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# THE RELATIONSHIP BETWEEN INCOME SMOOTHING AND INVESTMENT EFFICIENCY WITH COMPANIES' VALUE

## VEZA IZMEĐU UJEDNAČAVANJA DOBITI I INVESTICIONE EFIKASNOSTI U POGLEDU VREDNOVANJA KOMPANIJA

**Summery:** *The main objective of this study is to examine the relationship of income smoothing and investment efficiency with the value of the companies listed on the Tehran Stock Exchange. For this purpose, the companies' information was analyzed for a financial period from 2008 to 2012 and the statistical sample of the research includes those companies of which the fiscal year ends on March 20th. Suitable statistical tests including regression analysis and the data were analyzed with the help of SPSS software used for collecting data regarding investment for testing hypotheses. Generally, the findings indicated that the value of the income smoother companies was higher than income non-smoother companies'. Additionally, the value of companies with investment efficiency was higher than the value of companies without investment efficiency. Furthermore, the results showed that the value of income smoother companies with investment efficiency was higher than the value of income non-smoother companies with investment efficiency.*

**Keywords:** *income smoothing, investment efficiency, companies listed on stock exchange.*

**JEL classification:** *G11, G14*

**Резиме:** *Основни циљ овог рада је да се истражи веза између уједначавања добити и инвестиционе ефикасности у погледу вредновања компанија на Техеранској берзи. У том смислу је извршена анализа података неких компанија за финансијски период од 2008. до 2012. године, а статистички узорак укључује оне компаније којима се фискална година завршава са 20. мартом. Прикупљени подаци о инвестирању и одговарајући статистички тестови укључујући регресиону анализу обрађени су помоћу СПСС софтвера за тестирање хипотеза. Истраживање је показало да вредновање компанија које користе уједначавање добити даје боље резултате од компанија које га не користе. Осим тога, вредновање компанија кроз инвестициону ефикасност даје боље резултате од компанија које је не користе, Резултати истраживања су такође показали да вредновање по основу инвестиционе ефикасности компанија које уједначавају добит даје боље резултате од компанија које не уједначавају добит.*

**Кључне ријечи:** *уједначавање добити, инвестициона ефикасност, берзански листинг компанија*

**JEL класификација:** *G11, G14*

## 1. INTRODUCTION

Increasing development and economic complexities as well as rapid change of commercial transactions in today's world including interior or international trade and the needs of productive and commercial for maintaining capacity along with development of activities and plans and investment in the direction of maintaining or increasing competition power from interior and worldwide arenas as increased the companies' need to increase earnings. The company's ability in determining potential earnings for providing investments and suitable financial programs are considered among the main factors of the company's development and progress. In such conditions, benefiting from financial managers' techniques in the managing of companies' affairs is indispensable more than ever (Haji Wand 1996). The reported income is among important financial information which is considered in making decisions by the individuals. Financial analysts generally take reported income into consideration as an important significant factor in their analyses and judgment. Additionally, investors depend on the financial information mentioned in the financial statements of commercial units especially the reported income in their investment decisions. Investors believe that fixed income in comparison with fluctuated income guarantees higher distributable income. Furthermore, income

fluctuations are recognized as an important criterion of total risk and companies with higher income smoothing have lower risk. Therefore, those companies which have higher income smoothing, are more favorite for investors and are considered suitable places for investment (Badri 2009). On the other hand, management has considerable options in choosing different methods of taking account of financial events in the accepted accounting principles framework. For example, various accepted methods are existed regarding amortization that the manager can choose one of them. Moreover, management can schedule financial activities. Postponing selling or doing optional expenses are among the measures, because, management flexibility can affect and smooth the reported income systematically from one year to another.

Income smoothing is a conscious action that managers can take in various methods including the two ones mentioned above and through this way they can show existing realities in the commercial unit under their management favorably. Thus, income smoothing can affect investors' decisions and have consequences, which is of high importance and priority especially in the inefficient capital markets including Iran capital market.

