

## **The Relationship between Discretionary and Non-Discretionary Accruals and Information Efficiency in Tehran Stock Exchange**

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**ABSTRACT** — This research studies Discretionary and Non-Discretionary Accruals and information efficiency of the Tehran Stock Exchange. Market efficiency to the particular set of data, the provided method by Mishkin is used. The sample in this study includes all listed companies on Tehran Stock Exchange from 2003 until the end of 2013. Econometric models are estimated using data - collected and Stata 11 using the Eviews 7 software. . The research sample includes, 343 companies have been chosen to estimate model and to test research hypotheses Note that research studies that investigate the efficiency of capital market relative to special collections of information are of studies inquiring into abnormal pricing (abnormality or irrational pricing). For the analysis of research data and estimating models, the hybrid data approach has been used. The results of this study showed that the capital market is efficient relative to the information of non-discretionary accruals and the capital market is not efficient relative to accruals information

**KEYWORDS:** market efficiency, information efficiency, Discretionary Accruals, Non-Discretionary Accruals

### **Introduction**

Capital market theory is an important theory trying to explain and predict the progression of capital (and sometimes financial) markets over time. The efficiency refers to how successful the market has been in determining security prices. This means that prices continuously reflect new information and the information is a collection of data relating to companies and their securities. The prices should be affected by these data (Fama, 1976). Market efficiency means that the market is fully informed of available information and properly uses it to determine prices. Put it differently, if it is not possible to gain abnormal return by means of an especial collection of information, it is said that the market is efficient to that information (Jenson, 1978). In some cases, investors do not display a rational reaction to information and this brings several abnormalities such as excessively increased or decreased prices. Over- or under-reaction occurs when the stock prices are specified over or under their inherent value based on new information. Although the market finds its mistake over time and returns to its equilibrium, such economic behavior is considered as an irrational behavior (GhalibafAsl, 2006). There are several definitions for efficiency the most important of which is what has been presented by Jenson (1978). He argues that if it is not possible to gain abnormal return by means of an especial collection of information, it is said that the market is efficient to that information. Accrual components give a way to companies to manipulate their earnings, because accrual accounting offers managers a great authority to determine their profits in different periods. The earning stability is affected by accruals (Ditchu and Ross, 2005). Accrual components predict future economic interests such as cash inflows and outflows and of central components of earnings and financial reporting. They are considered in valuing stockholders' rights. According to Slovan, accruals have higher mean return on revenue (less durability) than cash flow components. Accrual components can be divided into discretionary and non-discretionary components: discretionary accruals are those accrual components can be controlled by management and non-discretionary accruals cannot be controlled.

### **Market efficiency and earnings as a measure of efficiency**

Efficient operation of profit unit affects the dividends as well as the use of funds to create the upcoming dividend. Current shareholders can act in the absence of management efficiency for the changes. Or they can consider benefits and rewards for efficient management. Potential investors try to evaluate efficiency of management before investment or share evaluation in profit unit. And efficiency benchmark provides a basis for decision-making. One of the efficiency interpretations is showing the relative strength of profit unit in obtaining maximum profit by using certain amount of resources or achieving a certain amount of product by using minimal resources or combination of resources to the demand and certain prices for products in such a way that maximizes returns for owners. However, efficiency depends on the purpose of profit unit and efficiency is meaningful when it is compared to an ideal or expected criteria. If the stock market is efficient, it successfully deals with outfitting saving resources and directs them

toward productive economic activities, selecting the best investment opportunities, determining the value of investment funds, data analyzing and distributing economic risk in national economy. As a result, efficiency is a very important feature of the stock market, according to Fama: market efficiency is an important component of the capitalist system (Fama, 1970). According to the Institute of Economy Plan Research (1998), in an efficient market it is assumed that supply and demand are flexible unlimitedly for the price that market has determined rationally. If the actual stock price is slightly lower than the rational level, customers rapidly insert money to the market for the purchase of shares. On the contrary, if the price was slightly higher than the rational level, market vendors filled the market with share. In an efficient market, Bill Gates can sell all Microsoft's shares on one day for the same day price. Proponents of the efficient market hypothesis say the market efficiency doesn't depend on rationality of all investors. In many scenarios, when some investors are not rational market is still efficient. In a single scenario, irrational investors do not communicate with each other, so their trades are randomly and non-correlated. Because of the large number of such investors, eventually noisy traders will have no effect on stock prices. Market efficiency means that the market is aware of all the information available and applies the information to accurately determine the price. In other words, if abnormal returns cannot be obtained using particular data set, it is said that the market is efficient with respect to the information set (Jensen, 1978)

#### **Efficiencies**

**Allocative efficiency:** when the market will reach allocative efficiency that financial resources are allocated to the best investment opportunities, in other words, limited financial resources created by savers, are allocated to projects with the highest expected income level in the future. **Operational efficiency:** operational efficiency is achieved when the intermediary operations may be performed with minimal cost. It has to be true in the market in general and in any transaction in particular. **Information efficiency:** Information efficiency is achieved when stock prices fully reflect available information on the market, if we get information efficiency on the market, investors cannot get abnormal and unusual profit by having specific information. (Baumol 1972) Jensen states: market is efficient to specific information, if abnormal returns cannot be obtained based on it.

