

Examining the Effect of Information Asymmetry in the Effect of Categorization Change on Investment Efficiency

Abstract

The primary goal of this research is to look at the impact of classification changes on investment efficiency and how information asymmetry plays a role. Two hypotheses were constructed to examine this research, and linear regression patterns based on composite data were employed to evaluate the hypotheses. The financial statements of 191 firms listed on the Tehran Stock Exchange between 2015 and 2020 were used for this purpose. The current study's method is applied in terms of purpose and correlational in terms of method and nature. Because the data in question is actual and historical, the study is categorized as Ex-Post Facto. The observations were analyzed by spreadsheet and Eviews 10 software. The study's findings and testing of research hypotheses revealed that categorization changes had a significant and inverse influence on investment efficiency. The connection between classification change and investment efficiency is significantly inversely affected by information asymmetry.

Keywords: *Classification Change, Investment Efficiency, Information Asymmetry*

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Introduction

In light of recent developments that have taken place around the globe, the countries of the world require proper solutions to utilize their God-given facilities and riches more effectively to address their economic issues. One of the essential remedies for this problem is to increase investment (Tehrani and Nourbakhsh, 2006). The corporation must also consider the idea of investment efficiency since not every investment is acceptable and justifiable in and of itself. Investment efficiency is a company's decision to invest exclusively in plans and projects with a positive net present value (Foroughi et al., 2015). Due to capital market friction, the firm's actual investments typically diverge from ideal levels. According to Seraina et al. (2021), managers' opportunistic behaviors in profit management can adapt efficient investment to inefficient investment.

Conversely, various methods for earning management and influencing market decision-making exist. Profit-and-loss statement discussions of categorization changes are one of these ways. In actuality, classification change is a distinct profits management approach in which management organizes profit and loss items so that the organization's final profit or loss number does not change (McVay, 2006). Non-decreasing earnings management, which raises the primary profit without harming the ultimate profit (Joo & Chamberlain, 2017), and earnings management by modifying the classification, which implies the purposeful improper inclusion of core expenditures in specific categories (Joo & Chamberlain, 2017). (McVay, 2006; Fan et al., 2010; Haw et al., 2011; Joo & Chamberlain, 2017). Outsiders have more difficulty tracing this vertical cost shift in profit and loss than other types of earnings management (Zalata & Roberts, 2016). Since net profit does not grow,

independent auditors are less likely to counteract this opportunistic activity (Nelson et al., 2002). In addition to the preceding, the change in classification has no detrimental impact on the company's operating performance. As a result, classification modification is a less cost-effective means of profit management than other ways (Haw et al., 2011; Athanasakou et al., 2009). As a result, a change in classification typically signifies "soft" profit manipulation that has no long-term negative effects on organizations (Anagnostopoulou et al., 2021). When managers improve core earnings by reclassifying regular (or operational) expenditures as special items, a classification shift occurs (Fan et al., 2010; McVay et al., 2006). This manipulation has nothing to do with identifying or measuring things (Zalata & Roberts, 2016) and has no effect on net income; instead, it occurs in the income statement's structure. The primary motive indicated for the change in classification is the impact of investor capital value from a stock market standpoint (McVay, 2006; Athanasakou et al., 2009; Fan et al., 2010; Fan & Liu, 2017; Liu & Wu, 2020). By artificially raising gross revenues by moving core costs to some profit-reducing regions, managers can demonstrate improved operational performance and match or exceed analysts' projections (Haw et al., 2011; McVay, 2006). According to Seraina et al. (2021), the shift in classification has resulted in a rise in investment inefficiency.

On the other hand, managers may stray from optimal investment levels and engage in over-or under-investment when their objectives conflict with the interests of shareholders due to unfavorable decisions (Chen et al., 2017). The dilemma of adverse selection demonstrates that managers have superior private information than outsiders on the company's actual value. Due to the information asymmetry between managers

and investors, if foreign capital providers who are naturally vulnerable to information damage are accused of such activity, they may respond logically by raising the cost of funding (Bidel et al., 2009; Chen et al., 2017; Ward et al., 2020). Overinvestment is an issue that occurs when management makes additional investments (Bidel et al., 2009; Ward et al., 2020). Underinvestment is a problem that occurs when management operates in the best interests of existing shareholders and refuses to issue discounted money for projects with positive net present value (Myers, 1984; Myers & Majluf, 1984; Bidel et al., 2009; Chen et al., 2017). According to Seraina et al. (2021), information asymmetry has strengthened a positive link between categorization change and investment inefficiency in this respect.