This research examines the impact of income smoothing on the stock return as one of the main effective factors on the investors' decision for investment in each commercial unit, in the Stock Exchange from 2008 to 2012.


## 2. THEORETICAL PRINCIPLES AND LITERATURE

Research concerning income smoothing begun from 1950s and became the center of financial management researchers. Income smoothing was examined from different angles including income smoothing motivations, income smoothing methods and income smoothing relationship with stock return, stock price, profitability, etc. In Iran, research regarding income smoothing has also been of interest to researchers and various researches have been done. In this regard some of that researches are presented as follows.


## 3. DOMESTIC RESEARCHES

Noroush and Sepasi (2005) in their research examined the relationship between cultural values and income smoothing in companies listed on the Tehran Stock Exchange. In the research, 90 companies were selected using simple random sampling and the answered questionnaires of 64 companies of Hofstede cultural values questionnaire were considered. The results indicated that there is a significant relationship between the company's cultural values such as patriarchy, power distance, avoidance of distrust and income smoothing.

Shariat Panahi and Samaie (2004) in their research investigated income smoothing and modified return based on the risk. The results of testing hypotheses indicated that there is a significant relationship between income smoothing and modified return based on the risk as well as there is a positive significant relationship between income smoothing and return.

Qaemi, Qetasond and Tojiki (2003) in their research analyzed the impact of income smoothing on the stock return of companies listed on the Tehran Stock Exchange. The results of testing hypotheses showed that smoothing has no impact on the abnormal return of companies, but the impact of the mix of industry with smoothing on the abnormal return of companies is obvious. Smoothing and size together have been ineffective on the abnormal return, but smoothing and increase of capital together can be considered effective factors on the abnormal return of companies listed on the Tehran Stock Exchange.

Allameh Haeri (2009) in his PhD dissertation at Islamic Azad University examined the impact of income smoothing on the shareholders' wealth. His statistical population was companies listed on Stock Exchange. He concluded that income smoothing can be employed as a tool for increasing stock price on Stock Exchange.

Tojkei (2003) in his B.A. thesis at Islamic Azad University of Mashhad investigated the impact of income smoothing on the stock return of companies listed on the Tehran Stock Exchange. He divided his study companies into two sections of smoother and non-smoother companies using Excel's index. Then he compared the output mean in each group and finally concluded that income

smoothing is an effective factor on abnormal returns of companies listed on the Tehran stock Exchange.

Samaie (2003) examined the relationship of income smoothing and modified return based on the risk. He examined the relationship between income smoothing and modified return based on the risk in companies listed on the Tehran Stock Exchange. The results showed that at confidence level, 90% companies which apply income smoothing have higher abnormal return averagely.

Poor Heidari and Aflatooni (2006) investigated different cases of income smoothing motivations and finally concluded that motivations such as income tax and deviation in the operating activities is the main motivation of income smoothing using voluntary accruals, while the ratio of liability to assets and income fluctuation as the smoothing motivations are not much important.

Noorani (2007) examined the impact of income smoothing on the return of companies listed on the Tehran Stock Exchange. He used Eckel's index for identifying smoother companies and after the calculation of return mean among income smoother and non-smoother companies, compared paying means and finally concluded that 1- Income smoothing phenomenon existed in the study population. 2- Income smoothing is not effective in return of companies listed on the Tehran Stock Exchange 3- Industry type and size are not effective in earning abnormal return.

Bulow, Hassase Yeganeh and Harasani (2011) investigated earnings quality from four dimensions of accruals quality, earnings stability, earnings predictability and income smoothness using data from 46 companies in 4 industries. The results indicated the lack of evidence suggesting the decrease of earnings quality in the study period. The carried out tests showed that the time series of earnings characteristics during the period was dependent on the random step. Only in one of the tests evidence concerning little improvement of the accruals quality for each of the study industry was observed.

