchange There are parts in the automotive industry. The population size was 33 companies Among the 24 companies in deletion (Census sampling) have been selected. In this study, the following hypotheses have been proposed.

1 - There is a significant relationship between ratio P / E and Q a simple Tobin.
2 - There is a significant relationship between ratio between P / E and Q Lindbergh and Ross.
3 - There is a significant relationship between the ratio P / E and Q Chung and Pruitt.

Hypotheses have been proposed, using multiple linear regression method and Pearson correlation test were the results of the three hypotheses indicate that the ratio P / E and versions of conventional Q Tobin (Qs, Q-LR and CP-Q) in the automotive industry during 2001 to 2004 there was no correlation of construction components.

KEYWORDS: Performance ratio P / E, Q Tobin simple, Q Lindbergh and Ross, Q Chung and Pruitt.

INTRODUCTION

During the past two decades major changes in the business environment emerged in the global arena the effects of a deep and comprehensive Performance and corporate activities and enterprises on the left. some of these changes can be economic development based on knowledge and intellectual capital, increase the firm's risk and hazards, Importance of social responsibility and organizational ethics; Rapid changes in technology and customer focused information technology and increased competition and the need to mention.

With the expansion and deepening the elements in the economic life of firms Management and its impact on organizations, viability and sustainability of value creation for all stakeholders require more companies (I.e., shareholders, customers, employees and society).

Today's challenge is to manage the appropriate integration of stakeholder value creation for the organization, and thus the organization is based on value creation and value-based management world-class organizations and has been a leader in working order. But here

The question arises and strategies what will be achieved.

In fact, there are several criteria the firm has been creating value for its stakeholders or in other words, there are different criteria for evaluating the performance of the organization used to evaluate corporate performance.

With respect to the criteria are not perfect, Always been criticized them and their efforts have been made to modify has led to the proposed new criteria. Stakeholders have always been in search criteria the best way to measure the performance of the manager. Efforts to achieve the best performance criteria continue.

Since the writings of performance measures are categorized in different ways each of these categories Hath alone has some disadvantages. Therefore, in the evaluation process, a set of indicators should be based business.

The major categories include

The first classification criteria for measuring performance both accounting and economic models into a model.

The second category of performance measurement criteria are divided into two categories: financial and non-financial. The third classification criteria and performance measures based on accounting approaches, integrated

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approaches, strategies, financial management and economic approaches to classification. The fourth category in this regard, measures five indexes important sales method returns ROS capital flow method A/IT, ROA, EVA and RI is summarized. Including common prescriptions Integrated approaches that are used in evaluating corporate performance The P / E, the result of dividing the price per share of its profits, and the relationship between stock price of a company benefit shows and index Chunk & Proit Q, Simple Tobin's Q, Q Landenberg & Rous Q, which range from the simple structure of the Based on the book began and as a very complex structure The methodology that has been developed by Ross and Lindbergh.

In economic environments, companies are provided a set of limited resources every company tries Appropriate share of resources is achieved. How to use this resource shall making a good contribution for suppliers and users of resources provided Resources to the process, Have continuity and this organization depends on management and leadership. Corporate performance the main tools of the capitalists, Creditors, governments and managers is Creditors in order to decide on the validity of the granted rate of pay for performance. The most important aspect that must be considered by investors in evaluating the performance of whether value has created for them or not?

In practice, there are different approaches to performance evaluation this approach consists of a variety of indicators and ratios are they determined that the accounting data and financial market or a combination of them is used. Among the most important criteria of a combined approach, Tobin Q ratio and the P / E ratio.

Tobin Q ratio in 1970 in the last two decades has been used widely by researchers, Summary If Tobin Q ratio is greater than one, Can be said The Company has been growing and has a great incentive for new investment. If this ratio is smaller than aid can be concluded that the company is not growing so there is no incentive to invest in new projects.

P / E ratio is one of the indicators The first time was in 1972 in the financial press, This ratio as a profitability factor named Obtained by dividing the price per share of its profits In fact, the relationship between a firm's stock price It shows a profit.

Tobin Q

One of the criteria for assessing the performance of companies that combined accounting data and market values. The company will use to evaluate the performance Tobin Q ratio is Market value of assets divided by the replacement value derived Tobin aims to establish a causal relationship between Q and the amount of investment made by the company as he warns, if the index is greater than a number There are many incentives for companies to invest due to the excess of the cost of capital employed is the rate of return on investment.