Regardless of how innocuous previous studies have deemed this profits management strategy, this study aims to give valuable insights into the unintended repercussions of categorization modification. Lack of information and monitoring of categorization changes has been cited as the cause of these incidents. Studies identifying the presence of this phenomenon (McVay, 2006) and methodically exploring its drivers have dominated previous research on categorization change (Fan et al., 2019). At the same time, the majority of study on the impact of categorization shift has focused on cataloging events. It is the first study to explore the negative effects of a change in categorization in areas unrelated to preset products, notably the efficiency of the stock market investment. In light of the preceding, this study aims to examine the impact of categorization change on investment efficiency in terms of the function of information asymmetry.

Theoretical Foundations of Research

Classification Change

Several studies have explored earnings management over the years. In this study, two general strategies for earnings management are discussed. Selecting suitable accounting procedures to attain the target profit level is one approach to profit management. This technique often involves manipulating accruals that have no direct impact on cash flows. Estimating the discretion factor and using managers' judgments in evaluating profits are crucial components of the earnings management exam for organizations. A survey of the literature on earnings management reveals the presence of several methodologies and identifiers for assessing and measuring the discretionary authority of management in deciding profits. The use of discretionary accruals to assess and find earnings management in business units is one of the most essential of these methods. Manipulating actual operations and altering the company's infrastructure activities to boost current earnings is another method of profit management (Chen & Wang, 2011). Manipulating activities distract management from the company's usual operations, which misleads the

organization's beneficiaries. This variance assists the manager in achieving its financial reporting objectives but does not boost the company's worth. Manipulating techniques Real activities, such as decreasing the selling price to enhance product sales or cutting optional expenditures during economic crises, are among the most effective methods for managers. However, managers' atypical usage of these strategies implies a desire to control earnings from actual activities.

Earnings management based on actual activities, unlike earnings management based on accruals, happens mainly within the fiscal year. It is one of the most significant contrasts between the two techniques. Actual activities are manipulated when the manager predicts that the desired profit will not be achieved, and the use of the manipulation of accruals is limited. Managers might wait until the end of the fiscal year to manage earnings with discretionary accruals to meet a specified profit objective. However, the risk associated with this strategy is that the amount to be adjusted may exceed the allowed optional accruals. Consequently, the desired profit may not be realized after the fiscal year if this strategy is utilized. Therefore, managers mitigate this risk by modifying actual activities throughout the fiscal year (Yu, 2008). The management of gains from real operations is far more opaque than the management of profits from accruals, making it more difficult for beneficiaries, legal authorities, and auditors to identify and, thus, less likely to be presented in legal courts. While auditors and auditors are more likely to identify manipulation of accruals, this enhances managers' desire to influence real activity (Krishnan, 2003; Mizik and Jacobson, 2007).

One of the ways of earnings management is classification change, which is defined as the idea of inaccurate item categorization in the profit and loss statement. Changing the categorization of profit and loss to more accurately represent the financial state and outcomes of the company's operations can be a new component in managing accounts and optimizing the manager's tasks. In addition, data suggest that novice users have a consistent approach to the order of items in the income statement and place greater emphasis on the fundamental components of financial statements, particularly profit and loss. They believe products closer to their income are of more value (Lipp, 1986).

Investment Efficiency

Investing is converting capital into one or more forms of future-held assets. The phrase investment encompasses many activities, including investments in equity securities, common stock, options and stock options, convertible securities, and physical assets like gold, diamonds, and land. An investment is the acquisition of real estate or financial assets whose rate of return is proportional to the anticipated risk. Investing is, in plain terms, the sacrifice of present worth (which is generally evident) to receive more value in the future. Investment may

be seen from several angles, including investment by subject, subdivided into real and financial investment, and investment by time, subdivided into short-term and long-term investment. An investment entity is efficient when it selects all projects with a positive net present value. Each company unit's investment should be determined by its limited resources and efficiency. According to the regression model of Bidel et al. (2009), the current period's investments are a function of the previous period's sales. Accordingly, the model of investment inefficiency is determined by whether the quantity of waste is negative or positive.

