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STUDYING THE IMPACT OF FINANCIAL RESTATEMENTS ON SYSTEMATIC AND UNSYSTEMATIC RISK OF ACCEPTED PLANTS IN TEHRAN STOCK EXCHANGE

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ABSTRACT

The main purpose of this paper is to investigate the impact of financial restatements on systematic and unsystematic risk of accepted plants in Tehran Stock Exchange. Population of the present research includes all accepted plants in Tehran Stock Exchange in 2007-2011 of which 137 plants as sample are selected based on stratified random sampling method and eliminating extreme ones. Actually, financial restatement is considered as independent variable in order to study its impact on systematic and unsystematic risk in selected plants. Applying panel data with fix effect, concluded results of data analysis using multivariable Regression method at 95% statistical significance show that financial restatements directly affect on systematic and unsystematic risk of the plants. Moreover, results reveal that financial restatements from operations more directly influence on systematic and unsystematic risk of plant comparing to non-operation ones. On the other hand, research results also display financial restatements of stock dilution more directly influence on systematic and unsystematic risk of plant comparing to incremental one.

Keywords: *Financial Restatements, Systematic Risk, Unsystematic Risk*

INTRODUCTION

Reliability is one of the most crucial properties of accounting information. According to theoretical concepts of financial reports, information is reliable as long as it does not involve any errors or biased tendencies. Most of the researches in Iran show that correcting their accounting errors, majority of Iranian plants report their financial restatements as prior period adjustment (Sarvarimehr, 2005; Kordestani *et al.*, 2009). That is, accounting information of the plants is hesitated in term of having no error.

Prior period adjustment and financial restatements of the previous periods accompanies plenty of negative outcomes. Net profit is considered as basis to calculate some amounts like reward of board of directors, tax and dividends of stockholders. Furthermore, dividend per share and price ratio to dividend are some measures that are used by analyzers and investors. Thus, presenting incorrect profit and correcting it in the following period means that making decides ion about related affaires, results in economical and financial impact for different individuals. Another negative outcome of prior period adjustment is its effect on validity of the auditors. Auditors aim to show the validity of the financial statement but as audited financial statements of the previous periods are to be represent again due to accounting errors, authorities cannot trust on auditors' reports anymore (Nikbakht and Rafiyi, 2011).

In order to realize the probable reasons and motivations of plants for presenting incorrect accounting statements and correcting it in the following periods, some factors should be regarded so as to account for this process. Studies on fake reports show various motivations for that. Some researchers surmising all financial restatements have got common reason suppose that these motivations can appear nominally in financial and economic reports of the plants. In this way, considering some factors such as corporate governance, it would be possible to represent financial restatements. In fact, due to reduction of asymmetric information as well as reduction of representative expenses, the more effectual and effective mechanisms there are , the less financial restatement is expected in the plant (ibid).

On the other hand, one of tools of directors to interact with markets is presenting an earnings forecast of the plant to attract them. Because lack of reliability in operational situations, directors are not able to

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estimate comprehensively about plant's trade perspective. Yet their partial estimations influence on earnings forecast, accounting information users and analyzers strongly concentrate on earnings forecast rather than other disclosed data since earnings forecast not only reflect forecast of management about future perspective, but it is quantitative.

Quality of presented forecasts by management is so higher than forecasts by outsiders; since management has got more information about position of the plant, it is aware of current operations, it avails detailed accounting information about previous accounting periods and also it dedicates remarkable resources for financial forecasts.

The main problem is whether these forecasts are effectually reliable. Having advantages, forecasting of management involves many complications too.

For instance, directors themselves benefit from the plant's profit more than anyone else. Actually, high profit results in high validity for the plant which tails increasing of directors' rewards. Considering above mentioned tips, the main problem of this research to study is: how do financial restatements affect on systematic and unsystematic risk of the plants?

Basic Theories

Representing Financial Restatements

Representing financial restatement means items of previous year or years are to be presented again due to incurred changes of left items or changing of categorizations. Excluding some cases such as operational tax, etc representing financial restatement mainly conveys existence of errors or fundamental method changing which include vital financial effects (Nikbakht and Rafi).

Risk

Generally speaking, economic resources define risk in two outlooks. 1. Risk means any probable fluctuations in future economic returns. 2. Risk means any negative probable fluctuation in future economic returns.

