Experimenting Test Long Time Relation of Income Smoothing on Information Uncertainty and Cost of Equity of the Listed Companies in Tehran Stock Exchange (Evidence from Panel Cointegration)

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Abstract

Investors, in order to obtain suitable and logical decisions to invest, need reliable information. Earning is among the most important accounting information that investors and creditors consider. Investors tend to invest in companies whose profit experience less fluctuation. Therefore, managers, to illustrate the performance of company better, try to reduce earnings volatility to attract investors’ trust.

This research, in line with the importance of income smoothing, reviews its relationship with the information uncertainty and cost of capital of listed companies in Tehran Stock Exchange during the years 2008 to 2012. From among the 372 companies listed in the Tehran Stock Exchange, using systematic elimination method, some companies were removed, and a number of 101 firms were selected as sample. The data of the variables was extracted from audited financial statements. Using econometric software Eviewes 0.7 and Panel data, the relation of the research was tested from in three main hypotheses. In this study, to create the variable of information uncertainty, two variables of volatility of the stock and earnings forecast error were used. The variable of stock return volatility was calculated using GARCH (1,1); and the variable of earnings forecast error was calculated by Cheng and Firth (2000). The method of Ohlson and Juettner (2005) was used to calculate the variable of capital cost. Variables of firm size and sales growth were studied as control variables and their effect on the estimates of the variables was reviewed.

The findings represent a significant and negative relationship between income smoothing, uncertainty and cost of capital.

Keywords: Income Smoothing, Information Uncertainty, Cost of Equity, Pedroni’s Cointegration Test, Stock Exchange.
Introduction

One of the objectives of accounting reporting is providing useful information about the entity's financial performance for a wide range of users. Income statement is one of the basic financial statements that meet this goal. Gross income, as the final amount of the income statement, is considered as one of the main criteria for evaluating the performance of the company which has always been of a special attention for users of financial statements such as investors, financial analysts and shareholders (Noravesh and Zakeri, 2011). Earnings, as the end result of the process of accounting are influenced by procedures chosen by management. The possibility choosing accounting procedures provides the management with an opportunity to decide about the recognition and measurement of costs and earnings (Bartov, 1993).

Investors believe that stable earnings, compared with volatile earnings, guarantee higher dividend payment. In addition, earnings volatilities are considered as an important measure of the company's overall risk and smoother earnings companies have less risk. Hence, companies that have income smooth are mostly respected by investors and they believe such companies to be a proper place for investment (Mehran and Arefmanesh, 1999). This makes corporate managers, to take into consideration the stock price of their companies’ stock and to increase the price of the stock, turn to earnings management. One of the forms of earnings management is income smoothing, which has attracted much attention in the accounting literature.

Income smoothing is applying and the discretion of company management in the transposition accounting record of costs and revenues or transferring them to the following years in a way that makes the company have earnings without any major change in successive financial years. The aim of management is to show the company dynamic and stable for shareholders and the capital market. Income smoothing has a clear goal and that is steady growth flow in earnings (Rahmani and Beşhiri Manesh, 2011).

Theory of inconsistency states that the high volatility of corporate earnings in companies will increase investment risk so that it becomes an affecting factor on company's stock market price. In fact, income smoothing in listed companies, due to the stability of dividends received by shareholders, will increase shareholders’ satisfaction. This issue reduces the risk of investing in these companies and may affect the cost of capital (the rate expected by investors) (Ansari and khajavi, 2011). According to the logic of the market as the confidence of investors in the company is more, i.e. risk of the company is felt less, they expect less efficiency. In fact, investors, using financial information, estimate the expected return, which is the company's cost of capital, and, for this purpose, pay special attention to the earnings figure.