#### **Research background**

In 1970 Fama presented efficient market hypothesis and different market information efficiency levels (weak, semi-strong and strong) and to evaluate the efficiency of the stock market in New York at low level, tested the random walk hypothesis (using price changing autocorrelation). Dot Blue Lock (Dot Blue Lock, 2007) had done research on Taiwan's stock efficiency. He tested weekly returns of Taiwan stock exchange during the period 2006-1990 using Le variance and McKinley ratio test and concluded that Taiwan stock exchange during the period has low level efficiency. Rasekhi and Khanalipour (2009) examined the stock's volatility and information efficiency. Period 2000 to 2007 is examined in this study. Information efficiency of market in the study will be rejected. The findings of this study indicate that factors do not act professionally so information news affect prices not immediately but over time and unusual gain or loss is possible. Saleh Abadi et al (2011) tested low-level information efficiency in stock exchange. In this study, the optimal portfolio of sharp single factor was measured as one method to select the investment compared to the efficiency of market indices over a period of 82 to 87. The research result confirms the information efficiency of market low level and more attention to the risk and return to the medium-term courses. Sadeghi Batany (2005) notes to Tehran Stock Exchange weak efficiency using filter rules to maintenance purchase method. Considering the sampling method in this study, the Tehran Stock Exchange for those companies that have trading on at least 70% of the trading days of the year, has had low level efficiency. Sharp (1966) evaluated the efficiency of 34 investment funds to examine strong efficiency in the period 1954 to 1963 and found that the investment funds with higher average yield have higher volatility compared to other investment funds and considering the results of his study showed that there is a strong level of efficiency in the capital markets.

#### **Research plan:**

Tehran Stock Exchange has information efficiency to discretionary and non-discretionary accruals information.

#### **Statistical community and sample**

The statistical population of this study is all companies listed on Tehran Stock Exchange from 2003 until the end of 2013 (457 enterprises, 3705 years). To determine statistical sample by systematic method, the following conditions have been applied: The companies their fiscal year ends on March 29 or 30 have been deleted (76 Company, 532 year- company). Then banks and financial institutions and financial investment companies (due to the different nature of their activities from other business units) have been deleted (13 companies, 136 year-company). At the end of outlier observations (first percentile and the 99th percentile of all observations) as well as companies that had less than 2 years data have been deleted (25 companies, 252 year-companies). Applying the above conditions, 343 companies (about 2785 years-company) have been chosen to estimate models and to test research hypotheses, among them 475 cases are bankrupted and 2310 are not bankrupted.

#### **Data collection method**

In this study, collecting required data has been done in two stages. In the first stage of research to develop the research theoretical foundations, library method (and referring to theses and articles in Persian and English through relevant sites) and in the second

stage, to collect required data from the information provided on notification site of the central bank and financial statements submitted to the Stock Exchange, and other relevant data sources such as databases of Tadbirpardaz and Rahavard-e- Novin have been used.

### Analysis method of data

Before analyzing the data it is necessary to ensure from the reliability of the data series during the period under review. To check the reliability of the research data, Dickey Fuller (Fisher type) and Phillips and Perron test (Fisher type) have been used.

### Research model

In this way, for the choice of model estimation method, the F-test has been carried out as follows:

All intercepts are equal

At least one intercept varies with the rest

$$F = \frac{(R_{LSDV}^2 - R_{Pooled}^2)/(T - 1)}{(1 - R_{LSDV}^2)/(NT - T - K)}$$

$$F = \frac{(RSS_{Pooled} - RSS_{LSDV})/(T - 1)}{RSS_{LSDV}/(NT - T - K)}$$

In these models  $R_{LSDV}^2$  and  $RSS_{LSDV}$  are the coefficient of determination and the sum of squares residuals from the fixed effects model and  $R_{Pooled}^2$  and  $RSS_{Pooled}$  are the coefficient of determination and the sum of squared residuals from the Pooled model. N is the number of slices (The Companies) and T is length of the period (ie years). If you reject the null hypothesis, the model is estimated by fixed-effects model otherwise the model is estimated using the Pooled. In the case of selecting fixed effects model, it should be tested by Hausman test it to the random effects model as follows:

H<sub>0</sub>: There is no correlation between the individual effects and the explanatory variables= Random effects model

H<sub>1</sub>: There is a correlation between the individual effects and the explanatory variables= Fixed effects model

$$H = (\hat{\beta}_{FEM} - \hat{\beta}_{REM})' (V\hat{a}r(\hat{\beta}_{FEM}) - V\hat{a}r(\hat{\beta}_{REM}))^{-1} (\hat{\beta}_{FEM} - \hat{\beta}_{REM}) \sim \chi^2(12-3)$$

In the model,  $\hat{\beta}_{FEM}$  there is the slope coefficient in the fixed effects model,  $\hat{\beta}_{REM}$  the slope coefficients in the random effects model and  $Var$  variance symbol. The number distribution is  $\chi^2$ . In case of rejection the null hypothesis, the model is estimated using fixed effects. Otherwise, the random effects model is used (Aflatooni and Nikbakht( 2010).

