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The interaction effect of earnings persistence and financial statement comparability on earnings predictability and pricing efficiency of accruals

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Abstract

This study aims to examine the interaction effect of earnings persistence and the financial statement comparability on the earnings predictability and the pricing efficiency of accruals. Establishing a balance between the qualitative characteristics of information with earnings persistence and financial statement comparability is possible and leads to an increase in the overall quantity and quality of information of a company in the industry. For this purpose, 105 companies were selected from the companies listed on the Tehran Stock Exchange from 2012-2020. The multiple regression model using panel data has been used to test the research hypotheses. The findings show that earnings persistence has a positive and significant effect on the pricing efficiency of accruals. However, earnings persistence does not significantly affect earnings predictability. Moreover, the interaction term of earnings persistence and comparability has a positive effect on the pricing efficiency of accruals, but the interaction term of earnings persistence and comparability has no significant effect on the earnings predictability.

Keywords: financial statement comparability, pricing efficiency of accruals, earnings predictability, earnings persistence
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1 Introduction

The primary purpose of financial reporting is to provide information that helps investors evaluate the amount, timing, and risk of future cash flows. Although the information that is most useful in evaluating future cash flows is controversial, some analysts and investors argue that cash flows are the primary evaluation measure. For example, Copeland et al. [10] believed that although traditional accounting measures can be a useful tool for understanding and knowing the return of cash flows, these traditional measures cannot replace direct indicators such as cash flows. On the other hand, some accountants believe that earnings are the main source of information. For example, in the Statement of Financial Accounting Concepts No. 1 of the Financial Accounting Standard Board (FASB), it is stated

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that earnings information provides investors' interests better than cash flow information in predicting the future cash flows of a firm [5].

The information content of earnings and its components has been widely examined in accounting and financial literature. Since earnings play a fundamental role in most cases, including financial reporting and evaluation models, determining financial variables related to accounting earnings to predict is of great importance. There is always a possibility that the information provided by a company is not correct, so there are many risks associated with the company; one of them is information risk. That is, it is always possible that the information that the company wants to show in its financial statements may be something far from reality or deceptive. Therefore, the earnings presented in the income statement cannot indicate that the firm will have the continuous ability to obtain the number of earnings or how much of these earnings can be distributed as cash among the shareholders, because all shareholders want to be paid roughly a fixed amount of dividends each year.

Accounting comparability provides a rich set of information about companies, which helps the mentioned companies to make a better evaluation of the company's performance. Accounting comparability is an important feature of accounting information that allows buyers to better understand economic events, and managers use accounting information when evaluating their potential targets. Previous research also argued that accounting comparability reduces the cost of obtaining information and increases the quantity and quality of information needed for decision-making, which leads to better decisions and the efficiency of investment decisions [8]. Therefore, many potential and actual analysts and investors make their investment decisions according to the information and reports provided by the companies, and on the other hand, the value of the earnings predictions made by the managers compared to the current earnings and book value are more valuable, and the earnings predicted by the management are an important measure in the evaluation of companies and influence on the stock price of companies [20]. Therefore, the interaction effect of earnings persistence and financial statement comparability on earnings predictability and pricing efficiency of accruals is examined in this study.

2 Literature review

2.1 Theoretical review

The relevance of current earnings for predicting future earnings depends on earnings persistence. If investors manage to recognize the components of earnings persistence, they will probably predict future earnings well, and since the reported earnings are considered the most important source of information about the payment of the company's future earnings, therefore, by having these predictions, they may better estimate the number of their future cash earnings. Since accruals show adjustments of cash flow and its sum is zero during the lifetime of a company, high accruals in one period cause these items to be reversed in future periods, and considering that accounting earnings consist of two components, cash, and accruals, subsequently, with the reversal of accruals, future earnings will also decrease [35]. Jones [19] defined accruals as the difference between earnings and cash from operations. Sloan [31] found that investors overestimate the persistence of accruals and generally overprice the principles of comparability in the current period. Xie [34] also divided accruals into discretionary and non-discretionary accruals using the Jones model and showed that portfolios of companies arranged based on discretionary accruals earn more returns.

