

# Profitability Assessment of Fundamental Analysis in Stock Selection (The Case of Tehran Security Exchange in the Autumn of 2011)

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# ABSTRACT

Financial issues and the way of investment have always been important for researchers and executive operators, and they need to decide about them. Capital market of any country is also regarded as economic pulse of it, and exchange as the most important institution of capital market has important role in absorbing wanderer capital of the community. Investment in such market requires analysis of stocks and timing purchase and their sale. For this purpose, different methods and points of view such as fundamental analysis and technical analysis can be respectively enhanced. This survey has been performed with the goal of surveying profitability of fundamental analysis. By assuming constancy in macro economical conditions, and making hypotheses, profitability of two fundamental methods have been investigated, one of which calculates intrinsic value by growth rate method, and another is the return obtained from the gap between P/E of company and P/E of industry. This survey in respect of goal is practical, and in respect of nature and method is descriptive, and is typically a correlation analysis. Findings imply positive correlation between return obtained from the gap between P/E of company and P/E of industry. Also, lack of correlation between the return of chosen stocks using constant growth method, with actual stock return obtained from the same shares set is observed.

**KEYWORDS**: Fundamental analysis, Intrinsic Value, Earnings per Share (EPS), Price to EPS ratio (P/E).

## 1. INTRODUCTION

Investment is considered amongst very important issues in financial literature. Investment in a wide dimension means sacrificing today's profits for more profits in future <sup>[1]</sup>. In this respect, investment is always important for people, companies, and governments, and they are required to decide about it. Investment in stock exchange is one of the options that has high importance and is attractive for investment affair. Regarding the classification of stages of creating and evolution of exchange in Iran, currently Iran exchange lives in fourth stage of its life, namely compiling long term strategies and developing regional exchanges <sup>[2]</sup>. Therefore, in order to absorb more people for investing in exchange, the attractions of this market should be evident as much as possible. One of the ways that can improve attraction of exchange market for people is a series of investment methods that facilitates choosing appropriate options for investment. Existence of such methods does not reduce the existing risk in market, but the logic governing on them justifies acceptance of existing risk in market.

Investment on stock exchange has been performed in various methods. The difference of these methods is because of difference in followers' viewpoints of each method towards the stock price trends in market. On this basis, investment methods in stocks are classified into three methods<sup>[3]</sup>.

• Technical Analysis Method (Chart Analysis):

Technical analysis is the study of market action, primarily through the use of charts, for the purpose of forecasting future price trends <sup>[4]</sup> and believe that all necessary information about one share is reflected on its price, and based on this basic idea, they do not need to collect wide information such as company performance, the industry that company is located in it, macro economical and political issues <sup>[5]</sup>.

• Modern portfolio theory:

In this method the basic belief is that by choosing some shares and forming a portfolio, the total risk of portfolio can be justified in a level lower than weighting average of each share inside portfolio, without

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occurrence of any defect in gaining return <sup>[6]</sup>. Since such investors cannot predict exactly the future price of shares, they avoid repeated purchasing and selling shares, and follow buy and hold policy <sup>[3]</sup>.

• Fundamental Analysis Method:

In this method, it is assumed that the investor invests based on four analyses concerning evaluation of stocks. Four analyses have been performed based on analysis of country's economical conditions, analysis of related industry condition, analysis of company, and analysis of financial statements of company <sup>[3]</sup>. This method is one of the most primitive methods of choosing shares, and having been developed and systematized, it has been converted to one of the most efficient methods in monetary and financial markets of world. The weak point of this method is that fundamental analysts can have appropriate prediction when the financial statements of the under investigation company are available. In other words, they can only investigate the value of shares of those companies that their financial statements are available <sup>[7]</sup>.

But recent studies on the domain of profitable methods for investment have more focused on fundamental analysis and technical analysis <sup>[8]</sup>. Mohanram (2005) in his article has identified successful and unsuccessful companies by using their financial statements. In order to achieve this goal, the surveyor has combined internal and related to company indicators like cash flow, earning flow and so on with modern indicators like research and development costs, profit growth rate, and has defined a criterion entitled it as "G-score". The results of this survey indicated that traditional indicators are better for predicting companies with high book-to-market ratio, and modern indicators are more appropriate for predicting performance of companies that this ratio is lower in them <sup>[9]</sup>.