Information Asymmetry

Information asymmetry refers to the unequal distribution of information between managers, investors, and other company stakeholders, which emerges from the separation of ownership and management. In this regard, managers have access to vital and critical information, preventing other parties from accessing confidential data as feasible. Information asymmetry exists when particular beneficiaries, such as owners, managers, and institutional shareholders, have access to essential information while others, such as minor shareholders, lack access to vital information (Nazari et al., 2012).

When shareholders lack access to the secret information held by the company's directors, information asymmetry exists. The existence of sufficient information in the market and the prompt and quick reflection of information on the price of securities is intrinsically linked to market efficiency. In an efficient market, the information communicated swiftly impacts the price. In such a market, security prices are near their inherent worth. In other words, an essential characteristic of an efficient market is that the market prices accurately reflect the assets' true worth. An efficient market must be receptive to new information. If new information enters the general public, the direction of the information will affect the price of the company's common stock. If the market is indifferent to new information and does not respond appropriately, i.e., if there is no market analyst to assess and evaluate the influence of new price information, then that market will not function (Jahankhani and Abdoh Tabrizi, 1993).

Research Background

Abdolali and Zavari Rezaei (2021) examined the impact of information asymmetry on the correlation between turnover and investment efficiency. This study aimed to achieve this objective by evaluating data from 70 sample firms from 2010 to 2019 across 10 years. Data analysis revealed that stock turnover has a favorable and statistically significant influence on investment success. In addition, information asymmetry has a favorable and statistically significant impact on the link between revenue and investment efficiency.

Joudi and Mansourifar (2020) investigated how audit quality influences the relationship between information asymmetry and investment performance from 2009 to 2018. Only the audit tenure index does not influence the association between information asymmetry and investment performance among the audit quality measures. However, the remaining three audit quality indicators significantly positively influence the association between investment performance and information asymmetry, and they mitigate the detrimental impact of information asymmetry on investment performance.

Hakimazar and Foroughi (2019) investigated the influence of information asymmetry and company development on the relationship between financial leverage and investment. This model's dataset comprises 155 businesses registered on the Tehran Stock Exchange between 2011 and 2017. The results indicate a negative and statistically significant relationship between financial leverage and investment, and knowledge asymmetry has no impact on this relationship. Additionally, the company's expansion negatively and significantly impacts the relationship between financial leverage and investment.

In research conducted in the United Kingdom, Seraina et al. (2021) examined the relationship between categorization change, investment efficiency, and information asymmetry using 63177 data. This analysis revealed that the change in categorization has resulted in a decline in investment efficiency. Information asymmetry has a significant unfavorable influence on the relationship between categorization change and investment efficiency.

Zalata and Abdolfattah (2021) investigated the relationship between non-executive female executives and earnings management in the United Kingdom by utilizing categorization modification. This study's findings demonstrate a significant positive relationship between non-executive female managers and categorization change.

In India, Najjar et al. (2020) looked at the impact of four prominent auditing companies on restricting categorization change. The data also indicate that the four big auditing companies are more likely to obtain more significant fees than auditors outside the four major auditing firms, which is associated with a significant decrease in classification modifications.

Research Methods

The current investigation is applied, descriptive-correlational, and ex-post-facto. This research's statistical population consists of firms listed on the Tehran Stock Exchange. The research's statistical sample consists of companies that were active in the stock market until the beginning of 2015 and meet the following characteristics:

1- The entry or exit of the company did not occur during the research period since the lack of data in certain situations

would generate an imbalance and heterogeneity among the observations.

2- The company should not change its fiscal year throughout the study, as using data from different fiscal years would make it impossible to comprehend the research results and compare periods.

3- It should not be an investment, leasing, insurance, or bank component. It is because of the unique and distinct character of these companies' activities.