Chan at. al. (2006) examined the relationship between accruals (the difference between income and cash flows) and future stock return and showed that companies with high accruals in the next period after financial information reporting, have their stock return decreased. One interpretation of the results is that companies with low income quality (companies which have high accruals) will experience return fall in the period after income reporting, because investors perceive companies' low income quality and modify the stock price in accordance with it.

Braua (2006) in research examined the measurement standards of income quality using quality characteristics of financial information in the theoretical framework of financial accounting standards board. The results of analyzing of each component of income quality indicated that companies with high relatedness and dependability of income in comparison with companies with low relatedness and dependability, have high coefficient of income reaction and explanatory regression power of price-income. Eckel (1981) in research titled "revision of income smoothing hypotheses" revised the literature of income smoothing and suggested choice conceptual framework for discovering or identifying behavior. He criticized the most of conducted studies because they used only one accounting variable for smoothing income. He suggests that income smoother companies are those companies that minimize the income changes using joint impact of n number from accounting variables. He concluded that only two variables of income and selling used in their test, but believed that with the income of selling difference and changeable and fixed costs consequently there are various variables in it. In fact, Eckel concluded that managers have not great capacity and ability for artificial smoothing. Belkaui and Picur (1984) in research titled "income smoothing: enumerating empirical differences among pivotal and peripheral sections of industries" tested the hypothesis that companies of pivotal section have lower smoothing as compared with companies of peripheral section by dividing companies into two sections of pivotal and peripheral. They stated that companies of peripheral section are confronted with more limited opportunities and higher level of distrust, for this reason, they are more ready and have more opportunities for smoothing operating flow of reported income as compared with pivotal companies. They tested their intended hypothesis with the comparison of change in the operating income and change in the normal income in relation to changes in costs and finally concluded that companies of peripheral section indicated more depth of smoothing behavior as compared with pivotal companies for both mentioned income. Moses (1987) in his paper titled "income smoothing and motivations: empirical tests of using accounting changes" suggests the use of accounting choices as the factor for income smoothing in a way that accounting choices instead of using for maximizing or minimizing reported income, can be employed for reduction of income fluctuations. Moses' research stresses two tests. The first section indicates companies that show income smoothing from themselves and the second section the examination of the impact of

motivating factors on the income smoothing. Moses considers smoothing behavior as the dependent of management motivations. Motivating factors that Moses has used in his test are company size, market share, personnel's cost, encouraging reward and owner control. He defines company size as the company's total selling in a year in which accounting changes occurred. He says that company size can indicate the company's total risk. Higher financial power can reduce the company's total risk. Larger companies are exposed to higher safety and it is so because they are in the financial analysts' focus, therefore, they have lower motivation for smoothing. Ashari (1994) in the research entitled "the effective factors on the income smoothing among companies listed on Singapore Stock Exchange" identified factors related with income smoothing. His research included four hypotheses that are stated for testing variables of size, profitability, industry and nation on the smoothing. The results of examination of the four variables showed that smoothing is higher in companies with lower profitability. Industry is effective on the smoothing and companies with higher risk (hazardous industries) are more inclined to smooth income. Nation is effective on the income smoothing, but company size is not effective on the smoothing.

Michelson and al. (1995) in the research titled "analyses based on the income smoothing market" showed that company which are involved in smoothing income, have lower risk and output. Additionally, they concluded that income smoother companies are large companies from the standpoint of size. Cheny and Jeter (1997) in the research titled "income smoothing and companies characteristics" in 1997 examined the impact of company size, liability ratio, profitability ratio, output, voluntary accruals and development on the income smoothing and concluded that smoother companies are larger companies in relation to the non-smoother ones. They have higher output and greater commitments as well as higher liability ratio. Furthermore, companies with weak performance are less involved in smoothing, because they have no suitable opportunity for smoothing. Moreover, they observed a negative relationship smoothing and development. Imhoff in 1981 confirmed that employed capital for income smoothing has a significant relationship with identification of income smoothing samples. In research on 62 industrial companies in 20 years period, Eckel found only two companies which were involved in income smoothing.