Oberlechner (2001) in a survey investigating methods used by investors in European financial markets, reached to this conclusion that dealers of these markets have used both of these two technical and fundamental methods, but considering their time horizon, the importance of these two methods will be different for them. Investors with time horizon less than six months usually benefit from technical methods, and the longer the time horizon of investor becomes, the more application of fundamental methods will become. This survey also shows that market condition plays important role in the method used by investors. As an example, in Forex market using technical methods is more important <sup>[10]</sup>.

Benish et al. (2001) in a study has predicted the profitability of companies by using fundamental analysis. In his studies, he has reached to this conclusion that combining market indicators with accounting indicators that is regarded as the basis of fundamental analysis provides precise results for determining profitability of companies<sup>[7]</sup>.

Abarbanell and Bushee (1997) in an article entitled "Fundamental analysis, future earnings and stock prices" investigated the success ratio of fundamental method in analyzing shares value. For this purpose they have evaluated financial statements of companies and also macro economical variables, and predicted future profits of those companies. Ultimately, they compared their predictions with actual earning of those companies, and concluded that macro economical variables such as inflation rate and Gross Domestic Product (GDP) with variables within company like previous financial ratios, and also expected future growth rate of company plays important role in prediction of a fundamental analyzer<sup>[11]</sup>.

Where the base of fundamental analysis is the comparison of share price with one criterion price, and this criterion price is obtained by different methods <sup>[8]</sup>, in this survey it has been tried to assess profitability of these methods in capital market of Iran by using available financial statements and applying methods that will be explained later. Since the period investigated in this survey has been third quarter of the year 2011, and macro economical conditions and industry conditions during a three month period usually do not change so much, investigating profitability of the above methods leads us to a kind of judgment about profitability of fundamental analysis method.

Therefore, the goal of this survey is to investigate the general hypothesis of profitability of fundamental analysis method, and for this purpose, in the following, applied methods in this survey that have application in fundamental analysis are explained, and afterwards the formed hypotheses from these methods are assessed.

### 1. Intrinsic Value Calculation

One of the methods for determining normal share value is to calculate its intrinsic value. Intrinsic share value is the total present value of future cash flows that is calculated based on expected return of shareholder <sup>[12]</sup>. Patterns that exist for calculating intrinsic share value in respect of cash flow ratio, payment time, and discount rate have different assumptions. Among the most known patterns of shares valuation of companies are:

#### The Zero-Growth Model:

The simplest method for determining normal share value is to assume the dividend will remain constant during a period of time, and one who buys these shares will hold them forever. Therefore the divided annual profit will be converted into installment, which can be regarded as lifetime equal installments. The intrinsic value of this kind of shares is calculated by the following method <sup>[14]</sup>:

In which IV= intrinsic share value, D= dividend of each share in a year, and k= expected return of investor.

#### The Constant-Growth Model:

Most of the patterns used for calculating and determining normal share value are based on this assumption that earning per share (EPS) increases during a period of time, and future EPS can be calculated by using growth rate <sup>[13]</sup>.

The assumptions of this pattern are <sup>[14]</sup>:

A) Share profit increases based on annual constant growth rate ( as compound);

B) Growth rate of share profit is less than expected return of shareholders.

Intrinsic value of one share based on these assumptions is the total of present value of share earnings in future years <sup>[13].</sup>

$$IV = \frac{D_0 \left(1 + g\right)}{\left(k - g\right)}$$

 $IV = \frac{D}{k}$ 

In which IV= intrinsic share value,  $D_0$  = dividend of each share in a year, and k= expected return of investor, and g= growth rate of dividend of each share.

Investors and analysts determine a relationship between Intrinsic Value (IV), and Current Market Price (CMP), and it is as follows <sup>[13]</sup>:

If CMP<IV, intrinsic share value is higher than its current market price and it should be purchased, and provided that it already exists, it should be held;

If CMP>IV, intrinsic share value is lower than its current market price and it should be sold;

If CMP=IV, represents balance, and in this case the share is valued accurately.

Considering the point that constant growth rate model is regarded as one of the most known methods of shares valuation, the first hypothesis of this survey investigates the profitability of this model in Tehran stock exchange:

1) Estimated return by using constant growth rate has positive relationship with actual stock return.