By the way, nowadays the first definition is more acceptable. Since the aim of all investors is to gain the most amount of return, the concept of risk would be obvious. Actually, risk and return are two crucial basics in term of investors' decision-making in such a way that the most return and the least risk are frequently considered as a remarkable criterion by them.

Systematic Risk

Systematic risk refers to changes of the returns of the plant related to the market. This risk would not be removed through diversification and it is before unsystematic risk of the plant.

Unsystematic Risk

Unsystematic risk refers to changes of return rate per share along with a portfolio which cannot be justified through changes of the market rates. Actually, it is a function of dominating circumstances of the plant, kind of industry and etc. This risk can be reduced or thoroughly eliminated by diversification and investing in securities with negative correlation.

Hypotheses

Main hypothesis 1: Financial restatements directly affect on systematic risk of the plant.

Subsidiary Hypotheses

Financial restatements from operations more directly affect on systematic risk of the plant comparing to non-operations.

Financial restatements of stock dilution more directly affect on systematic risk of the plant comparing to incremental ones.

Main hypothesis 2: financial restatements directly affect on unsystematic risk of the plant.

Subsidiary Hypotheses

Financial restatement from operations more directly affect on unsystematic risk of the plant comparing to non-operations.

Financial restatements of stock dilution more directly affect on unsystematic risk of the plant comparing to incremental ones.

Here conceptual model of the research is presented:

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Financial restatements from operations
Financial restatements from non-operations
Financial restatements of stock dilution
Financial restatements of incremental ones

Financial Restatements

Systematic and Unsystematic Risk

Reviewing related researches and studies from various resources like universities as well as scientific research centers show that few studies are done on this issue. However, there are nearly similar researches which are mentioned below:

Review of Literature

1. Foreign Studies

Lang and Zang (2009) studied the role of financial restatements in reducing related expenses to earnings forecast error by the management. Focusing on the amounts and frequency of the financial restatements, they concluded that being afraid of investors' legal reactions as well as losing their own credit; directors apply earnings management to reduce management forecast errors which eventually results in increasing number of financial restatement. Moreover, research results show that directors, who estimate the profit more than actual one, manage it upward which tails increasing the number and amount of financial restatements as well as increasing of management forecast errors.

Ganplose (2010) assessed the rate of financial restatements and its effective factors in Greek plants. Research sample involved 208 accepted plants in Greece Stock Exchange in 1995-2005. Research results displayed that there is significant relation between firm size, financial leverage ratio, auditing quality and corporate governance with the rate of financial restatements.

Lia *et al.*, (2012) studied the impact of audit quality on financial restatements of the plants during 1995-2010. Auditor tenure, audit firm size and specialty of the auditor in the industry are considered as quality measures of the research. Research results revealed that there is indirect significant relation between audit quality and financial restatements.

Barse *et al.*, (2013) studied the impact of corporate governance on the rate of financial restatements. Actually, corporate governance mechanisms include size of board of directors, percentage of outside directors, and percentage of institutional stockholders' ownership. Research results showed that size of board of directors, percentage of outside directors, and percentage of institutional stockholders' ownership indirectly but variables including firm size, sale change, cash flows changes from operations, change of liabilities ratio, market value ratio to book value directly affect on financial restatements of the plant.

2. Home Studies

Nikbakht and Rafiyi (2011), state that in case correcting errors of the former periods or changing accounting approaches, plants are to represent contrastive financial statements. Actually, financial restatements negatively affect on reliability of accounting information.

However, financial restatements have been turning so common in accepted plants of stock exchange recently.

This research is to discover the model of effective factors on financial restatements in Iran. In this way, having interviewed 50 experts about effective factors on financial restatements and using logistic Regression method, considered model is estimated. Estimating the related model, 202 accepted plants in 2004-2008 are studied. Research results show that profitability, financial leverage, management tenure, management change, auditor change, and audit firm size all affect on financial restatements.

Sayi *et al.*, (2012) in a paper called *importance and frequency of financial restatement* studied the frequency distribution ratio of financial restatement among it factors of various industries in different years. Analyzing financial information of 229 accepted plants in Tehran Stock exchange in 2000-2007 shows that the most rate of financial restatements are related to debts (Automobile and accessory industry in 2004). Research results reveal that frequency distribution ratio of financial restatement of various

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industries in different years is statistically significant. In addition, analyzing the difference of averages verifies significance of differences between primary and latter financial restatements.