## 4. METHODOLOGY

After necessary data collection of the study companies, the research hypotheses will be analyzed through suitable statistical methods including Pearson correlation coefficient, regression analysis with the help of SPSS.

In the research, for measuring, income smoothing variables are considered as the independent variables and investment efficiency and company value as the dependent variables.

## 5. RESEARCH MODELS

The companies were divided into two groups of income smoothing and non-smoother ones for testing the first hypothesis. Additionally, they were divided into two groups of efficient and inefficient ones for testing the second hypothesis.

But for testing the third hypothesis, it is necessary that companies are divided into four groups as follows:

The first group: efficient smoother companies
The second group: inefficient smoother companies
The third group: efficient non-smoother companies
The fourth group: inefficient non-smoother companies

For testing the first hypothesis, the two following regression equations that were employed in 2004 by Bao and Bao were used.

1)     $Pt=\alpha1+\beta1+\beta2(DS\times Et)+\beta3(Et\times DETAt)+\beta4(Et\times size)+ \varepsilon t$

Pt: the price of each normalized share
Et:  the income of each normalized share

DS: it is a dummy variable that is equal to 1 for the smoother companies and 0 for the non-smoother companies

DETAt: the liability ratio to total assets per year

Size: it means the company size

2)      $PC_t = \alpha_1 + \beta_1 EC_t + \beta_2(DS + EC_t) + \beta_3(EC \times DETA_t) + \beta_4(EC_t \times size) + \varepsilon_t$

PCt: changes in the price of each distributed share on the first price of period of each share

ECt: changes in the income of each distributed share on the first price of period of each share

If we ignore control variables of liability ratio to company size, from the first group we have:

3)      $PC_t = \alpha_1 + (\beta_1 + \beta_2)E(E_t)$

And for the second group we have:

4)      $PC_t = \alpha_1 + \beta_1 E(E_t)$

For analyzing and testing the second hypothesis, the two following regression equations are used that were employed by Bao and Bao in 2004:

5)      $P_t = \alpha_1 + \beta_1 E_t + \beta_2(DQ \times E_t) + \beta_3(E_t \times DETA_t) + \beta_4(E_t \times size) + \varepsilon_t$

DQ: it is a dummy variable that is equal to 1 for the efficient companies and 0 for the inefficient companies.

6)      $PC_t = \alpha_1 + \beta_1 EC_t + \beta_2(DQ + EC_t) + \beta_3(EC_t \times DETA_t) + \beta_4(EC_t \times size) + \varepsilon_t$

For testing the third hypothesis, the following regression equations are used.

7)      $P_t = \alpha_1 + \beta_1 E_t + \beta_2(G1 \times E_t) + \beta_3(G2 \times E_t) + \beta_4(EC_t \times size) + \varepsilon_t$

8)      $PC_t = \alpha_1 + \beta_1 EC_t + \beta_2(G1 + EC_t) + \beta_3(G2 \times EC_t) + \beta_4(G3 \times EC_t) + \beta_5(E_t \times DETA_t) + \beta_6(EC_t \times size) + \varepsilon_t$

G1: it is equal to 1 for the first group and for the other groups is 0.

G2: it is equal to 1 for the second group and for the other groups is 0.

G3: it is equal to 1 for the third group and for the other groups is 0.

## 6. HYPOTHESES

1- There is a significant relationship among companies with investment efficiency and companies without investment efficiency from the standpoint of company value.

2- There is a significant relationship among smoother companies with investment efficiency and non-smoother companies with investment efficiency from the standpoint of company value.

3- There is a significant relationship among smoother companies without investment efficiency and non-smoother companies without investment efficiency from the standpoint of company value.

## 7. POPULATION AND STATISTICAL SAMPLE

The statistical population in the research includes companies listed on the Tehran Stock Exchange. For selecting statistical sample, the following conditions are suggested and all the companies which had the following conditions were examined:

1-      The financial information should be for the period of the research.