#### 2. Valuation based on Price to Earnings per Share (Price to EPS) Criterion

One of the major methods of assessment that is often used by analysts is Price to EPS ratio. In fact, although nowadays discount models of dividend are more considered by investors and investment publications, analysts of stocks apply this model more than profit discount models <sup>[14]</sup>. This proportion indicates that investors instead of receiving one profit unit are willing to pay several money units. Some of the investors have found out that those companies that their growth is expected to be fast, their Price to EPS ratio will become more. Thus, P/E proportion in various industries will be different depending on the type and conditions of that industry <sup>[13]</sup>. The same P/E of industry can be a criterion for purchase and sell of shares of a company which is active in the domain of one industry. In this respect based on the gap between P/E of one company and the P/E average of active industry, the stock return of that company can be expected. Therefore according to what has been mentioned the second hypothesis of this survey is defined as:

2) Estimated return obtained from the gap between P/E of company with the P/E of active industry has positive relationship with actual stock return.

### 3. SURVEY METHODOLOGY

This survey in respect of goal is practical, and in respect of nature and method is descriptive and typically is a correlation analysis. The results of survey are applicable in shares of Tehran stock exchange, and investors can use them. This survey shows an explanation of current situation of variables, and correlation coefficient has been used in it. The statistical population of this survey includes all of the companies accepted in Tehran stock exchange. Considering the point that Tehran stock exchange in its statistical reports at the end of each season, introduces 50 companies that are active in capital market in that season, those 50 companies that are active in capital market in third quarter of 2011 are selected as statistical sample of survey. The reasons of choosing third quarter of the year for performing this survey are as follows:

- Considering Nowrooz vacation at the beginning of the year, the major activities of capital market begins from half of Farvardin month and market does not have activity for 15 days; and
- Many of the companies that are active in capital market set their financial year at the end of Esfand, and usually annual meetings of many companies that are active in market take place at the end of spring season and at the beginning of summer season, and the atmosphere governing on market transactions are more based on gossips about meetings.

Afterwards, having selected companies for survey, their financial statements including prediction of annual earnings per share for the years 2009, 2010, 2011 have been chosen from CODAL Network<sup>1</sup>, and EPS growth rate for each one of the companies has been calculated. The reason of choosing EPS instead of DPS in this survey is because of more importance that EPS has had during that time of year for investors. In a survey published by Junttila and Korhonen (2011) it became obvious that inflation rate impacts on valuating financial assets <sup>[15]</sup> Thus, expected return in third quarter period of the year 2011 regarding inflation rate declared by central bank<sup>2</sup>, and by receiving comments of some of the capital market activists, has been considered as 30 percent.

#### 4. Findings

Considering calculated growth rate for selected companies, and regarding assumptions of constant growth rate model based on which the growth rate of company should be less than expected return in order for this model to be usable <sup>[14]</sup>, the number of companies used for testing hypotheses of survey has been decreased. Regarding the point that hypotheses of this survey investigate correlation between actual stock return and estimated return by using two mentioned models, Pearson Correlation Coefficient test has been used for testing both hypotheses.

### **Hypothesis 1:**

First by using obtained growth rate for investigated companies, the EPS of those companies has been declared and placing these numbers on constant growth rate model, the intrinsic value of each one of selected shares at the end of each three months of autumn season of the year 2011 has been calculated, and by comparing this price with the share price at the beginning of month, estimated stock return has been calculated by using this model. In the next stage, actual stock return of this set of shares has been calculated. The results of investigating Pearson correlation analysis between estimated return based on constant growth rate model and actual stock return have been shown on Table 1:

Table 1. Results of Pearson correlation analysis for the first method						
	Accepted	Rejected	Significance	Correlation coefficient		
Hypothesis 1		√	0.605	-0.058		

The obtained results indicate lack of correlation between estimated return using constant growth rate method and actual stock return in Tehran stock exchange.

### Hypothesis 2:

To test this hypothesis, first P/E proportion of selected shares set has been calculated. The obtained amount for each company is subtracted<sup>3</sup> from the average of P/E related to companies that are in the same group of that company, and the obtained number is divided to the average of P/E of that industry. Thus, the expected return of each company regarding the gap ratio that it has with the P/E of active industry in that domain has been calculated. Mathematical statement of expected return based on this method is:

<sup>&</sup>lt;sup>1</sup>. http://www.Codal.ir

<sup>&</sup>lt;sup>2</sup>. http://www.cbi.ir

<sup>&</sup>lt;sup>3</sup>. The information related to the average of P/E of various industries has been obtained from statistical reports published by Tehran Stock Exchange company (http://www.tse.ir)

 $PR = \frac{(P/E)_{cor} - (P/E)_{Ind}}{(P/E)_{Ind}}$ In which PR = estimated return,  $(P/E)_{cor}$  = Price to EPS ratio of company, and  $(P/E)_{Ind}$  = Price to EPS ratio of industry.