Aghayi *et al.*, (2012) studied the impact of financial restatements on accruals quality in 2000-2009. Sample of this research involves 70 manufacturing firms which have presented significant financial restatement just once and during two previous and next years they have not represented any more. Research results display that profit quality are considered after restatement. Quality measure of this research is accruals quality basing on accrual model has significantly increased since restatement certain date. Using effective factors on profit quality such as corporate governance variable, properties of the plants and audit quality to estimate the research model, results display that there is significant relation between variables including firm size, sale change, cash flows changes of operations, liabilities ratio changes, market value ratio to book value, percentage of institutional stockholders’ ownership, and management tenure with earnings quality of plant which represent financial restatements.

MATERIALS AND METHODS

Methodology

The present paper is purposive applied research in which it is attempting to expand applied science in a specific field. This paper also is based on correlation method. The main purpose of the research is to determine the rate of relations between variables using inferential- contrastive reasoning methods. That is, library studies, sites, and essays are applied in term of contrastive framework and data collecting to refuse or confirm the hypotheses in term of inferential framework.

Population of this research involves whole accepted plants in Tehran Stock Exchange. Actually, statistical sample includes plants with the following properties:

1. Their fiscal year ends in Esfand (the last month of Iranian calendar)
2. Frequently being active in stock exchange and not change their activities or fiscal year during 2007-2011
3. Investing and insurance institutes as well as banks are omitted due to their specific nature
4. Required information of the plants must be available
5. Their stock should not have trading interruption for over six months
6. Their fiscal year ends in Esfand (the last month of Iranian calendar)

Research Regression Models

Variable kind	Variable	Symbol	Operational definition
Dependent	Systematic risk	Risk	Calculated through capital asset pricing method (CAPM)
	Unsystematic risk		Calculated through capital asset pricing method (CAPM)
Independent	Financial restatements	res	Absolute value of period financial restatement divided by book value of assets
	Financial restatement core from operations		It is a dummy variable. In case financial restatement is from operations like purchase, sale, etc it is 1, otherwise it is 0.
	Financial restatement of stock dilution	dire	It is a dummy variable. In case financial

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		restatement is stock dilution, it is 1; otherwise it is 0.
Qualified audit opinion	AO	It is a dummy variable. in case, financial report of the previous year is qualified, it is 1; otherwise it is 0
Audit firm size	BIG	It is a dummy variable. In case auditor is a audit firm, it is 1; otherwise it is 0.
Return on asset	ROA	ROA= net profit before tax deduction/ book value of total assets
Sales growth	growth	Growth= sales for the year t2- sales for the year t-1/ sales for the year t-2
Financial leverage	lev	Lev= book value of total liabilities/book value of total assets
Concentrated ownership	HI	This paper uses Herfindal-Hirshman index to calculate concentrated ownership range. this index is calculated through summation of square stockholders' share percentage $HHI = \text{concentrated ownership range}$ $P_i = \text{total issued stocks}$ $P_i = \text{total main stockholders}$
industry	ind _n	It is a variable. in case plant belongs to industry i, it is 1; otherwise, it is 0.

Methods

Descriptive Statistics

Frequency and histogram tables are used in order to describe the findings. Moreover, improving description of findings, central measures such as average and mode as well as variability measures such as standard deviation are applied.

Inferential Statistics

Considering earned data from stock exchange organization site, RahavarNovin and TadbirPardez in SPSS and Eview software as well as research hypotheses, the following analysis are to be done using appropriate statistical tests.

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- Chavhausman test is used to determine proper Regression model (panel data or data fusion)
- Durbin Watson, Colmogroof, Smirnof, VIF statistical tests are used to analyze classic hypotheses
- Analyzing research hypotheses by f statistic, firstly significance of Regression model is studied and then considering significance level and t statistic, hypotheses are refused or verified.

Data Analysis

The present paper uses multivariable Regression along with data fusion. Data analysis is done through descriptive and inferential statistics methods. That is, firstly using descriptive approach, demographic properties of data are studied and then classic Regression approaches are applied in order to estimate parameters and to test research hypotheses. Moreover, Eview6 and SPSS software are used to analyzed data descriptively and test research hypotheses.

1. Hypothesis 1 Test

“Financial restatements directly affect on systematic risk.”