2-      Their fiscal year should be ended on March 20th (end of Esfand).

3-      The companies which were listed until the end of 2012 on Stock Exchange and their name had not been excluded from listed companies on the Tehran Stock Exchange.

4-      The company should not be financial broker.

With applying above criteria, the data of five years (2008 to 2012) were extracted from financial statements or software.

## 8. DESCRIPTIVE STATISTICS

In this section, descriptive information regarding income smoothing of companies are provided. We evaluated income smoothing based fluctuation (instability) of income to cash flows. For this, we have divided standard deviation of net income before extraordinary items on standard deviation of operation cash flow. It is necessary to note that for standardization of income and operating cash flow, we have divided them on the mean of total assets (Francis et al. 2004). The necessary calculations for testing hypotheses are as follows:

$$SMTH = \frac{STD_{NI}}{STD_{OCF}}$$

Where in the above relation:
SMTH: income smoothing index
STDNI: Standard deviation of net income before extraordinary items
STDOCF: Standard deviation of operation cash flow

Descriptive statistics related to the smoothing values of companies are presented in the following tables. Based on what are observed, the data has intense skew as well as high kurtosis in relation to the normal diagram and the median of the values is -0.064 and for most companies (25%) the value is between -0.09 and -0.06.

*Table 1 Descriptive statistics related to the smoothing level of companies*

| Number | Mean | Median | S.d | Skewness | Kurtosis |
|--------|------|--------|-----|----------|----------|
| 55 | -0.117 | -0.071 | 0.083 | -2.001 | 5.201 |

Source: Author's calculation

## 9. THE EFFICIENCY OF INVESTMENT

In this section, descriptive information regarding the efficiency of investment of companies is provided. The measurement criterion of the real output of investment efficiency of companies is as follows:

$$R_{i,t} = \frac{P_{i,t}(1 + \alpha + \beta) - P_{i,t-1} + D_{i,t} - C\alpha}{P_{i,t-1}}$$

In the above relation:
$R_{i,t}$ : The investment quality of the company i per year t
$P_{i,t}$ : The real quality of the company i per year t
$P_{i,t-1}$ : The company value i per year t-1
$D_{i,t}$: Cash investment quality i per year t
$\alpha$ : Increase percentage of capital from claims and shareholders' cash brought
$\beta$ : increase percentage of the saved reserves
C: investor's paid nominal sum for increase of capital (1000 Rials)

Descriptive statistics regarding the values of the efficiency of investment of companies are presented in the following table.

*Table 2 Descriptive statistics related to the efficiency of investment of companies*

| Number | Mean | Median | S.d | Skewness | Kurtosis |
|--------|------|--------|-----|----------|----------|
| 55 | 0.044 | 0.021 | 0.017 | -0.970 | 1.005 |

Source: Author's calculation

## 10. ANALYSIS OF THE HYPOTHESES

*The first hypothesis*

There is a significant relationship among companies with investment efficiency and companies without investment efficiency from the standpoint of company value.

This hypothesis can be rewritten as follows.

H0: There is no significant relationship among companies with investment efficiency and companies without investment efficiency from the standpoint of company value.

H1: There is a significant relationship among companies with investment efficiency and companies without investment efficiency from the standpoint of company value.

*Table 3 The results of regression analysis for two groups of companies with investment efficiency and companies without investment efficiency*

| Variable | Investment efficiency | | | Changes of investment efficiency | | |
|----------|------------------------|-------------|--------------|----------------------------------|-------------|--------------|
| | Variable coefficient | t-statistic | significance | Variable coefficient | t-statistic | significance |
| Fixed value | 0.51 | 12.86 | 0.005 | 0.03 | 0.65 | 0.089 |
| E | 2.29 | 11.54 | 0.005 | | | |
| EC | | | | 1.63 | 12.42 | 0.002 |
| DQ×E | 0.48 | 12.70 | 0.001 | | | |
| DQ×EC | | | | 0.55 | 5.72 | 0.019 |
| Explanation coefficient | $R^2=0.25$ | F=14.80 | D.W=2.01 | $R^2=0.30$ | F=18.21 | D.W=1.37 |
| F and Significance level | F=0.92 | Sig=0.09 | | F=2.20 | Sig=0.12 | |

Source: Author's calculation

For analyzing this hypothesis, based on the significance of regression test and tests of coefficients, we offer our ideas and if the non-zero of the related coefficient with independent variable is confirmed, the null hypothesis is rejected and alternative hypothesis is confirmed.