It is obvious that if all the investment opportunities to be exploited in optimal the final value of Q will be inclined toward a single number. This is expected to make extensive use of Tobin's Q is the financial investigators, amazingly, but perhaps much rather be The Financial Community Q index as an analytical tool and a vital statistics are not of much use. Hung and Pruitt with the why still the traditional way performance indicators are used to evaluate have discussed. Chunk and Pruitt logic Q index is converted into a useful tool for analysis. Hall (1990) and Lindbergh and Ross (1981) The methodology for calculating complex Q is That require access to multiple databases at the same time is also limited, Many of these have been discussed.

Common versions of existing Tobin Q

Below the main index, which was proposed by James Tobin in 1977 are described:

Q Standard:

This is calculated as follows:

$$Q = \frac{COMVAL + PREFVAL + BBOND + STDEBT}{LRRC}$$

Benchmark Q ratio a standard measure of Tobin's Q provides because it best meets the market value, these estimates will form the structure of the formula uses.

Simple Q:

This is calculated as follows:

$$Q_S = \frac{COMVAL + PREFVAL + SBOND + STDEBT}{SRC}$$

As can be seen Tobin Q components of the formula is simple, usually extracted from the Balance Sheet and the calculation of simple Q It is very easy compared to the other versions.

Q Lindbergh and Ross (QLR)

This is calculated as follows:

$$Q_{LR} = \frac{COMVAL + PREFVAL + LRBOND + STDEBT}{LRRC}$$

LRBOND The market value of the Company's long-term debt (bonds) LR is using As the components of the above formula is back Access to information and calculate the Q is very difficult.

Adjusted Q-LR

This is calculated as follows:

$$Q_{PW} = \frac{COMVAL + PREFVAL + PWBOND + STDEBT}{PWRC}$$

Which PWBOND Long-term corporate bonds debt market value estimated using a modified LR and PWRC estimated replacement cost of assets is adjusted using LR.this model is modifiable and LR Q.

Q Hall (QH)

This is calculated as follows:

$$Q_{H} = \frac{COMVAL + HPREFVAL + HBOND + STDEBT}{HRC}$$

That:

HPREFVAL =Year-end market value of equity calculated using elite Hall.

3HBOND=Liquidation value (solution) Bank debt database using Hall's second.

HRC =Using the estimated replacement cost of company assets is HRC Hall Algorithm.

Q Chankoproyet(C-P Q)

This is calculated as follows:

$$C - P\ Q = \frac{[MV(CS) + BV(PS) + BV(LTD) + BV(CL) + BV(INV) - BV(CA)]}{BV(TA)}$$

The CA, CL is current assets and liabilities respectively.

As was discussed previously there is a common version of the Q index a range of easy to calculate, will continue to be a very complex domain. In this study, the duplicate copies of these things were simpler (Q simplified) the most complex (Q Lindbergh and Ross) It is kind of them to choose Correlation of EVA in corporate performance will test the market. Since Q has no simple formula to describe the components of the calculation complexity, as Formula Q Lindbergh and Ross (QLR) process.

Q Lindbergh and Ross

Lindbergh and Ross version estimates the value of Q, It is difficult to use. First, largely because of the estimated replacement cost of physical assets depends on the company, usually small companies are not required to report their financial case.

In large firms prior to 1976 and after 1986, were not required to report, second, the estimated QLR the market value of corporate debt that the formula is too difficult to use. By using this model, a lot depends on the replacement cost of the data reported The Company has a minimum of two years.

Replacement value of corporate assets

Lindbergh and Ross of the firm's asset replacement value "As monetary payment required the current production capacity of the company to purchase least cost and the most modern technology available. "Defined. The estimated replacement value of assets the company is very difficult. Primarily because the markets are efficient and active capital goods which can be found there or if there are very few. In addition to reducing the cost of products through technological innovations and inventions problem is two-fold. As Lindbergh and Ross, (LR) have the property of the company is divided into three parts:

1) Property, plant and equipment,
2) inventory,
3) other assets.

The estimated market value of property, plant and equipment (depreciable assets) and inventory replacement cost methodology using three companies, Estimated based on historical time series data, or both factors. Estimates for all other assets, such as securities trading and the book value of the land are used.

For some of these assets to the book value is shown, this assumption is considered that the initial cost is close the difference is much smaller random aspects.

The first method used to estimate the replacement cost that is created by LR the use of replacement cost figures supplied by the company itself.