Efficiency evaluation of market to specific information and Mishkin test (1983):

In literature on the capital market, to test the market efficiency to the particular set of data, the method provided by Mishkin (1983) is used. Suppose we want to examine the market efficiency to the variable data set X. Therefore, in Myshkin approach at first systems of simultaneous equations is created:

$$\begin{cases} \hat{X}_{t+1} = \alpha_0 + \alpha_1 X_t + \varepsilon_{t+1} \\ URet_{t+1} = \beta(X_{t+1} - \alpha_0 - \alpha_1^* X_t) + e_{t+1} \end{cases}$$

Where X is a variable that seeks to test the effectiveness of the capital markets to it, URet abnormal stock returns  $\alpha_0$ ,  $\alpha_1$ ,  $\alpha_1^*$  Factors are equation system parameters and model debris. In the above equation, the first equation is called prediction equation and the second equation is called the pricing equation. In the above system of simultaneous equations, if the index  $\alpha_1$  is not meaningfully different from  $\alpha_1^*$  coefficient, it is said the capital market is efficient with respect to the variable X. To test the above statement, Mishkin statistics (1983) is used

To test the research hypothesis, the following simultaneous equation system is estimated and by using it, the research hypothesis is tested

$$\begin{cases} (E/P)_{t+1} = \alpha_0 + \alpha_1 CFO_t + \alpha_2 NDAC_t + \alpha_3 DAC_t + \varepsilon_{t+1} \\ Ret_{t+1} = \beta((E/P)_{t+1} - \alpha_0^* - \alpha_1^* CFO_t - \alpha_2^* NDAC_t + \alpha_3^* DAC_t) + \varepsilon_{t+1} \end{cases}$$

NDAC is the non-discretionary and DAC is the discretionary accruals. If the stock market is efficient on the ground of information, no significant difference is anticipated between the coefficients ( $\alpha_3$ ) and ( $\alpha_3^*$ ). In such case, the stock market is believed to be efficient in information released in form of non-discretionary accruals (discretionary accruals).

### Research Findings: Simultaneous equations system estimation results

$$\begin{cases} (E/P)_{t+1} = \alpha_0 + \alpha_1 CFO_t + \alpha_2 NDAC_t + \alpha_3 DAC_t + \varepsilon_{t+1} \\ Ret_{t+1} = \beta((E/P)_{t+1} - \alpha_0^* - \alpha_1^* CFO_t - \alpha_2^* NDAC_t + \alpha_3^* DAC_t) + \varepsilon_{t+1} \end{cases}$$

Variables	Coefficient	Z statistic	Significance	Determination Coefficient
A. Prediction Equation				
y-intercept	0.0266***	2.5923	0.0095	
CFO	0.6098***	15.8430	0.0000	30.85%
ACC	0.6785***	20.9931	0.0000	
DAC	0.5579***	17.8147	0.0000	
B. Valuing Equation				
EARNINGS <sub>t+1</sub>	0.2403***	2.0061	0.0448	
y-intercept	-1.5045***	-1.9251	0.0542	
CFO	0.2945	0.4540	0.6499	20.56%
NDAC	0.8988*	1.6652	0.0959	
DAC	0.9005*	1.6681	0.0953	
C. Mishkin Test (1983)				
Fourth Hypothesis: 0.1661 (0.6836)				
Fifth Hypothesis: 4.9296* (0.0264)				
***, ** and * are significance at levels 1%, 5% and 10%				

In comparing non-discretionary accruals coefficient in prediction and valuing equations, the insignificance of Mishkin statistic (0.1661) shows that there is no significant difference between coefficients of the related variable in both equations. But the significance of Mishkin statistic (4.9296) at 5% shows that there is a significant difference between the accruals coefficients in prediction and valuing equations.

### Conclusion

Efficiency of the market is important, because in case of an efficient capital market, the price of securities would be determined fairly and the allocation of capital, which is the most important factor of production and economic development, will be done ideally. Where market is efficient in such especial information, investors cannot gain unordinary return and the negative effects of the information disappear in market. The results of this study showed that the capital market is efficient relative to the information of non-discretionary accruals and investors cannot gain unordinary returns by such information and the capital market is not efficient relative to accruals information and investors can gain unordinary return using the information of discretionary accruals of accounting earnings part

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