Risk and return on investment and financing are always together and they cannot be separated, because investment decisions are always based on the relationship between risk and return and investors should always consider risk in their investment decisions. Since the stock returns in different periods are varied and do not follow steady process, so, volatility and variability are integral component of stock returns over time. According to the variability and volatility, future
period returns cannot be trusted in. Uncertainty about the future stock returns, associates investment with risks, so the expectation of earning returns by investors is reasonable (Enayati, 2008). Therefore, reasonably, investors are looking for companies to invest in that not only have a profit and efficiency at the present time, but they also maintain their profitability for the future. Therefore, companies that have less volatility and earnings forecast have priority for investment. Due to the increasing importance of income smoothing in the decision-making process of investors and their paying special attention to the volatility of returns and predicted earnings, as well as the importance of the shareholders' expected rate of return on investment decisions, this study investigates the effect of income smoothing on information uncertainty and the cost of capital (expected rate of return by shareholders) of companies simultaneously. Evaluation indicators discussed in this study are used to assess the information uncertainty of annual stock return volatility and predicted earnings errors, and to estimate the cost of capital (expected rate of return by shareholders), the OJ model (Ohlson and Juettner, 2005) is used. Tehran Stock Exchange listed companies are analyzed in the five-year period scale, between the years 2008 to 2012. It is expected that income smoothing reduces information uncertainty and the cost of capital. This means that companies’ income smooth will cause less return volatility and earnings forecast error. Also, investors will expect lower rate of return from these companies.

**Literature Review**

Tseng and Lai (2007), in their study, concluded that there is a strong negative correlation between profitability and income smoothing. Also, in this study, four factors: profitability, level of debt, the amount of interest paid, and the size of the company were introduced as incentives for income smoothing.

Dhaliwal and Zhenli (2008) found that when earnings quality increases, the market reaction to dividend changes reduces. In other words, in the valuation of the company by investors, earnings quality is an important factor which affects information content of dividends.

Huang et al. (2009), in a study, examined the potential impact of artificial smoothing and real smoothing on company's value. Their results suggest that value of the company reduces by using abnormal deferrals and increases through using real smoothing.

Hamzavi and Aflateni (2011) examined the relationship between income smoothing and the earnings forecast. The results of the study show that directors believe that income smoothing increases predictability and stability of earnings.

Namazi and Khansalar (2011) investigated the effect of income smoothing in growing and value of companies of Tehran Stock Exchange. The results proved that growing companies apply a higher degree of income smoothing compared to value companies. Also, the results proved that the risk of growing companies have higher values than that of value companies.

Takasu (2012) studied the effect of income smoothing on the cost of loans, with an emphasis on the role of information asymmetry. According to research results, income smoothing reduces the cost of loans. Also, in companies that have average or high information asymmetry, there is a
significant relationship between the cost of loans and income smoothing. However, in companies with low information asymmetry, this relation is not visible. Hejazi et al (2012) investigated the influence of earnings quality and income smoothing on the performance of listed companies in Tehran Stock Exchange. According to research results, income smoothing and the quality of earnings do not affect the company's performance. In other words, there is no significant difference between smoothing and non-smoothing companies with high and low quality profits.

Mohammadi and Monfared (2012) examined the effects of cash holding on income smoothing. According to research results, the significant positive relationship between cash holdings and income smoothing is confirmed, but the significant relationship between positive changes of cash holding and income smoothing was not approved. Hashemi and Samadi (1388) researched the effect of income smoothing on the information content in companies listed on the Stock Exchange in Tehran. The results proved that income smoothing increases the ability of profit for future earnings, but it does not increase the ability of profits in predicting future accruals.

Etemadi and Javadi Mojdeh (2010) examined the factors influencing the relationship between income smoothing and profitability of companies. The results proved that the profitability of companies influence on their income smoothing. Ansari and Khajavi (2011) studied the relationship between income smoothing and stock market prices and financial ratios. The results indicated that income smoothing increases share price and the current ratio of interest coverage and return on equity with income smoothing is negative.

**Research Hypotheses:**

In order to achieve the research objectives, the main issue of the study, which is examining the relationship between income smoothing and its impact on the information uncertainty and cost of capital of the companies listed in Tehran Stock Exchange, has been proposed in form of two main and general hypotheses presented below.

First hypothesis: Income smoothing reduces information uncertainty.
Second hypothesis: Income smoothing reduces the cost of capital.

**Population, Sample and study period**

The study sample includes all companies listed in Tehran Stock Exchange. Some of the companies listed in the stock exchange have been selected randomly and according to the criteria of the study.
Sample was selected from among those firms listed in Tehran Stock Exchange during the years 2008 to 2012, which had the following conditions, and others were excluded.