The regression results for two groups of companies with investment efficiency and companies without investment efficiency are shown in Table 3. As shown in Table 3, the investment efficiency (changes of investment efficiency) has a positive significant relationship with the company value. In other words, as the company has higher investment efficiency, the market values is higher for that company. Regression coefficient for the variable of smoothing index (DQ×E) is positive and significant. In other words, companies with investment efficiency have higher P/E coefficient in relation to the companies without investment efficiency. In other words, companies with investment efficiency have higher value in relation to companies without investment efficiency. Regression coefficient for the variable of (DQ×EC) is also positive and significant. In other words, price changes of (value) companies with investment efficiency have been greater than of companies without investment efficiency.

Generally, the results at two levels of investment efficiency and investment efficiency changes indicate that without taking account of income smoother, companies with investment efficiency have higher value than companies without investment efficiency.

Furthermore, in table 3, the results regarding Levene test are presented. Levene test is used to examine whether assumptions related to the application of linear regression are observed or not. If the

significance level is greater than 0.05, it shows that the variance equality and consequently the assumptions of regression analysis are observed, thus, using regression analysis is allowed. As shown in Table 3, significance level for income and income changes were 0.09 and 0.12 and are greater than 0.05, therefore, it became clear that regression is allowed in the above hypothesis.

*The second hypothesis*

There is a significant relationship among smoother companies with investment efficiency and non-smoother companies with investment efficiency from the standpoint of company value.

This hypothesis can be rewritten as follows.

H0: There is no significant relationship among smoother companies with investment efficiency and non-smoother companies with investment efficiency from the standpoint of company value.

H2: There is a significant relationship among smoother companies with investment efficiency and non-smoother companies with investment efficiency from the standpoint of company value.

*Table 4 The results of regression analysis for two groups of smoother companies with investment efficiency and non-smoother companies with investment efficiency*

| Variable | Income smoothing | | | Changes of income smoothing | | |
|---|---|---|---|---|---|---|
| | Variable coefficient | t-statistic | significance | Variable coefficient | t-statistic | significance |
| Fixed value | 0.40 | 17.22 | 0.000 | 0.07 | 1.40 | 0.250 |
| E | 1.85 | 5.45 | 0.000 | | | |
| EC | | | | 2.04 | 3.26 | 0.003 |
| DQ×E | 0.62 | 14.11 | 0.001 | | | |
| DQ×EC | | | | 0.61 | 2.20 | 0.007 |
| Explanation coefficient | $R^2$=0.16 | F=25.25 | D.W=4.77 | $R^2$=0.36 | F=11.09 | D.W=2.40 |
| F and Significance level | F=2.42 | Sig=0.17 | | F=2.27 | Sig=0.08 | |

Source: Author's calculation

For analyzing this hypothesis, we discussed based on the significance of regression test and tests of coefficients, and if the non-zero of the related coefficient with independent variable is confirmed, the null hypothesis is rejected and alternative hypothesis is confirmed.

The regression results for two groups of smoother companies with investment efficiency and non-smoother companies with investment efficiency are shown in Table 4. As shown in Table 4, income smoothing has a positive significant relationship with the company value. In other words, as the company has higher smoothing investment efficiency, the company value is higher. Regression coefficient for the variable of income quality index (DQ×E) is positive and significant. In other words, companies with smoothing investment efficiency have higher P/E coefficient in relation to the companies with non-smoothing investment efficiency. In other words, companies with smoothing investment efficiency have higher value in relation to companies with non-smoothing investment efficiency. Regression coefficient for the variable of (DQ×EC) is also positive and significant. In other words, price changes of (value) companies with smoothing investment efficiency have been greater than of companies with non-smoothing investment efficiency.

