

## **The Estimation of the Value by Using the Free Cash Flow Method of Listed Companies in Tehran Stock Exchange**

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**Abstract:** The aim of the present study is to estimate the value by using the free cash flow relationship of listed companies in Tehran Stock Exchange; therefore, free cash flow is a criteria for performance appraisal. In this study, the market value added changes criterion has been used to measure the value of the company. For this purpose, 121 companies have been selected from Tehran Stock Exchange through screening technique during a 7 years period from 1386-1392. The data has been collected through the companies' financial statements published on the Tehran Stock Exchange site. For data analysis, multivariate regression analysis has been used. The results obtained from hypothesis test indicate that no significant difference has been observed between free cash flow and the company's value. The results show that free cash flow does not have the ability to estimate the value of companies listed in Tehran Stock Exchange.

**Key words:** Free cash flow, company's value, Tehran Stock Exchange (TSE), ability, market

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### **INTRODUCTION**

Among the criteria that has been fewer used in Iran's domestic researches is the free cash flow of company. Free cash flow is a criterion for measurement of the company's value and performance and represents the cash flow that company possesses after expenses for maintenance or development of assets and is distributable among investors. The free does not mean that company will certainly distribute the remaining cash among investors, but rather how to use it depends on the board of directors' opinion or policies of the company. In using this criteria, it must be noted that in some cases, especially in newly established companies, free cash flow may be negative which can be a sign of the company's significant investment in its assets during the early years. Jensen was the first person who examined the criteria with regard to conflicts of interest between owners and managers and stated that it is possible that managers, in order to maintain control power, protect under control resources and maintain their interests (reward), not to pay excess cash as interest to investors and invest these funds in projects even with a negative NPV.

Free cash flow per share is a criterion which shows the financial profitability of the under investigation company through dividing free cash flow by the number of issued shares. The mentioned criterion is an indicator for measuring the change in earnings per share and

provides an initial prediction regarding future stock prices. For example, while the low stock price and free cash flow are increasing, It is likely that net profit and stock value will increase soon. Because, high levels of free cash flow per share means that probably earnings per share should also increase. Regarding the development and growing complexity of economic activities and the emergence of various business units and formation of independent legal entities and the need to provide accurate information more importantly, how to view the information provided by these units and legal entities in line with the company's domestic and foreign decisions makings have resulted in invention of methods and techniques in the evaluation of companies from different perspectives. Concurrent with the accounting development of these methods, techniques have been completed and developed and have been made available to financial analysts and decision makers. In line with this development, the researchers' main role is clear to everyone. The efforts of researchers alongside urgency of the consumers' need to better and more scientific information cause accounting goes beyond its traditional role which is record and report of financial activities and events and plays an important role in the growth and prosperity of the country as a basis for decision-makings and optimal allocation and mobilization of capital. Stock Exchange is the most common way for mobilization and allocation of capital. Offering Companies' stock in

exchange creates investment opportunities and greater willingness to raise capital and maximizing the wealth by raising the return on investment and increasing the stock price along with caution and risk reduction or loss of investment causes the investors and buyers of securities pay special attention to evaluation of the company and managers' performance and changes in stock prices.

Other criteria for measurement and performance appraisal such interest, interest per share and profit sharing are not complete measurement indicators while free cash flows, due to its association with changes in shareholder wealth, are a more appropriate criteria for the company's performance appraisal. Free cash flows are a sign of company's ability to repay debts, payment of dividends, resale and repurchase of shares, facilitate and accelerate the company's growth that all of which are important for investors. These are among the reasons cause investors consider the increase of free cash flows as a measure of value (Zeghal and Maaloul, 2010). With regard to the above matters, the question will arise whether free cash flow can be a good criterion to estimate the value of companies listed in Tehran Stock Exchange or not?

The changes in stock interest and price are effective elements on evaluation of companies and managers' situation and consequently on investors' actual and potential decisions. Additionally, the primary price determination for acceptance of company in stock exchange and internal planning and control of the company are elements and topics that have attracted the attention of managers and stock exchange. The above elements and groups and their reasons and objectives witness importance of the research and have a direct relationship with it.

The aim of this study is to determine the real figures and not expected ones in determining the value of companies in the form of free cash flow evaluation model in the category of valuation of companies.

Among the objectives of this research are as follows: contribution to understanding and interpretation of accounting information by various interest groups in the market, contribution to understand the relationship between accounting items and corporate value.

**Literature review:** Jensen (1986) has investigated the relationship between free cash flow, dividends and additional investment in other companies, that the result of the study shows that there is a significant relationship between these variables; and stated that companies who have high free cash flow, basically invest in opportunities that have a positive net present value and thereby raise corporate value.