1. Their financial year ends in March.
2. They have not had changes in the financial year and have constantly been present in exchange activities.
3. They could not have been among the investment firms, financial institutions, due to the specific nature of the activity.
4. The book value of equity of the shareholders is not negative and be profitable in the period under review.
5. The information required to calculate the research variables in the study period is available.

101 companies were eligible which, according to the time scale of the research, 505 firm-year was observed.

**Independent variable**

In this study, income smoothing is the independent variable obtained from the negative correlation between changes in discretionary accruals and changes in profit before discretionary accruals.

\[
\text{Accruals}_t = a \times \left(\frac{1}{\text{Accruals}_{t-1}}\right) + b \times \Delta \text{Sales}_t + c \times \text{PPE}_t + d \times \text{ROA}_t + u_t
\]

Accruals\(_t\): Total accruals obtained by subtracting "operating cash flows, return on investments and interest paid for financing and income tax except for dividend payments" from the net profit.

\(\Delta \text{Sales}\): changes in sales

\(\text{PPE}\): property, machines and gross equipment, all have been steady with \(\text{Assets}_{t-1}\), i.e. total assets at the beginning of the period (the end of the previous period).

\(\text{ROA}\): It is return on assets which is the controlled variable adjustment based on performance.

Discretionary accrualts is actual accruals deviation from nondiscretionary accruals (NDAP).

\[\text{DAP} = \text{NDAP} - \text{Accruals}_t\]

DAP: discretionary accruals
NDAP: nondiscretionary accruals
Accruals\(_t\): actual accruals

For the calculation of nondiscretionary accruals (NDAP), trivariate regression is used as below.

\[
\text{NDAP} = a * \Delta \text{Sales}_t + b * \text{PPE}_t + c * \text{ROE}_t + u_t
\]

Predicted profit is calculated by the deduction of net income from discretionary accruals:

\[
\text{PDI} = \text{NI} - \text{DAP}
\]

NI: Net income
DAP: Discretionary accruals:

**Dependent variable**

1. **Information uncertainty**

Two alternative variables have been used to measure the uncertainty of the information. **A: Annual Stock Return Volatility of the firm i at time t**

In this study, the annual stock return volatility has been used as a variable reflecting the uncertainty of the information, to calculate which, the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) \((p,q)\), which has been introduced by Bulerstl, has been used. This model implies that the conditional variance show solidarity not only with the past forecast errors or shock value, but also with their interruptions.

In the present study, based on information in the Tehran Stock Exchange, annual volatility and return of the market in Tehran in every company is used so that to obtain the data from the annual index of Tehran Stock Exchange for a period of 5 years, from 2008 to 2012, the following is used:

\[
Y_j = \ln \left( \frac{T_{L_j}}{T_{L_{j-1}}} \right) \times 100
\]

\(Y_j\): Year’s returns.

\(T_{L_j}\): Tehran Stock Exchange index in year j

To obtain the return volatility, the variance of returns in each period was used:

\[
\sigma^2_t = \frac{1}{360} \sum_{j=1}^{360} (Y_{jt} - Y_t^m)^2
\]

\(Y_{jt}\): Annual output value of each company in each period

\(Y_t^m\): The average return per period for each company

\(\sigma^2_t\): Return variance of each period (which is the amount of actual volatility in each period)
Then, GARCH model, which can resolve the problem of heterogeneity of variance, has been used as the following regression:

\[ y_t = \lambda x_t + \varepsilon_t \]

\[ \sigma_t^2 = \omega + \alpha \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \]

\[ FE_{it} = \frac{(AP_{it} - FP_{it})}{|FP_{it}|} \]

**B) Company's Earnings estimated error at time t**

In this study, the model of Cheng and Firth (2000) has been used to calculate Earnings forecast error per share as the following:

\[ FE_{it} = \frac{(AP_{it} - FP_{it})}{|FP_{it}|} \]

**FE_{it}: earnings estimated error per share of firm i in year t**

**FP_{it}: estimated net income by managers for company i in year t**

**AP_{it}: real net profit per share of firm i in year t**

### 2. Capital Cost

To calculate the cost of capital, the adjusted model of Ohlson and Juettner\(^1\) is used.

\[ r = A + \sqrt{A^2 + \frac{FEPS_{t+1}}{P_t} (g_2 - (r_{rf} - 0.03))} \]