Price to earnings ratio (P / E)

Price to earnings ratio (P / E) Shows the amount that investors should profit for every £ pay. Ratio (P / E) divided by the share price of a share of the profits obtained.

P / E ratio is a function of the quality and profitability of the company In other words, in determining the value of a company's stock Quantity is not the only benefit It is due to its quality, The quality of earnings, Earning cash is proximity to.

In addition, the P / E is a function of the rate of profit is the company's future investment opportunities, However, companies that are exclusive position Due to its special location for investments with high returns of P / E ratio is high.

Research background

The first version of the Q index was introduced in 1977 by Tobin great evolution in assessing the performance of companies created.

Later research by Ross and Lindbergh in 1981 on 257 U.S. companies have completed construction of capital (long-term debt and short-term investments and rights owners), were Q took over the company and won.

Mark, Shellfire and Veshiny in 1988 as an indicator of the Q test to assess the extent of this index can be used by different classes of shareholder influence.

Long, Stulz and Valkleink In 1989 and 1991, the Tobin Q As for the correlation functions of the managerial and benefits of participation in the tender and free cash flow assumptions used.

In 1990, Connell and Serveiz the Tobin Q, determine the value of corporate equity ownership and use. Yrmark in 1996 to investigate the relationship between firm size or board composition and firm performance use.

Berger and Amfac In 1995, Long and Estevez in 1994, Lloyd and Jared in 1994 to analyze the relationship between changes in capital structure of Q Tobin performance of the company and the company.

Berger and Amfac and Taitman in 1993 Q as an indicator of investment opportunities to test the use of the purchased shares. And Denis and satin in1994 and Lank and chelating Q As part of their analysis of to investigate the effect of changes the dividend rate and stock price used.

Loewe and Bandera Also in 1997 a new and somewhat modified version of the Q devised.

Finally, the forth research in 1999, Darrell. A. James Lee. Jay. Tampkyng, an overview of previous versions of and compare their results did in an article entitled “an improved version of the company's performance measured using the method of Lee and Len Badrnat»Published.

Research questions and hypotheses

This study sought to find a correlation between the ratio P / E criteria, the Q Tobin simple, Q Lindbergh and Ross and Q Chung and Pruitt that if any relation could be criteria of Q Tobin simple, Lindbergh and Ross and Q Chung and Pruitt as a substitute for ratio P / E can be used to evaluate company performance.

To answer this question, Hypotheses are formulated as follows:

1 - There is a significant relationship between ratio P / E and Q a simple Tobin.

2 - There is a significant relationship between ratio between P / E and Q Lindbergh and Ross

3 - There is a significant relationship between the ratio P / E and Q Chung and Pruitt.

RESEARCH METHODOLOGY

This research is descriptive and correlation (correlation, regression analysis).

This area of research is applied research. So that the results can be used manager’s financial analysts even be shareholders.

The type of data collected, the study is a quantitative aspect. To test the hypothesis information relating to the companies listed in Tehran Stock Exchange has been used. the mode of reasoning is inductive deductive.

To test the hypothesis of multiple linear regression correlation rations is used.

Population and Sample Statistics

Because all the elements of the constraints of time Cost and access to data is not possible, therefore, the period of investigation from 2001 until 2004, which include, the following criteria are used to determine sample.

1 - Company addressed the industry are heavily involved cars and car parts.

2 - Companies whose names and dates for 2001 List of companies listed in Tehran Stock Exchange are inserted.

3 - Member firms in Tehran Stock Exchange during the year 2001 to the beginning of 2005, the transaction price will be eaten.
4 - The Tehran Stock Exchange member firms that they may obtain the necessary information criteria for calculating the end of 2006, there be in the year 2001.
5 - The companies that If they financial period ending March every year.
6 - Companies that are not removed within the time period of the Exchange Bulletin.
Among the companies listed in Tehran Stock Exchange are in the auto parts industry (33 companies) a total of 24 companies have qualified above which the sample was selected. It is observed the sampling of the exclusion.

The study collected data of library and field methods are used. The theoretical framework and research background, Use of library resources Field research and collecting data, and Tobin Q of P / E of the stock software and databases; Programs such as stock reports, portfolio Sahara and Pars is used. Due to the length and complexity of the calculations, the Excel software was used in this study. The study analyzed data from SPSS software version 17 was used.