Generally, the results at two levels of investment efficiency and investment efficiency indicate that without taking account of investment efficiency, income smoother companies have higher value than income non-smoother companies.

Furthermore, in table 4, the results regarding Levene test of the second hypothesis are presented. As shown in Table 4, significance level for income was 0.17 and 0.08 and are greater than 0.05, therefore, it became clear that regression is allowed in the above hypothesis.

*The third hypothesis*

There is a significant relationship among smoother companies without investment efficiency and non-smoother companies without investment efficiency from the standpoint of company value.

This hypothesis can be rewritten as follows.

H0: There is no significant relationship among smoother companies without investment efficiency and non-smoother companies without investment efficiency from the standpoint of company value.

H3: There is a significant relationship among smoother companies without investment efficiency and non-smoother companies without investment efficiency from the standpoint of company value.

For analyzing this hypothesis, the significance of regression test and tests of coefficients were carried out and their results are presented in Table 5.

*Table 5: The results of regression analysis for two groups of smoother companies without investment efficiency and non-smoother companies without investment efficiency*

| Variable | Income | | | Changes of income | | |
|---|---|---|---|---|---|---|
| | Variable coefficient | t-statistic | significance | Variable coefficient | t-statistic | significance |
| Fixed value | 0.42 | 17.75 | 0.001 | 0.04 | 0.96 | 0.421 |
| E | 5.12 | 10.50 | 0.001 | | | |
| EC | | | | 2.03 | 3.85 | 0.000 |
| DQ×E | 0.32 | 17.11 | 0.005 | | | |
| DQ×EC | | | | 0.55 | 4.20 | 0.011 |
| Explanation coefficient | $R^2$=0.16 | F=25.25 | D.W=1.25 | $R^2$=0.01 | F=10.09 | D.W=1.75 |
| F and Significance level | F=2.43 | | Sig=0.15 | F=1.90 | | Sig=0.33 |

Source: Author's calculation

The regression results for two groups of smoother companies without investment efficiency and non-smoother companies without investment efficiency are shown in Table 5. As shown in Table 5, income smoothing in companies without investment efficiency has a positive significant relationship with the company value. In other words, as the company without investment efficiency has higher income smoothing, the company value is higher. Regression coefficient for the variable of income smoothing index (DQ×E) is positive and significant. In other words, companies without smoothing investment efficiency with higher income smoothing have higher P/E coefficient in relation to the companies without non-smoothing investment efficiency. In other words, companies without smoothing investment efficiency have higher value in relation to companies without non-smoothing investment efficiency. Regression coefficient for the variable of (DQ×EC) is also positive and significant. In other words, price changes of (value) companies without smoothing investment efficiency have been greater than of companies without non-smoothing investment efficiency.

Furthermore, in Table 5, the results regarding Levene test of the third hypothesis are presented. As shown in Table 5, significance level was 0.15 and 0.33 and are greater than 0.05, therefore, it became clear that regression is allowed in the above hypothesis.

## 11. GENERAL CONCLUSION

Generally, the research findings indicted that the value of income smoother companies was higher than of income non-smoother companies. Furthermore, the value of companies with investment efficiency was higher than of companies without investment efficiency. Moreover, the results showed that the value of income smoother companies with investment efficiency was higher than of income non-smoother companies with investment efficiency.

## 12. LIMITATIONS

According to the limiting statistical population to productive companies listed on Stock Exchange with their fiscal year ending on March 20th (end of Esfand), the generalization of the results to the other companies should be done with caution.

The impacts resulted of difference in accounting methods in measuring and reporting financial events might affect the results with no modification done due to the inaccessibility to information.

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