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THE INVESTIGATION OF EXISTING MODELS IN CONNECTION WITH EARNINGS MANAGEMENT IN COMPANIES LISTED IN TEHRAN STOCK EXCHANGE

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ABSTRACT

The purpose of this research was to study the patterns of earnings management of listed companies in Tehran Stock Exchange, in order to achieve the most appropriate model for assessing earnings management in the market environment of the country. Since accruals earnings management may play a significant role in earnings management, it was studied as the dependent variable, using the five models (Jones, adjusted Jones, Kasnyk, Adjusted Kasnyk, Jones, Dechow, Sloan and Sony). In this study 70 companies listed in Tehran Stock Exchange for the period 2005 to 2011 were reviewed. Regression model was used to test the assumptions of the model. The results obtained showed a correlation coefficient of .254 for Kasnyk model, .235 for Adjusted Kasnyk, .035 for Adjusted Jones, Dechow, Sloan and Sony, .019 for the Adjusted Jones and .004 for the Jones model. These findings revealed that Kasnyk model was the most correlated among the mentioned five models. Given that the vast majority of domestic research in this field has applied Adjusted Jones model, one can question the reasonability of using the model, considering local conditions, and propose Kasnyk model as an appropriate model for assessment of earnings management in companies

Keywords: *Earnings Management Accruals, Discretionary Accruals*

INTRODUCTION

One of the main purposes of earnings management performed by the managers is to create more stable flow for supporting the higher level of earnings payable. More stable flow may be viewed as a lower risk leading to higher stock price and lower borrowing costs. The tendency of business units' managers towards enhancing the investors' ability to predict and mitigating the company's risk via earnings stabilization is considered as the other purpose of earnings smoothing (Poorheidari, 2006).

Fluctuations of earnings level can affect the company's risk, as a result, the company's capital cost (Barons, 2001), therefore, they can be effective in the company's future debt contracts, as a consequence, in its payments of cash earnings in the future.

Earnings, identified as one of the most fundamental elements of financial statements, is continuously taken into consideration, and is applied as a criterion for evaluation of the continuity of activities, efficiency and reassessment of the earnings contract's structure, and for forecasting the future cash flows for the investors (Egbali Amoogin, 2008). Thereby, people attempt to achieve earnings quality to predict the future cash flows, because in the case of presenting high-quality financial statements, its application by the investors will increase. Although, evidences indicate that accounting earnings is an appropriate criterion for yield of stocks, adopting contract approaches, conservation concerns, and importance in calculating the accounting earnings have led some analysts to come to the conclusion that economic earnings is a better criterion for cash flows prediction compared to accounting earnings (Esmayili, 2006). Various models (Jones, Adjusted Jones, Kasnyk, Adjusted Kasnyk, Jones, Dechow, Sloan and Sony) in connection with measuring and assessing earnings management have been presented. With regard to the necessity of conducting earnings management assessment by considering different aspects, and the

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necessity of detection and localization of the most appropriate assessment model in this respect, models of earnings management need to be analyzed in order for the best model to be selected. In Iran, the majority of studies focusing on earnings management have been conducted by applying Modified Jones, and the reason behind using this model has not been explained clearly; researchers' emphasis on using this model is mainly on the strength of relying on the studies conducted abroad.

2. Theoretical Frameworks and Background

2.1. Earnings Management Motives

in the countries studied, but it suggests a lack of use of The process and methods of measuring earnings, as well as the obtained results take a critical part in the business unit. This criterion is mainly used as an appropriate criterion for assessing the business unit's ability to maintain its activities' continuity. Of the most significant and pivotal roles of accounting earnings is that, investors and other beneficiary people pay particular attention to the reported earnings, and this factor is usually applied as a basic criterion in their decision making (Littlun, Kohler, Eyjiri, Matez).

Additionally, Malford and Kamsicky believe that the reported earnings has an enormous impact on the whole commercial activities of the business unit as well as the managers' financial decisions. Managers' desire to achieve the predictions of financial analysts, and satisfy the market demands, on the one hand, considering a conflict of interests between the owners and managers, and regarding the accounting earnings as the basic criterion for making decisions, on the other hand, provide the motive for using discretion in accounting earnings by business unit's managers. In accounting literature, academic staff, professional people, and legislators have propounded various factors as motives for earnings management; a number of important ones are pointed to below:

2.2. Models of Earnings Management

Diverse models are used to separate discretionary accruals from aggregate accruals. In the present study variety of earnings management models (Jones, Adjusted Jones, Kasnyk, Adjusted kasnyk, Jones, Dechow, Sivan and Sony) have been taken into consideration.