After examining the criteria above, 191 companies remain screened communities; they have all been chosen as screening communities.

Hypothesis 1: The classification hypothesis has a significant impact on investment efficiency.

$$INV_{i,t} = \alpha + \beta_1 CS_{i,t} + \beta_2 InstOwn_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 MTB_{i,t} + \beta_5 TANG_{i,t} + \beta_6 DIV_{i,t} + \beta_7 Z-Score_{i,t} + \beta_8 LEV_{i,t} + \beta_9 AGE_{i,t} + \beta_{10} LOSS_{i,t} + \epsilon_{i,t}$$

Hypothesis 2: information asymmetry significantly affects the relationship between classification change and investment efficiency.

$$INV_{i,t} = \alpha + \beta_1 CS_{i,t} + \beta_2 InfoAsy_{i,t} + \beta_3 CS_{i,t} * InfoAsy_{i,t} + \beta_4 InstOwn_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 MTB_{i,t} + \beta_7 TANG_{i,t} + \beta_8 DIV_{i,t} + \beta_9 Z-Score_{i,t} + \beta_{10} LEV_{i,t} + \beta_{11} AGE_{i,t} + \beta_{12} LOSS_{i,t} + \epsilon_{i,t}$$

The Bidel et al. (2009) measurement criteria were employed to assess the dependent variable of investment efficiency. In addition, the independent variable of classification change was examined based on the criteria established by McVay (2006), and the interaction variable of information asymmetry was measured using the bid-ask spread.

Dependent Variable

$INV_{i,t}$: Bidel et al. (2009) model is used to measure investment efficiency as follows:

$$Invest_{i,t} = \alpha_0 + \beta_1 Sale\ Growth_{i,t-1} + \epsilon_{i,t}$$

$Invest_{i,t}$: Ratio of total investment (net increase in tangible and intangible assets) to total current period assets

$Sale\ Growth_{i,t-1}$: The ratio of sales changes (the difference between last year's sales and two years ago) to total assets from the preceding two years.

$\epsilon_{i,t}$: Residual plot

The residual plot values are taken as absolute values and then multiplied by a negative amount to calculate the return on investment.

Independent Variable

$UEGP_{i,t}$: Unexpected Gross Profit is the difference between reported and expected gross profit is used to assess the McVay (2006) model as follows:

$$GP_{i,t} = \alpha + \beta_1 GP_{i,t-1} + \beta_2 ATO_{i,t} + \beta_3 TACC_{i,t} + \beta_4 TACC_{i,t-1} + \beta_5 \Delta SALE_{i,t} + \beta_6 NEG\Delta SALE_{i,t} + \epsilon_{i,t}$$

$GP_{i,t}$: Gross profit; The ratio between sales revenue and the cost of items sold to sales revenue

$GP_{i,t-1}$: Preceding period's gross profit

$ATO_{i,t}$: Turnover of net working capital The relationship between net operating assets and sales revenue. Operational assets minus operating liabilities equal net operating assets

$TACC_{i,t}$: Accruals; the ratio of the difference between operating profit and operating cash flow to sales revenue

$TACC_{i,t-1}$: Prior year accruals

$\Delta SALE_{i,t}$: Change in sales revenue; the ratio of the difference between each period's and the prior period's sales revenue to the sales revenue of the prior period.

$NEG\Delta SALE_{i,t}$: Status of declining sales revenue; If the sales revenue of each period is lower than the preceding period, the value is one; otherwise, it is zero.

$\epsilon_{i,t}$ ($CS_{i,t}$): Error in pattern estimate showing an unexpected gross profit and a change in classification.

Mediation

$InfoAsy_{i,t}$: Information asymmetry is quantified by the Chiang and Venkatesh (1986) approach, which depicts the range of stock trading bid prices. The information asymmetry is proportional to the absolute value of the gap between the bid and asks the price of the stock, as evaluated by the following equation:

$$SPREAD_{i,t} = \left| \frac{ASK - BID}{(ASK + BID)/2} \right|$$

$SPREAD$: The range of the stock's bid and ask price difference.