**r**: The cost of shareholders

**r_{rf}**: Central bank interest rates

**P_t**: Price per share of common stock at the end of financial year

**FEPS\(_{t+1}\)**: Earnings per forecasted share (Forecast EPS) over a period after period \(t\)

\[ A = 0.5[(r_{rf} - 0.03) + \frac{DPS_0}{P_t}] \]

**DPS_0**: Dividend per share in the previous year

\[ g_2 = \frac{FEPS_{t+2} - FEPS_{t+1}}{FEPS_{t+1}} \]

**FEPS\(_{t+2}\) > FEPS\(_{t+1}\) > 0**

---

\(^1\) Ohlson James A, Juettner-Nauroth Beate.(2005)
FEPS<sub>t+2</sub> and FEPS<sub>t+1</sub>: Forecast earnings per share (Forecast EPS) over a period or two periods after time t

Control variable (RM)

Two variables are used as control variable:

Company size: the size of the company is obtained from the natural logarithm of total sales.

Size = ln( total of sale )

Growth Variable: The percentage in change has been used in sales as growth variables.

\[ g_{it} = \frac{sale_{it} - sale_{i(t-1)}}{sale_{i(t-1)}} * 100 \]

\( sale_{it} \): The sale of company I for year t
\( sale_{i(t-1)} = \) Sale growth of company i for year (t-1).

Analyzing and Test Hypotheses

The first hypothesis: part A

There is a significant relationship between income smoothing and the stock return volatility. Regression model is a linear equation in which the stock return volatility is a determining factor of information uncertainty of dependent variable and income smoothing (IS) of independent variable; the control variables of firm sized (FS) and growth rate (G) have also been used as follows:

Return Volatility<sub>it</sub> = \( \beta_0 + \beta_1 \) Income Smoothing<sub>it</sub> + \( \beta_2 \) Size<sub>it</sub> + \( \beta_3 \) growth<sub>it</sub> + \( \varepsilon_{it} \)

Table 1: Analysis of data for test (a) of the first hypothesis (random effects estimation method with panel data)

<table>
<thead>
<tr>
<th>(Random Effect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable: volatility of stock returns (RV)</td>
</tr>
<tr>
<td>The number of observations for each variable: 505</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The explanatory variables and the intercept</th>
<th>Coefficients</th>
<th>The t-statistic</th>
<th>standard error (SE)</th>
<th>P-Value</th>
<th>The expected signs</th>
</tr>
</thead>
</table>

http://www.ijhcs.com/index.php/ijhcs/index
-19.2078  -2.93334  6.548091  (0.0035)*
-4.14E-05  -1.24379  3.33E-05  (0.2142)*
β1  -0.81777  -3.36339  0.243138  (0.0008)**
-0.00793  -0.62315  0.01273  (0.5335)
R²  0.284365
F statistics=7.177965
0.226072
P-Value(0.002365)**
1.414907

Mark *** and ** and * are respectively the signs of significant variations in 99% and 95% and 90 percent level.

In the regression model presented in Table 1, the calculated value of t and p-value obtained from the model for the first hypothesis test (β1) is less than 5% error level; so, in this state, the test is significance and H0 hypothesis is rejected; income smoothing coefficient is not zero and this factor shows that, in 95 percent confidence level, income smoothing variable has statistically significant and negative impact on stock return volatility. Controlling variable coefficient for firm size (β2), in addition to being statistically significant in stock return volatility variable, has a negative impact on this variable and its significance level is 99 percent. Also, the coefficient of controlling variable of the growth rate (β3) is statistically insignificant and has negative symptoms that, regarding mark, are consistent with theoretical expectations.

Fixed amount of model is provided in Table (1); to test hypotheses, t and p-value of the model are considered; this amount is smaller than 5 percent; so, the test is significant in error level and H0 is rejected. In other words, estimated constant factor is not equal to zero.

Using F statistics and calculated p-value in table, H0 hypothesis is rejected at the level of 95% and the significance of regression by accepting H1 hypothesis is confirmed.

Also, in Table (1), $R^2$ value, determination coefficient of the model is about 0.28 or 28 percent; it shows that three independent variables (Income Smoothing), (Size) and (growth) explain about 28% of the variance of stock return volatility.