(Jones Model, 1991)

$$ACCR_{it} = \alpha_0 + \alpha_1 \Delta REV_{it} + \alpha_2 PPE_{it} + \epsilon_{it}$$

In this model, ACCR = Aggregate accruals

ΔREV = Change in revenue from the year t-1 to the year t

PPE = Gross properties, plant, and equipments in the year t

(Adjusted models of Jones and Dichev, Selvan and Sony, 1995)

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it}] + \alpha_2 RPE_{it} + \epsilon_{it}$$

In this model, $REC_t - REC_{t-1}$ = Change in net accounts receivable from the year t-1 to the year t

(Kasnyk model, 1999)

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it}] + \alpha_2 RPE_{it} + \alpha_3 \Delta CFO_{it} + \epsilon_{it}$$

In this model, ΔCFO = Change in operating cash flows from the year t-1 to the year t ($CFO_t - CFO_{t-1}$)

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This model modifies Jones' model from two aspects: The primary and the main modification is making changes in net cash from operations as the third independent variable. Recent studies indicate that accruals have a negative correlation with changes in cash flows, which is probably because of the nature of accounting model (Dechow, 1994). Therefore, temporary cash flows appears to exert non-discretionary effects on total accruals, and a portion of the non-discretionary part of accruals may be detected through adjusting the total accruals for the amount of changes in cash from operations.

The second change with respect to Jones model is questioning the assumption that all revenues are exogenous. Scheduling the revenue recognition is an approach adopted by managers to manage the reported earnings. Now, if in designing a model, revenue is regarded as an exogenous factor which is not influenced by the management's exercise of discretion, the presented model will not be able to discover earnings management through scheduling the detection of revenues, therefore, earnings management's ability in discovering by means of the model will be low. Drawing upon Dechow et al. (1995) we can alleviate this problem by adjusting the revenue variable for the amount of change in accounts receivable (Kasnyk, 1999). The stock of materials and goods compose a substantial part of Iranian companies' current assets, and despite the high inflation in Iran's economy, it is considered as a useful tool for earnings management. Thereby, changes in the stock of goods are added to the two modified models, i.e., Jones and kasnyk, in the current study. It is assumed that, in the case of rise in the general level of prices, fall in the stock of materials and goods, compared to the previous year, would discretionarily bring about a rise in revenues. Consequently, changes in the stock of goods are added to changes in revenues in the two modified models of . As a result, changes in the stock of goods which has been assumed to be discretionary and under the control of the management, are pulled out from non-discretionary accruals in both models. We call these models modified Jones 2 model, and modified kasnyk model, and present them as follows:

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it} + \Delta INV_{it}] + \alpha_2 PPE_{it} + \epsilon_{it} \quad (\text{Modified Jones 2 model})$$

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it} + \Delta INV_{it}] + \alpha_2 PPE_{it} + \alpha_3 \Delta CFO_{it} + \epsilon_{it} \quad (\text{Adjusted kasnyk model})$$

It should be mentioned that, in the above models, non-discretionary accruals (NDAC) is a fixed value as the

numerator and the denominator (DAC) is defined as discretionary accruals. Furthermore, in these models, in order to standardize and harmonize the factors to reduce the fluctuations, total properties of the company at the beginning of each period has been used.

3. Hypotheses and Conceptual Model

The following hypotheses are tested in the present paper:

H1: Jones Model (1991) will have the highest correlation with earnings management in comparison to other models.

H2: Modified Jones and dechiv, Selvan and Sony (1995) will have the highest correlation with earnings management compared to other models.

H3: Kasnyk model (1999) will have the highest correlation with earnings management compared to other models.

H4: Modified Jones 2 model will have the strongest correlation with earnings management among other models.

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H5: Modified kasnyk model will have the strongest correlation with earnings management among other models.

4. METHODOLOGY

The current study is an applied one with regard to its objective. This type of researches are applied since they can be used by the stock exchange organization, financial analysts, stock agents, financial managers of companies, universities, university education centers, researchers, and auditing organization.

With respect to method of inferring, the present study is descriptive-analytical. A descriptive research describes and interprets whatever exists without any interference. This type of research includes data collection in order to examine the hypothesis or answering the questions pertaining to current status of the subject under question.

4-1. Statistical Samples

From the statistical population, companies with the following conditions were selected as statistical samples:

- 1) Getting accepted in the Tehran stock exchange before 1384, and working in the stock exchange until 1391.
 - 2) A number of accepted companies in the stock exchange including banks and financial enterprises, investment companies, financial intermediaries, and holding companies, with separate reporting structure were removed from the list.
 - 3) Their financial year ended in March, 18th.
 - 4) Not having more than four months trading halt during the period of study
- Seventy companies were selected after imposing the limitations.