ASK : The average bid price of the company's shares in period t

BID : The average bid price for shares of the company.

Control variables and measurement techniques:

$InstOwn$: Institutional investors; the ratio of institutional shareholders' shares in the company's total issued shares.

$SIZE$: The book value of assets is based on the natural logarithm of the company's size.

MTB : Market value to book value ratio; market value to total equity ratio

$TANG$: Tangible assets; the ratio of tangible fixed assets to total book value of assets

DIV : Profit-sharing; the ratio of declared profit to profits per share.

$Z-Scor$: Bankruptcy risk; Utilization of the Altman (1986) model, updated by Kurdistani and Tatli (2015) based on the conditions of companies listed on the Tehran Stock Exchange:

$$TK = 0.626 X_1 + 0.137 X_2 + 0.679 X_3 - 0.583 X_4$$

X_1 : Accumulated profit (loss) as a ratio of total assets

X_2 : Operating profit (loss) as a ratio of total assets

X_3 : Net profit (loss) as a ratio of total assets

X_4 : Ratio of total assets to total liabilities

Normal range: $TK \geq -0.3$

Helpless range: $-0.3 > TK > -0.5$

Bankruptcy range: $-0.5 \geq TK$

The companies in the bankruptcy range ($-0.5 \geq TK$) will have a value of one, while those that are not will have a value of zero, according to the findings from the statistical sample of the research.

LEV: Leverage; the ratio of total debt to total book value of assets.

AGE: Corporate life; the natural logarithm of the difference between the company's founding year and the reviewed year.

LOSS: An imaginary variable assigns the number one to the company year if it had a loss in the reviewed fiscal year and the number zero otherwise.

Table 1- Fisher test result for stationarity of research variables

Variables	Statistics	Significance level	Result
CS	690.689	0.0000	Variable is stationary at level
INFOASY	768.237	0.0000	Variable is stationary at level
INSTOWN	499.632	0.0000	Variable is stationary at level
SIZE	450.504	0.0089	Variable is stationary at level
MTB	803.303	0.0000	Variable is stationary at level
TANG	605.951	0.0000	Variable is stationary at level
DIV	439.679	0.0000	Variable is stationary at level
LEV	547.160	0.0000	Variable is stationary at level
AGE	3518.35	0.0000	Variable is stationary at level

Chow and Hausman's tests were used to examine the first hypothesis.

Table 2 - Chow and Hausman test results

Pattern	Test	Statistics	Quantity	Probability	Result
First hypothesis	Chow	F	4.767693	0.0000	Pattern test by combined method
	Hausman	Chi-square	60.829943	0.0000	Fixed effects

The Chow test demonstrates that the probability gained for the F-statistic is less than the 5% error level; therefore, the data are employed as a table to examine this pattern. In addition, the Table 3 - Final test of the first hypothesis model

Dependent Variable: INV		
Pattern: Combined Regression	Type: Fixed Effects	Method: Generalized Least Squares
Sections: 191	Periods: 6	Views: 1146

The financial information of companies registered on the Tehran Stock Exchange has been used to test the study assumptions. Multivariate regression analyses were utilized to assess the research hypotheses once the variables were measured. Statistical tests were conducted using the EViews software.

Findings

Table 1 illustrates the results of a reliability test of variables using Fisher's exact test (1).

probability level of the Chi-square statistic of the Hausman test is less than 5%; therefore, the pattern with fixed effects should be used to estimate the coefficients of the pattern.

Explanatory variables	Coefficients	Standard error	T-test	Probability
C	0.132059	0.026120	5.055790	0.0000
CS	-0.387725	0.035615	-10.88640	0.0000
INSTOWN	0.002735	0.000700	3.904822	0.0001
SIZE	0.002484	0.000571	4.348376	0.0000
MTB	-1.72E-05	0.000144	-0.119606	0.9048
TANG	-0.039091	0.002881	-13.56650	0.0000
DIV	-0.000812	0.001683	-0.482573	0.6295
Z_SCOR	-0.001781	0.001742	-1.022247	0.3069
LEV	-0.005594	0.003705	-1.510072	0.1314
AGE	-0.062306	0.010957	-5.686449	0.0000
LOSS	0.002978	0.001733	1.718666	0.0860
Coefficient of determination		0.655412	The adjusted coefficient of determination	0.582484
Fisher's exact test		8.987046	Durbin–Watson statistic	1.694620
Fisher statistic probability		0.000000		