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed.

Furthermore, if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 1, significance level of financial restatement variable is less than considered one (in this paper 5%).

Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, hypothesis 1 is confirmed.

Table 1: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	sig
e (mathematical constant)	B0	0.709	2.909	0.0143
Financial restatement	B1	0.723	3.057	0.0136
Qualified auditor opinion	B2	0.737	3.213	0.0129
Audit firm size	B3	0.752	3.377	0.0123
Return on assets	B4	0.767	3.550	0.0117
Sale growth	B5	0.941	3.445	0.0121
Leverage ratio	B6	0.960	3.621	0.0115
Concentrated ownership	B7	0.979	3.806	0.0109
Industry	B8	0.998	4.1091	0.0104
Coefficient determination	0.332	F statistic		10.121
Adjusted R ²	0.288	p- value		0.0034
			Watson Durbin	1.811

1-1. Subsidiary Hypothesis 1 Test

“Financial restatement from operations more directly affect on systematic risk of the plant comparing to non-operations”.

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed. Furthermore,

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if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 2, significance level of financial restatement from operations is less than considered one (in this paper 5%). Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, subsidiary hypothesis 1 is confirmed.

Table 2: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	sig
e (mathematical constant)	B0	0.782	3.782	3.731
Financial restatement from operations	B1	0.798	3.921	0.0106
Qualified auditor opinion	B2	0.841	4.121	0.0101
Audit firm size	B3	0.830	4.331	0.0096
Return on assets	B4	0.846	4.552	0.0091
Sale growth	B5	0.752	3.377	0.00123
Leverage ratio	B6	0.767	3.550	0.0117
Concentrated ownership	B7	0.7489	2.9113	0.0142
Industry Coefficient determination	B8	0.7634	3.1432	0.0136
Adjusted R ²	0.298	F statistic		9.323
	0.252	p- value		0.0064
		Watson Durbin		1.765

Table 3: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	sig
e (mathematical constant)	B0	0.677	3.938	0.0142
Financial restatement of stock dilution	B1	0.690	3.088	0.0135
Qualified auditor opinion	B2	0.704	3.245	0.0128
Audit firm size	B3	0.718	3.411	0.0122
Return on assets	B4	0.732	3.558	0.0116
Sale growth	B5	0.923	3.278	0.0127
Leverage ratio	B6	0.941	3.445	0.0121
Concentrated ownership	B7	0.960	3.621	0.0115
Industry Coefficient determination	B8	0.979	3.806	0.0109
Adjusted R ²	0.366	F statistic		8.909
	0.329	p- value		0.0058
		Watson Durbin		1.967

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1-2. Subsidiary Hypothesis 2 Test

“Financial restatements of stock dilution more directly affect on systematic risk of the plant comparing to incremental ones”.

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed. Furthermore, if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 3, significance level of financial restatement of stock dilution is less than considered one (in this paper 5%). Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, subsidiary hypothesis 2 is confirmed.

2. Main Hypothesis 2 Test

“Financial restatements directly affect on unsystematic risk of the plant”.

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed. Furthermore, if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 4, significance level of financial restatement variable is less than considered one (in this paper 5%). Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, main hypothesis 2 is confirmed.

Table 4: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	sig
e (mathematical constant)	B0	0.709	3.909	0.0143
Financial restatement	B1	0.723	3.057	0.0136
Qualified auditor opinion	B2	0.737	3.213	0.0129
Audit firm size	B3	0.752	3.377	0.0123
Return on assets	B4	0.767	3.550	0.0117
Sale growth	B5	0.7489	2.9113	0.0142
Leverage ratio	B6	0.7634	3.1432	0.0136
Concentrated ownership	B7	0.7787	3.2157	0.0129
Industry Coefficient determination	B8	0.7940	3.3794	0.0123
Adjusted R ²	0.332	F statistic		10.121
	0.288	p- value		0.0034
		Watson Durbin		1.811

2-1. subsidiary Hypothesis 1 Test

“Financial restatement from operations more directly affect on unsystematic risk of the plant comparing to non-operations”.

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed. Furthermore,

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if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 5, significance level of financial restatement from operations is less than considered one (in this paper 5%). Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, subsidiary hypothesis 1 is confirmed.