RESULTS

this hypothesis is analyzed in four steps:
1 - Test Kolmogorov – Smirnov, test for normality of the data.
2 - The linear relationship between variables using multiple linear regression.
3 - Correlation coefficient.
4 - The results of the data analysis.

Test Kolmogorov - Smirnov
The results are summarized in figure 1

Figure 1. Test Kolmogorov - Smirnov

Year	Significant amounts **CP-Q**	Significant amounts **Q_S**	Significant amounts **Q_{LR}**	Significant amounts **P/E**
2000	0.035	0.234	0.334	0.102
2001	0.041	0.223	0.226	0.504
2002	0.344	0.072	0.072	0.322
2003	0.914	0.667	0.662	0.436
2004	0.823	0.773	0.799	0.214

The variables (Q Tobin simple, Q Lindbergh and Ross, Q Chung and Pruitt ration P / E) of the SPSS results showed that the level is significantly larger. The data are normalized.

Linear multiple regression
Regression analysis to estimate the mathematical relationship is this means that it can quantify the unknown variable determined using known variables.

Simple linear regression model to $y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon$ Which β_0 Fixed parameter and β_1 ، β_2 and β_3 Test to estimate the unknown parameters of the model that we should.

Figure 2 Mean values of P / E shows.

Figure 2. Mean values of P / E

Model		Not Standardized coefficients Beta estimation error		Standardized coefficients Beta	t calculated	P-value
1	Fixed amount	3.874	1.723		2.240	0.036
2	Q-S Mean	-9.559	7.710	-1.554	-1.240	0.229
3	Mean Q-LR	-0.703	2.415	-0.111	-0.291	0.774
4	Mean CP-Q	11.240	8.406	1.714	1.337	0.196

According to the table, regression, all P-value for independent variables (QS, Q-LR and CP-Q), more than 0.05 and t calculated for the independent variables are less than t table (2.064) is therefore in the years 2001 to 2005 (5-year) between the dependent variable (P / E) and the independent variables are not linear.

Correlation coefficient

The first hypothesis the tables compare the calculated value of t is less than t table or In other words, the level of significance (sig two sequels) in comparison with the error is larger than that of accepting the null hypothesis. Therefore, the P / E and QS are no significant relationship. And the lack of correlation between P / E and Q-S is accepted that the correlation between the amounts of 0/081 estimated.

$$\text{p-value (sig.2-taile} > AH_0 \Rightarrow 0.05$$

The second hypothesis T value is calculated according to the tables T is smaller than the table or words of significance (sig two sequels) in comparison with the error is larger than that of accepting the null hypothesis. Therefore, the P / E and Q-LR are no significant relationship and the lack of correlation between P / E and Q-LR is accepted that the correlation values are estimated.

$$AH_0 \Rightarrow 0.05 > \text{p-value (sig.2-tailed)}$$

The third hypothesis the tables compare the calculated value of t is less than t table Or words of significance (sig two sequels) in comparison with the error () is larger than that of accepting the null hypothesis. Therefore, the P / E and CP-Q are no significant relationship and the lack of correlation between P / E and CP-Q is accepted that the correlation between the amounts estimated.

$$AH_0 \Rightarrow 0.05 > \text{p-value (sig.2-tailed)}$$

Conclusion

Until a few decades ago, even in developed countries, stocks are not enough to ensure recovery and stock exchange operations was not fully known. all securities the text entered in the economic life Procedure as part of a comprehensive the investment is accounted for all decision makers are trying the data available to analyze such that can help them correct decision. Among the data available to them (Particularly financial decision makers) have data on market value; with the incorporation of market value accounting information can be used to develop indicators to assess performance amid.

One of Tobin's Q index. This index can be used to evaluate company performance. As we know that the aim of a scientific study, Add or change little in science. Due to the sensitive nature of financial discipline, employing the theory of the field it seems to be
Necessary in practice.
It is necessary in this field:
1-Information to be provided sound basis for economic decisions.
2 - Provide information to form a judgment about management's ability to effectively use the resources of the Institute will serve (performance management).
3 - If you meet financial goals In providing useful information for investors and creditors to enable them to make Uncertainty related to the timing and amount of Potential benefit to your current cash flow forecasts, compared to evaluation Confident that this will attract investors. The above objectives can be said Given that the criteria used in this paper, a new part of the country is using a combination of information about the market value and the cost is after their use in financial institutions and economic stock companies to evaluate performance objectives determined accessibility can be useful.

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