The statistics reveal that the significance level of the F statistic is less than 5%, indicating the presence of a linear relationship between the variables of the study. The pattern determination coefficient is around 65%, indicating the rate of change in the dependent variable due to the independent and control variables. To eliminate autocorrelation between model residues, the Durbin – Watson statistic must fall between 1.5 and 2.5. This value is 1.694, which indicates that model residues are not self-correlated.

The findings of the first research hypothesis may be evaluated using the multivariate regression model. Given that the significance level of the t-statistic for the variable of unexpected gross profit, which signals a change in classification, is less than the level of error of 5%, i.e., 0.000, a change in classification is indicated. Therefore, the first hypothesis of the research is validated with a confidence level of 95%, and there is a significant association between categorization change and investment efficiency. In addition, the negative coefficient of the independent variable, which has a value of -0.387, demonstrates that the relationship between these two variables is negative. Changing the categorization has a substantial and negative impact on investment efficiency.

Table 4 - Chow and Hausman test results

Pattern	Test	Statistic	Quantity	Probability	Result
Second hypothesis	Chow	F	4.740043	0.0000	Pattern test by combined method
	Hausman	Chi-square	49.140537	0.0000	Fixed effects

The institutional investors and company size control variables significantly impact the dependent variable since their probability or significance threshold is less than five percent. In addition, based on the positive effect factor of these variables, the negative relationship between the two control adjustments and investment efficiency is demonstrated. The significance of the control assets of tangible assets and corporate life, on the other hand, is smaller than the mistake level of 5%. These factors' coefficient signs are negative; therefore, tangible assets and corporate life significantly influence investment efficiency.

Market value equals book value, profit sharing, bankruptcy risk, financial leverage, and loss, but other variables control this pattern. These factors do not have a significant impact on investment success, according to studies, because their likelihood exceeds the five percent margin of error. In actuality, investment efficiency is not a significant component among the control variables indicated in the statistical sample of research companies.

The Hausman test next explores the requirement of employing the fixed or random effects technique for the second hypothesis.

The Chow test indicates that the probability gained for the F-statistic is less than the 5% error level; therefore, the data are utilized as a panel to evaluate this pattern. In addition, the error

level of the Chi-square statistic of the Hausman test is less than 5%. Consequently, a model with fixed effects should be utilized to estimate the model's coefficients.

Table 5 - Final test of the second hypothesis model

Dependent Variable: INV				
Pattern: Combined Regression		Type: Fixed Effects		Method: Generalized Least Squares
Sections: 191		Periods: 6		Views: 1146
Explanatory variables	Coefficients	Standard error	T-test	Probability
C	0.111038	0.026107	4.253214	0.0000
CS	-0.019346	0.006296	-3.072857	0.0022
INFOASY	-0.132755	0.032400	-4.097390	0.0000
CS * INFOASY	-0.495661	0.112231	-4.416430	0.0000
INSTOWN	0.002658	0.000840	3.165330	0.0016
SIZE	0.002465	0.000641	3.842598	0.0001
MTB	1.83E-05	0.000151	0.120850	0.9038
TANG	-0.039203	0.002970	-13.19857	0.0000
DIV	-0.000540	0.001588	-0.339835	0.7341
Z_SCOR	-0.001651	0.001906	-0.866354	0.3865
LEV	-0.005993	0.003613	-1.658563	0.0975
AGE	-0.055150	0.011386	-4.843592	0.0000
LOSS	0.003465	0.001629	2.127543	0.0336
Coefficient of determination		0.660379	The adjusted coefficient of determination	0.587629
Fisher's exact test		9.077362	Durbin-Watson statistic	1.708948
Fisher statistic probability		0.000000		

The results revealed that the F statistic's significance level is less than five percent, indicating the presence of a linear relationship between the study variables. The pattern determination coefficient is around 66%, indicating the rate of change in the dependent variable due to the independent and control variables. To eliminate autocorrelation between model residues, the Durbin – Watson statistic must fall between 1.5 and 2.5. This value of 1.708 suggests that pattern residues are not self-correlated.