5. THE RESULTS OF HYPOTHESES TESTING

5.1. The Results of Testing H1

The results achieved by examining the first hypothesis with the following description of statistical hypothesis, in general (1383-1390), are displayed in Table 1:

Table 1: Results from Jones Model (1991)

ACCR _{it} = $\alpha_0 + \alpha_1 \Delta REV_{it} + \alpha_2 PPE_{it} + \epsilon_{it}$				
Method: Enter		D.W = 1,907		Method: Enter
Descriptive Variable	Coefficient	T Statistics	Sig.	Result
Fixed Value	1,41	2,376	.018	Effective
ΔREV	-.016	-.426	.670	Not effective
PPE	-.050	-1,351	.177	Not effective
		Adj R ² = .004		

As shown in the table, sig = 0.147, in confidence level of 95%, is greater than 0.5. Therefore, the regression model is not statistically significant, and the hypothesis predicting that the model will be linear is not confirmed. The adjusted R² is .004. T statistics in normal regression for the variable ΔREV

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indicates sig = .67, suggesting that there is not any correlation between accruals and change in revenue in confidence level of 95%. Moreover, the coefficients of the variables Δ REV and PPE are negative, indicating extremely low negative correlation among accruals, change in revenue, and gross properties.

5.2. The Results of Testing H2

The results achieved by examining the second hypothesis with the following description of statistical hypothesis, in general (1383-1390), are shown in table 2:

Table 2: Results from Adjusted models of Jones and Dichev, Selvan and Sony (1995)

ACCR _{it} = $\alpha_0 + \alpha_1 [\Delta$ REV _{it} - Δ REC _{it}] + α_2 RPE _{it} + ϵ_{it}				
Method: Enter		D.W = 1,907		Method: Enter
Descriptive Variable	Coefficient	T Statistics	Sig.	Result
Fixed Value	.896	2,399	.017	Effective
[Δ REV _{it} - Δ REC _{it}]	-.017	-3,967	.000	Effective
PPE	-.042	-1,373	.170	Not effective
		Adj R ² = .035		

As it is displayed in table 2, sig = .000, in confidence level of 95%, is smaller than .5. Therefore, it can be concluded that the regression model is statistically significant, and the hypothesis predicting a linear model is confirmed. The adjusted R² is .035. T statistics in normal regression: for the variable (Δ REV_{it} - Δ REC_{it}) sig = .000, suggesting that a correlation exists between this variable and accruals in confidence level of 95%. Moreover, the coefficients of independent variables are negative, which indicates negative correlation between the dependent and independent variable.

5.3. The Results of Testing H3

Results obtained by testing the third hypothesis with the following description of statistical hypothesis are displayed in table 3:

Table 3: Results from Kasnyk Model (1999)

ACCR _{it} = $\alpha_0 + \alpha_1 [\Delta$ REV _{it} - Δ REC _{it}]+ α_2 RPE _{it} + α_3 Δ CFO _{it} ϵ_{it}				
Method: Enter		D.W = 1,907		Method: Enter
Descriptive Variable	Coefficient	T Statistics	Sig.	Result
Fixed Value	1,879	5,552	.000	Effective
[Δ REV _{it} - Δ REC _{it}]	-.089	-3,396	.001	Effective
PPE	.233	6,561	.000	Effective
Δ CFO	-.390	-11,938	.000	Effective
		Adj R ² = .254		

According to the table, sig = .000, in confidence level of 95%, is smaller than .5, therefore, regression model appears to be statistically significant, then, the hypothesis concerning a linear model is proved.

The adjusted R² equals .254. T statistics in normal regression: for the independent variables, sig = .000, suggesting that there is a correlation among accruals and independent variable in confidence level of 95%.

5.4. The Results of Testing H4

Results obtained by examining the fourth hypothesis with the following description of statistical hypothesis are displayed in table 4:

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Table 4: Results from Adjusted Jones Model 2

ACCR _{it} = α ₀ + α ₁ [Δ REV _{it} - Δ REC _{it} + Δ INV _{it}] + α ₂ PPE _{it} + ε _{it}				
Method: Enter		D.W = 1,907		Method: Enter
Descriptive Variable	Coefficient	T Statistics	Sig.	Result
Fixed Value	1,065	2,582	.010	Effective
Δ REV _{it} - Δ REC _{it} + Δ INV _{it}	-.077	-3,148	.002	Effective
PPE	.012	.347	.729	Not Effective
		Adj R ² = .019		

As it is shown in the table, sig = .004, in confidence level of 95%, is smaller than .5, therefore, regression model seems to be statistically significant, and the hypothesis concerning a linear model is confirmed.