**The first hypothesis: part B**

There is a significant relationship between income smoothing and earnings forecast error. Regression model is a linear equation in which earnings forecast error is a determining factor of information uncertainty of dependent variable and income smoothing (IS) of independent
variable; the control variables of firm sized (FS) and growth rate (G) have also been used as follows:

\[
\text{Forecast Error}_{it} = \beta_0 + \beta_1 \cdot \text{Income Smoothing}_{it} + \beta_2 \cdot \text{Size}_{it} + \beta_3 \cdot \text{growth}_{it} + \varepsilon_{it}
\]

Table 2: Analysis of data for test (b) of the first hypothesis (random effects estimation method with panel data)

<table>
<thead>
<tr>
<th>The explanatory variables and the intercept</th>
<th>Coefficients</th>
<th>The t-statistic</th>
<th>Standard error (SE)</th>
<th>P-Value</th>
<th>The expected signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of observations for each variable: 505</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The dependent variable: Earnings forecast error (FR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 26.17898 | 188.0524 | 0.139211 | (0.0000)**
| \(-1.6091\) | -3.47103 | 0.463581 | (0.0060)** Negative (-)
| \(\beta_2\) | -0.00518 | -1.67208 | 0.0951 Negative (-)
| \(-0.20935\) | -5.92562 | 0.372846 | (0.0000)** Negative (-)
| \(R^2\) | 6.487721 | 0.573562 | 0.44074 P-Value(0.000432)**
| F statistics | 1.145392 | Durbin Watson (DW) statistics |

Linear correlation at the level of 5% of relationship is significant; the regression model is as follows:

\[
\text{Forecast Error}_{it} = 26.17898 \cdot \text{Income Smoothing}_{it} - 1.6091 \cdot \text{Size}_{it} - 0.00518 \cdot \text{growth}_{it} - 2.20935 - 3.47103 + 1.67208 \cdot 5.92562 + 188.0524
\]

Mark *** and ** and * are respectively the signs of significant variations in 99% and 95% and 90 percent level.

In the regression model presented in Table 2, the calculated value of t and p-value obtained from the model for the first hypothesis test (\(\beta_1\)) is less than 5% error level; so, in this state, the test is significance and H0 hypothesis is rejected; income smoothing coefficient is not zero and this factor shows that, in 95 percent confidence level, income smoothing variable has statistically significant and negative impact on earnings forecast error. Controlling variable coefficient for
firm size ($\beta_2$), in addition to being statistically significant in earnings forecast error volatility variable, has a negative impact on this variable and its significance level is 90 percent. Also, the coefficient of controlling variable of the growth rate ($\beta_3$) is statistically insignificant and has negative symptoms that, regarding mark, are consistent with theoretical expectations.

Fixed amount of model is provided in Table (2); to test hypotheses, t and p-value of the model are considered; this amount is smaller than 1 percent; so, the test is significant in error level and H0 is rejected. In other words, estimated constant coefficient is not equal to zero.

Using F statistics and calculated p-value in table, H0 hypothesis is rejected at the level of 99% and the significance of regression by accepting H1 hypothesis is confirmed.

Also, in Table (2), $R^2$ value, determination coefficient of the model is about 0.57 or 57 percent; it shows that three independent variables (Income Smoothing), (Size) and (growth) explain about 57% of the earnings forecast error volatility.

### The Second hypothesis:

There is a significant relationship between income smoothing and capital cost. Regression model is a linear equation in which capital cost is a dependent variable and income smoothing (IS), an independent variable; the control variables of firm sized (FS) and growth rate (G) have also been used as follows:

#### Table 3: Analysis of data for the second hypothesis of research (random effects estimation method with panel data)

<table>
<thead>
<tr>
<th>The explanatory variables and the intercept</th>
<th>Coefficients</th>
<th>t-statistic</th>
<th>standard error (SE)</th>
<th>P-Value</th>
<th>The expected signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-9.7007$</td>
<td>$-2.84218$</td>
<td>$3.413125$</td>
<td>(0.0074)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$-1.89E-06$</td>
<td>$-2.94291$</td>
<td>$6.42E-07$</td>
<td>(0.0034)**</td>
<td></td>
<td>Negative (-)</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>$-0.00683$</td>
<td>$-1.30315$</td>
<td>(0.1931)</td>
<td></td>
<td>Negative (-)</td>
</tr>
<tr>
<td>$-0.09541$</td>
<td>$-1.04154$</td>
<td>$0.091605$</td>
<td>(0.2981)**</td>
<td></td>
<td>Negative (-)</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0.2525$</td>
<td>$0.19409$</td>
<td>P-Value(0.005081)**</td>
<td></td>
<td></td>
<td>1.86088</td>
</tr>
</tbody>
</table>

Capital Cost
Linear correlation at the level of 5% of relationship is significant; the regression model is as follows:

\[ \text{Capital Cost}_{it} = -9.7007 - 1.89E - 06 \times \text{Income Smoothing}_{it} - 0.00683 \times \text{Size}_{it} - 0.09541 \times \text{growth}_{it} \]

(2.94291) \quad (-1.30315) \quad (-1.04154) \quad (-2.84218)

Mark *** and ** and * are respectively the signs of significant variations in 99% and 95% and 90 percent level.

In the regression model presented in Table 3, the calculated value of t and p-value obtained from the model for the first hypothesis test (β1) is less than 5% error level; so, in this state, the test is significance and H0 hypothesis is rejected; income smoothing coefficient is not zero and this factor shows that, in 95 percent confidence level, income smoothing variable has statistically significant and negative impact on capital cost. Controlling variable coefficient for firm size (β2), in addition to being statistically significant in capital cost variable, has a negative impact on this variable and its significance level is 90 percent. Also, the coefficient of controlling variable of the growth rate (β3) is statistically significant and has negative symptoms that, regarding mark, are consistent with theoretical expectations.

Fixed amount of model is provided in Table (3); to test hypotheses, t and p-value of the model are considered; this amount is smaller than 5 percent; so, the test is significant in error level and H0 is rejected. In other words, estimated constant coefficient is not equal ro zero. Using F statistics and calculated p-value in table, H0 hypothesis is rejected at the level of 95% and the significance of regression by accepting H1 hypothesis is confirmed. Also, in Table (3), \( R^2 \) value, determination coefficient of the model is about 0.25 or 25 percent; it shows that three independent variables (Income Smoothing), (Size) and (growth) explain about 25% of the capital cost variable volatility.

**Discussion and Conclusion**

The results obtained for all three hypotheses suggest a significant negative relationship between the three variables of volatility of stock returns; earnings forecast error and the cost of capital with income smoothing. In the first hypothesis testing (Part A), the relationship between stock returns and income smoothing volatility was examined; regression coefficient for this relationship is (-4.14E-05) and t-statistics related to this effect is (-1.24379); these coefficients indicate that, in Iran’s stock market, in short-term and long-term conditions, income smoothing reduces the volatility of stock returns. In the first hypothesis testing (part b), the relationship between income smoothing and earnings forecast was examined; regression coefficient is (-1.6091) and t statistics is (-3.47103); these coefficients show that, in Iran’s stock market, in short-term and long-term conditions, income smoothing causes reduction in earnings forecast error. In the second hypothesis testing, the relationship between cost of capital and income smoothing was examined; regression coefficient for this relationship is (-1.89E-06) and t-statistics is (-2.94291); these
coefficients show that, in Iran’s stock market, in short-term and long-term conditions, income smoothing reduces the cost of capital.

Results of the research are in line with those of Tseng and Lai (2007) in which there is a significant negative correlation between profitability and income smoothing, Hamzavi and Aflatouni (2011) in which there is a significant relationship between income smoothing, the predictability of earnings and profit stability, Takasu (2012) in which there is a significant relationship between the cost of loans and income smoothing, Mohammadi and Monfared (2012) in which there is a significant positive relationship between cash holdings and income smoothing, Ansari and Khajavi (1390) in which income smoothing affects on stock prices, interest coverage ratio and equity return. But they are incompatible the results of Hejazi et al (2012) in which there are lack of the impact of income smoothing and the quality of earnings on the company's performance, and Mohammadi and Monfared (2012) in which there are lack of significant relationship between positive changes in cash holdings and income smoothing.
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