The second research hypothesis may be evaluated based on the test findings of the multivariate regression model. Given that the level of statistical significance of the interacting variable t information asymmetry and classification change is less than the 5% error level, i.e., 0.000, the error level is less than 5%. Therefore, the second study hypothesis is validated with a confidence level of 95 percent, and there is a significant relationship between information asymmetry, categorization change, and investment efficiency. In addition, the negative

coefficient of the interaction variable, which has a value of -0.495, demonstrates that the relationship between these two variables is negative. Therefore, knowledge asymmetry significantly negatively impacts the relationship between categorization change and investment efficiency.

Because the error level is less than 5%, the control variables of institutional investors and company size with a probability or significance level of 0.000 significantly influence the dependent variable. In addition, the negative effect factor of these variables demonstrates that the relationship between the two control modifications and investment efficiency is inverse. In contrast, the significance level of the control assets of tangible assets and the company's life is less than the error level of 0.05, and the coefficients of these variables are negative. Consequently, physical assets and business life have a significant and opposite influence on investment efficiency. This pattern is controlled by market value at book value, profit sharing, bankruptcy risk, financial leverage and loss, and other

elements. Studies have demonstrated that these factors do not significantly impact investment success since their t-statistic probability exceeds the 5% error level. Investment efficiency is not a significant aspect of the control variables listed in the statistical sample of research organizations.

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Conflict of interest

None.

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Ethics Statement

All Permissions to conducting this research has been approved.

Conclusion

This study's objective is to examine the impact of categorization change on investment efficiency about the function of information asymmetry. The findings revealed that a change in categorization significantly and negatively impacts investment efficiency. Conceptually, capital efficiency is accomplished when corporations only invest in initiatives with a positive net present value. By selecting qualified managers, owners anticipate profitable investments and returns. Nevertheless, from the perspective of neoclassical economics, delegates, although possessing economic logic, behave by their interests and have total control over the information about their activities and acts. Owners will be required to pay extra to gain access. In this regard, studies have demonstrated that the change in categorization, one of the criteria for earnings management by company managers, has resulted in a decline in investment efficiency among statistically selected enterprises. As a result of the decline in financial reporting quality, a change in categorization has resulted in a fall in investment efficiency. A comparison of the test findings of this theory with those of other research revealed as Seraina et al. (2021) showed in a study conducted in the United Kingdom that a change in categorization has resulted in a decline in investment efficiency. The results of this study section are congruent with those of Seraina et al. (2021).

On the other hand, it was discovered that the interaction between information asymmetry and categorization change had a significant and negative influence on investment efficiency based on the criteria for evaluating variables and the financial state of enterprises over the study period. Information asymmetry describes a circumstance in which one party to a transaction has more information than the other party. Because adequate information is one of the elements influencing decision making, if the information is provided asymmetrically amongst persons in a comparable transaction, it can result in a gain for one group and a loss for the other group. In this

context, the relationship between knowledge asymmetries and categorization changes has decreased investment efficiency. Information asymmetry is based on managers' interests, and applying earnings management by altering the categorization has increased investment efficiency via over- and under-investment. In research conducted in the United Kingdom, Seraina et al. (2021) determined that information asymmetry significantly negatively influenced the correlation between categorization change and investment efficiency. Therefore, the present study's findings were consistent with those of the researchers above.

According to the results, the members of the board of directors of corporations are obligated to do their utmost to raise the openness and quality of financial reporting and implement earnings management by altering the classification, as this would boost investment efficiency. In addition to limiting the decrease in managers' opportunistic conduct, independent auditors should improve the supervision of managers' actions. In addition, the results demonstrated that information asymmetry has a significant and adverse influence on the association between categorization change and investment efficiency. The function of board members and independent auditors as organizations supervising managers' operations is also evident in this respect. It is because the techniques of profits management, including the restriction of information liquidity and the modification of classification, can only be implemented by increasing the monitoring of managers' actions.

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