Ultimately, by using Pearson correlation analysis, the claim of correlation between expected return based on this method and actual stock return in Tehran stock exchange has been accepted at significant level of 5 percent. The results of above test are addressed in Table 2.

	Accepted	Rejected	Significance	Correlation coefficient
Hypothesis 2	✓		0.031	0.266

### 5. DISCUSSION

Nowadays reaching to economic goal of any country without public participation of the people of that country is an impossible issue. Stock exchange in many countries is the central core of capital market, and annually leads a large amount of wanderer capital to producer and active units of community like production and service sectors. Therefore, existence of logical methods for choosing appropriate investment is among the important needs for those who are active in stock exchange of any country. Moreover, considering the expansion of privatization in recent decades, this necessity has been highlighted in Tehran stock exchange. The goal of this survey is to investigate the profitability of two methods from major methods concerning fundamental analysis. The assumptions of this survey have been the constant macro economical and political conditions, and also the constancy in general conditions of industry. Thus, considering constancy in general conditions, by relying on methods that investigate shares value, decision about purchasing or selling stocks can be made.

One of the most applicable methods of assessing shares intrinsic value is constant growth rate method <sup>[14]</sup>. A survey performed by Bae and Nelson (2007) in America stock market indicated that earnings growth rate of one company can assist prediction of future share price <sup>[16]</sup>, but the results of this survey indicates lack of profitability of this method in choosing shares in Tehran stock exchange. On the other hand, P/E ratio shows investors' optimism and pessimism and this depends on the expected return rate of investors towards one industry. In other words, provided that other factors are the same, the more shareholders' expected return rate increases, the P/E ratio decreases <sup>[17]</sup>. The results of this survey show that using this criterion for choosing appropriate share for investment is profitable. In fact, as long as P/E of one company is less than the average of P/E of industry active in it, purchasing it is attractive, and conversely as long as P/E shares of one company is more than the average of P/E of industry active in it, selling shares more rapidly is a more appropriate option.

Investigating investment methods and choosing shares is important, because it assists the policy makers of country in making appropriate decisions for absorbing wanderer capital in the country towards capital markets like exchange. The results of this survey indicate that holding training courses of shares valuation by stock exchange for all investors can be among the priorities of this organization in order to make it possible to have a more logical and practical market in the country.

#### 6. Conclusions

Considering the point that investing owners seek to gain appropriate return on their investments, declaring appropriate investment methods in stock exchange causes reduction of lack of confidence of them towards investing in exchange. The more the number of investors and their activities in exchange, the more exchange will progress, and this financial institute will have conditions for reaching to more efficiency. It is also the case that exchange progress would encourage more companies to offer their shares in exchange, and all these factors will accelerate privatization in the country. Considering this point, this survey investigates profitability of two common methods in fundamental analysis, and the obtained results of the testing hypotheses of this survey shows that investors' expectation from return rate of various industries impact on their reaction towards purchasing or selling stocks. This expectation shows itself in P/E ratio, and depending on P/E amount of company and the gap it has with the average of this criterion in related industry, investors purchase or sell shares. Savor (2012) states that valuation of shares has strong relationship with future excitements in earning each share <sup>[18]</sup> Thus, it seems that considering high fluctuations in the profitability of exchange companies, using methods that assume the profitability rate of company constant in long term, is not profitable. Since many of these earning excitements are due to change created in macro economical policies, executive operators of the country should lead companies towards a relatively stable growing trend by creating constancy in macro economical conditions.

This survey like any other surveys has faced with limitations such as unavailability of information of many companies for the years before 2009, and provided that such information exists, the growth rate of companies would be calculated more accurately.

Finally, some suggestions are offered for other surveyors who are interested in this field of study as follows:

- Surveying profitability of methods based on technical analysis;
- Comparing profitability of fundamental analysis with technical analysis;
- More accurate calculation of expected return rate of investors who are active in Tehran stock exchange by using methods like Capital Asset Pricing Model, Sharp one-factor model, etc.; and
- Surveying methods applied in this survey in other three months periods and annual periods.

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