Cupertino investigated the cash flow, residual interest and dividends discounted in the evaluation during the years 1995-2004 in Brazilian companies and came to the conclusion that cash flow method has more explanatory power compared to other methods and can better estimate the value of the commercial entity. Jaggi and Gul (2000), in their study, found a direct relationship between earnings management and high free cash flow in companies with low growth. They believe, according to Jensen, in such companies, managers, rather than distribute free cash flow among shareholders, invest the mentioned funds in projects with negative net present value which it lowers the market value of the company. Therefore, managers of such companies try to adjust the status quo using earnings multiplier discretionary accruals to achieve their personal interests. Yudianti (2008), in a study using 150 sample companies investigated the effect of earnings management on the relationship between free cash flow and shareholders' value. The results show that with 95% confidence, free cash flow changes have a significant relationship with changes in shareholders' wealth. He also showed that there is a direct significant relationship between positive free cash flow and shareholders' value; however, there is no direct relationship between negative cash flow and shareholders' value. In the second hypothesis test, he came to conclusion that with 99% confidence, earnings management undermines the relationship between the cash flows and the made for shareholders in the entire level of sample and positive cash flows.

## **MATERIALS AND METHODS**

In this study were used the correlation, regression and ANOVA analyses and the methodology of the research is Ex-Post Facto (through the use of past information). In the some cases where investigation of the relationship is between a dependent variable and one or more independent variables that is estimated based on this relationship and using historical data, parameter (parameters) for independent variable (variables) and predict by providing a model that in use of data section will be fully explained.

To provide literature, the use of English references, books, articles and previously written dissertations is placed on the agenda. In this section, to learn about concepts, definitions and methods related to the study in theoretical literature as well as studies conducted on other countries, the necessary information is gathered through internet searching and referring to investigations and studies in the field. By referring directly to the center archive of Tehran Stock Exchange, the data related to

hypotheses test is collected through bulletins and monthly magazines published by the stock exchange congaing the monthly and daily data on transactions as well as Tehran Stock Exchange and [www.rdis.ir](http://www.rdis.ir) sites. For classification, calculations and data processing Excel software will be used and EVIEWS Software will be utilized to test the hypotheses. Tadbir-Pardaz and Rahaward-Nowin Software are also among sources that will be used to collect data (due to the provision of appropriate data from financial statements of companies).

This is an applied study. The research design is quasi-experimental using Ex-Post Facto (through past information). The Ex-Post Facto method is used when researcher investigates the subject after occurrence of events, moreover, there is no possibility of the manipulation of independent variables. Data collection needed for the research is an essential step and should be clearly defined and specified in terms of its importance. The data collection phase is the beginning of a process in which researcher collects library and field findings and then summarizes the results through classification and analyzes them and evaluates his compiled hypotheses and ultimately, concludes and find the research answer by reliance on them. In other words, researcher on the basis of collected data discovers the truth as it is. Therefore, data validation is very important because invalid data prevents to discover the truth and the researcher's problem is not understood well and a misguided and wrong picture will be presented on it. To maintain the credibility of collected data, the investigator should carefully collect the correct data. In this study, the library method is used to collect data and information. In library section, research literature from Persian and Latin books and journals. The research data is collected through sample companies' data referring to the financial statements, explanatory notes, weekly and monthly reports of Stock Exchange and using Tadbir-Pardaz and Rahaward-Nowin Software.

In this study, we have a primary population and a secondary one as a result of the exercise of limitations. Our primary population is all firms listed on Tehran Stock Exchange. The statistical population has decreased by applying a number of limitations. The limitations are as follows: the end of the financial year must be 29 of Esfand. Prior to 1386 must be listed in Tehran Stock Exchange, should not to be one of the investment and financial intermediation companies. During the period under investigation (2014-2008) the fiscal year must not change. Their information must be always available during the period under investigation.

The statistical sample of the study will be determined after applying the above restrictions. Based on the above

**Table 1: sampling method based on the above restrictions)**

Companies	Restrictions
488	Companies listed on Tehran Stock Exchange by the end of 2014
34	Financial intermediation and insurance companies
93	Companies that the end of their financial year does not end in Esfand
131	Companies that have had interruption operational for >4 months or during the investigation period have had financial year change
107	Companies that their information is not available or have been removed from stock exchange
121	The companies remained in statistical sample

criteria, 121 companies were identified. Then all of the information needed for the study were collected from the Tehran Stock Exchange databases, Tadbir-Pardaz and Rahaward-Nowin Software and Stock Exchange publications. It should be noted that statistical sample in the present study is the statistical sample of the company's remaining after applying the restrictions (Table 1).

**Inferential statistics and data analysis:** In this study, the regression model obtained from the process of researching regression model significance and variable coefficients are analyzed as well as correlation analysis and variance analysis and the hypotheses will be approved or rejected. Remarkable that in all tests the significance level has been considered equal to 5% ( $\alpha = 0/50$ ). Additionally, in test section, hypotheses will be investigated in the form of regression model. It should be noted that in this study, we will use suitable regression models for investigation of research hypotheses considering F-Limer value and based on Hausman test. Secondary hypothesis test: there is a significant relationship between free cash flow and market value added.