Table 5: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	Sig
e (mathematical constant)	B0	0.747	3.768	0.0110
Financial restatement from operations	B1	0.762	3.960	0.0105
Qualified auditor opinion	B2	0.777	4.162	0.0100
Audit firm size	B3	0.792	4.374	0.0095
Return on assets	B4	0.808	4.598	0.0090
Sale growth	B5	0.8562	3.3287	0.0125
Leverage ratio	B6	0.8729	3.5939	0.0119
Concentrated ownership	B7	0.8903	3.6768	0.0113
Industry Coefficient	B8	0.9078	3.8640	0.0107
determination	0.318	F statistic		7.543
Adjusted R ²	0.276	p- value		0.0098
		Watson Durbin		2.127

Table 6: Calculated results of fitting Regression equation

Variable	Variable coefficient	Coefficient	T statistic	Sig
e (mathematical constant)	B0	0.877	2.296	0.0140
Financial restatement of stock dilution	B1	0.905	3.119	0.0133
Qualified auditor opinion	B2	0.923	3.278	0.0127
Audit firm size	B3	0.941	3.445	0.0121
Return on assets	B4	0.960	3.621	0.0115
Sale growth	B5	0.979	3.806	0.0109
Leverage ratio	B6	0.998	4.1092	0.0104
Concentrated ownership	B7	1.018	4.204	0.0099
Industry Coefficient	B8	1.038	4.418	0.0094
determination	0.265	F statistic		13.786
Adjusted R ²	0.224	p- value		0.001
		Watson Durbin		2.327

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2-2. Subsidiary Hypothesis 2 Test

“Financial restatements of stock dilution more directly affect on unsystematic risk of the plant comparing to incremental ones”.

Judgment: in case calculated significance level by software is less than considered one (it equals 5% in this paper), thus variable is statistically significant and the related hypothesis is confirmed. Furthermore, if t statistic is more than t counterpart in Student table with the same significance level, the related hypothesis is verified.

Test result: according to table 6, significance level of financial restatement of stock dilution is less than considered one (in this paper 5%).

Moreover, absolute value of related t statistic with the same freedom degree is more than calculated one. Therefore, null hypothesis at 95% significance level is refused and regarding positive sign of involved variable, subsidiary hypothesis 2 is confirmed.

Research Suggestions

- Considering concluded results of hypothesis 1 which states financial restatement directly affects on systematic and unsystematic risk of the plant, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess systematic risk of the plants in term of financial restatements to select the portfolio along with minimum risk and maximum return.
- Considering concluded result of subsidiary hypothesis 1 which states financial restatement from operations more directly affect on systematic risk of the plant comparing to non-operations, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess systematic risk of the plants in term of financial restatements (from operations and non-operations) to select the portfolio along with minimum risk and maximum return.
- Considering the concluded results of subsidiary hypothesis 2 which states financial restatements of stock dilution more directly affect on systematic risk of the plant comparing to incremental ones, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess systematic risk of the plants in term of financial restatements (financial restatements of stock dilution ratio to financial restatements of incremental ones) to select the portfolio along with minimum risk and maximum return.
- Considering the concluded results of the main hypothesis 2 which states financial restatements directly affect on unsystematic risk of the plant, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess unsystematic risk of the plants in term of financial restatements to select the portfolio along with minimum risk and maximum return.
- Considering the concluded results of the subsidiary hypothesis 1 which states Financial restatement from operations more directly affect on unsystematic risk of the plant comparing to non-operations, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess unsystematic risk of the plants in term of financial restatements(from operations and non-operations) to select the portfolio along with minimum risk and maximum return.
- Considering concluded results of subsidiary hypothesis 2 which states financial restatements of stock dilution more directly affect on unsystematic risk of the plant comparing to incremental ones, decision makers, actors of capital market, potential and current financial analyzers of stock exchange are recommended analyzing investment projects of financial assets and securities, estimate and assess unsystematic risk of the plants in term of financial restatements (financial restatement of stock dilution ratio to financial restatement of incremental ones) to select the portfolio along with minimum risk and maximum return.

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Recommendations for Future Researches

The following recommendations are offered for future related researches:

- Studying the impact of psychological bias of directors on financial restatements
- Studying the impact of smoothing and earnings management on financial restatements
- Studying the impact of some factors such as industry kind, forecast duration, economic circumstances on financial restatement
- Studying the impact of conservatism management on financial restatement

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