The adjusted R² is .019. T statistics t in normal regression: for the variable Δ REV_{it} - Δ REC_{it} + Δ INV_{it}, sig = .002, suggesting that a correlation between this variable and accruals exists in confidence level of 95%.

5.5. The Results of Testing H5

Results obtained by examining the fifth hypothesis with the following description of statistical hypothesis are displayed in table 5:

Table 5: Results from adjusted Kasnyk Model

ACCR _{it} = α ₀ + α ₁ [Δ REV _{it} - Δ REC _{it} + Δ INV _{it}] + α ₂ PPE _{it} + α ₃ ΔCFO _{it} + ε _{it}				
Method: Enter		D.W = 1,907		Method: Enter
Descriptive Variable	Coefficient	T Statistics	Sig.	Result
Fixed Value	1,583	4,315	.000	Effective
Δ REV _{it} - Δ REC _{it} + Δ INV _{it}	.013	.556	.578	Not Effective
PPE	.249	6,681	.000	Effective
ΔCFO	-.408	-11,598	.000	
		Adj R ² = .235		

As it is shown in the table, sig = .000, in confidence level of 95%, is smaller than .5, therefore, regression model seems to be statistically significant, the hypothesis concerning a linear model is proved.

The adjusted R² equals .235. T statistics in normal regression: for Δ REV_{it} - Δ REC_{it} + Δ INV_{it} variable, sig = .578, suggesting that there is not any correlation between this variable and accruals in confidence level of 95%. Furthermore, the coefficient of the variable CFO is negative (-.408), suggesting that a negative correlation exists between cash flows and accrual.

6. DISCUSSION

Reporting earnings from theorists and professionals' point of view has been one of the most controversial issues associated with accounting. In spite of the accepted standards of accounting, disagreements pertaining to the quality of a section and its management remain, for the lack of a comprehensive theory. Consequently, investigation of models assessing earnings management, and detecting the most appropriate model appears to be absolutely essential. Variety of models aimed at calculating and assessing earnings management have been presented (Jones, Adjusted Jones, Jones, Dechow, Sivan and Sony, Kasnyk, adjusted Jones 2, adjusted Kasnyk). With respect to the assessment of earnings

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management from various aspects, and also the necessity of detection and localization of the most appropriate assessment model in this regard, earnings management models ought to be analyzed, then the best one for evaluating earnings management should be selected. With regard to the table of the summary of results of testing the hypotheses, it could be concluded that Kasnyk model 1999 has the highest correlation with earnings management compared to other models.

In Iran, the majority of the researches exploring earnings management have been undertaken by applying modified Jones model (e.g., Namazi, 44, 2011; Moradzadeh, 2010, 2012; Baradaran Hasanzadeh, 2009; Noravesh, 2008; Ebrahimi Kordlor, 2008; Bolou, 2012; Moshki, 2011; Khajavi, 2011; Bahar, 2010), and the reason behind it has not been explained clearly; putting emphasis on applying this model by its users seems to be mainly because of relying on the studies conducted out of Iran. Regarding the obtained results, the above mentioned model with the adjusted R^2 that equals .019 is indicator of glaring errors associated with applying this model. Furthermore, Jones' (1991) older model, which has been under consideration of the researchers before, for absence of co-linearity in it (fundamental prerequisite), demonstrates its great weakness. These results are in line with those of Bahari et al.' studies, in which, having compared different models, they proposed adjusted kasnyc, and considering the conditions dominant in Iran's capital market, they have not identified the models related to Jones as the local models for evaluating earnings management.

7. Suggestions Based on the Study Results

- 1) In respect of the findings, it can be concluded that the best model considering the highest adjusted R^2 , is kasnyk. This finding represents weaknesses of the studies in which Jones and modified Jones have been employed for assessing earnings management.
- 2) It is recommended that analysts and investors, for making their decisions, estimate the company's discretionary accruals, which is the representative of the amount of performing earnings management, by using kasnyk (1999) model.
- 3) It is suggested that the exchange organization creates an appropriate announcement system for presenting the information required for carrying out the needed analyses, on time and in an efficient way, to investors, analysts, researchers, etc. Additionally, it is recommended that the organization develops institutions of consulting, analyzing, and other activities associated with boosting efficiency in order to make the stock market more efficient.

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