The probability value of F Limer statistics in Table 2 is less than the significance level of 5%; therefore, using panel data is excluded to test the above hypothesis. The probability value of Hausman statistics is greater than the significance level of 5%; therefore, there is no sufficient reason for rejecting random effects model and we use random effects model to test the fourth secondary hypothesis (Table 3).

The random effects synthetic regression model of free cash flow impact on the changes of positive market value added (0/091) and given the possibility of statistic t (0/8296) is not significant. This indicates that free cash flow does not affect the market value added. Other findings showed that the financial leverage and company size have a positive and significant effect and type of industry has a negative and significant impact and corporate life has a very poor positive impact. F statistic results show that the model was significant in general and with regard to the Durbin-Watson statistic, there was no

Table 2: F-Limer and Hausman test results

Data and model selection	Test type	Test statistic value	Degree of freedom	Test statistic
Panel data vs. synthetic data	F-Limer	26.86	(120, 960)	0.0001
Fixed effects model versus random effects model	Hausman	11.00	33.11	0.0845

Table 3: random effects synthetic regression model of free cash flow impact on the market value added

Model:  $CF_{it} = \alpha_{it} + \beta_1 CO_{it} + \beta_2 LEV_{it} + \beta_3 Size_{it} + \beta_4 Age_{it} + \beta_5 Dum_{it} + \varepsilon_{it}$ 

Variables	Regression coefficient	t-statistics value	Probability of t-statistics
Fixed value	1.7	1.77	0.0794
Free cash flow	0.091	0.22	0.8296
Financial leverage	0.036	2.36	0.047
Company size	0.024	2.53	0.0342
Company life	-0.0498	2.00	0.049
Industry type	-0.01	2.21	0.2299

Determination coefficient = 0.235; Adjusted determination coefficient = 0.192; Probability of F-statistics = 0.0001; Durbin-Watson statistic = 1.77

correlation problem. Additionally, the results of the adjusted coefficient of determination shows that 192% of market value added changes are under the influence of the independent and control variables of the research. Given that the free cash flow impact on the market value added is not significant, the fourth sub-hypothesis is rejected and is not approved.

## CONCLUSION

This theory sought to examine the fact that whether free cash flow has a significant impact on the market value added or not? To investigate this hypothesis, the appropriate panel/synthetic regression models using F-Limer and Hausman have been used and according to the findings, the effect of free cash flow on positive cash value added (0.091) and with regard to t statistics probability (0.8296) has not been significant and almost 192% of the cash value added changes of the companies have been under the influence of the independent and control variables of the research. Additionally, the effect of financial leverage and firm size has been positive and significant and the impact of firm age and the type of industry has been negative and significant. We conclude that free cash flow does not have impact on the cash value added and the hypothesis is rejected.

In connection with the hypothesis, increase or decrease in company's free cash flow cannot be said that whether market value added changes. However, the researchers are able to investigate relationship between these variables non-linearly for decision-making. On the other hand, in free cash flow model it can be pointed out that criterion is cash, which has informational content in efficient markets and has a positive response to stock price. But the criterion, in Tehran Stock Exchange market which is not efficient, does not have the explanatory power and informational content. The results of the hypothesis is in line with researches conducted by Chen *et al.* (2009), Manohar (1999) and Kimmel *et al.* (2004).

The scientific and research studies often face with some restrictions that endanger the stability and reliability of the research findings. However, researcher's effort should be in this direction that while maintaining the scientific value of the study, seek solutions to fix or cope with limitations. In this study, there were also limitations and problems in the process of doing the research that the most important of which are mentioned below as: There is no consensus on the definition of the company's value, as a result, there are different methods to measure it based on different views. In this study, an attempt is made to use market value added changes through diversification of criteria and using criteria agreed upon by most of the researchers, so that the stock price changes become more evident. With regard to the statistical population limited to the companies listed in Tehran Stock Exchange which their fiscal year end in Esfand, extending results to other companies should be done carefully.

## SUGGESTIONS

General and executive suggestions that this research is carried out based on information provided in the audited financial statements of the companies. Thus, it is obvious that its results react by the accuracy of the information contained in the financial statements. Tehran Stock Exchange utilized these criteria, along with other criteria in assessing companies' shares so that investors could consider these criteria in selecting stocks using the pattern of stock exchange.

Given the importance of the quality of accounting information, particularly accounting earnings, it seems that doing further studies and consideration of other aspects will help to clarify this issue. This research could serve as a model for future studies. The summary of proposed topics for future researches are as follows: this study was carried out upon all companies listed on the Stock Exchange in Tehran and without separation of

companies in terms of industry type that it is recommended that in the future studies, results are evaluated separately for each industry. The time period of the study is seven years that it is recommended that in future researches, in the case of exciting required data, the time period of the study gets longer. The investigation of the relationship between economic value added and traditional accounting criteria and market value-added. In future researches, more stable model can be provided for the value created for shareholders through addition of corporate governance mechanisms to independent variables.

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