The expected return in profitability measures increases with accruals [3]. Accruals are adjustments that accountants apply to operating cash flow to better measure the current performance [11]. Sloan [31] proved a strong relationship between accruals and expected returns. This relationship, which is defined as abnormal accruals, is not explained by the three-factor model of Fama and French [13], the modified five-factor model and profitability factor of Novy-Marx [23], or the factor model of Hou et al. [18]. In addition, abnormal accruals are often more robust when evaluated by the Capital Asset Pricing Model (CAPM), which includes accrual-based profitability measures. Empirical research has shown that cash-based profitability is a measure of profitability that is independent of accrual adjustments, and it better explains the expected return than profitability and net revenue, which all include accruals. Cash flow-adjusted operating profitability performs better in describing expected returns [4]. Nowadays, companies with high accruals get lower future returns because these companies have less cash-based profitability. Accruals predict returns when it is included in the non-measure profitability asset pricing model because they are inversely related to the non-cash elements of profitability. Ball et al. [3] found that operating profitability better explains expected returns than other measures, such as gross profitability. The role of accruals accounting is to facilitate periodic measurement of firm performance [11]. For this purpose, accountants increase the company's revenue by the value of goods and services provided to customers during a period with equivalent cash. The revenue that increases during a period is generally different from the cash received during the same period because some cash receipts are received in future or previous periods. Accountants adjust these cash receipts by recording revenue accruals. Similarly, accountants calculate costs

as the price incurred in producing and delivering goods and services to customers based on the expected value of cash payments for resources used. Costs in accounting are separate from their payment timing. Accounting earnings are defined as accruals-based revenue minus accruals-based costs. Earnings indicate the accounting estimates of added value by the company to the products and services provided to customers during a period [4].

Financial statements are one of the important bases for making rational decisions, so users should evaluate their quality before using financial reporting in the decision-making process. Continuous improvement of the quality of financial reporting and information provided by professionals is one of the necessities of today's business world and professions [17]. Increasing comparability can significantly improve a company's information environment because it increases the overall quantity and quality of information about a company and other companies. Financial statements of other companies are an important source of information for managers because higher comparability makes it possible for managers to be more aware of the company's competitors, industry trends, and economic conditions, as well as their effect on the company.

One of the qualitative features of accounting information is financial statement comparability, which is defined as the application of the same accounting procedures for similar economic events. This qualitative feature, which accounting theorists have mentioned as the principle of output in financial accounting, requires that, in the preparation of financial information, the effect of transactions and similar events in a firm during different persistable periods be measured. Also, coordination of procedures should be observed between different companies in a certain period so that it is possible to identify the financial performance of a firm and compare the performance of different firms; therefore, financial statement comparability is a mechanism that, if applied and followed correctly, will increase the quality of information and provide investors with more benefits. On the other hand, applying different (similar) procedures for similar (different) economic events will cause illusory similarities and false differences in financial statements and make the actual comparison of financial information impossible [14].

Users of financial statements should be able to compare the financial statements of a firm over time to identify trends in changes in the financial position, financial performance, and financial flexibility of the firm. De Franco et al. [12] stated that companies with correlated economic events and similar accounting for these events will have correlated financial statements over time. If it is possible to compare the information of a firm with the information of other firms and the same information of the same firm over time, this information will be more useful [6]. Comparability increases the ability of investors to evaluate the relative performance of companies and, as a result, provides a set of available information and reduces the amount of private and confidential information. In other words, more comparability can lead to an increase in specific company information. Also, comparability reduces the cost of collecting and processing information and increases the quantity and quality of its comparison [14]. Based on this, the present study examines the effect of earnings persistence and financial statement comparability on earnings predictability and pricing efficiency of accruals during 2012-2020.

3 Methodology

Based on the theoretical framework and foundations of the research, the following hypotheses have been formulated for this study:

First hypothesis: earnings persistence has a positive and significant effect on the pricing efficiency of accruals.

$$ACC_{it} = \beta_0 + \beta_1 E_{it-1} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 MTB_{it} + \beta_5 Opcycle_{it} + \beta_6 Instit_{it} + \beta_7 Bign_{it} + \beta_8 \Delta Rev_{it} + \varepsilon_{it} \quad \text{(Model 1)}$$

ACC_{it}: Pricing efficiency of accruals; E_{it-1}: Earnings persistence; $Size_{it}$: Company size; ΔRev_{it}: Sales revenue changes; Lev_{it}: Financial Leverage; MTB_{it}: Growth opportunities; $Opcycle_{it}$: Operating cycle; $Instit_{it}$: Institutional ownership; $Bign_{it}$: Size of the audit institute; ε_{it}: Error term

Second hypothesis: earnings persistence has a positive and significant effect on earnings predictability.

$$NIBE_{it} = \beta_0 + \beta_1 E_{it-1} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 MTB_{it} + \beta_5 Opcycle_{it} + \beta_6 Instit_{it} + \beta_7 Bign_{it} + \beta_8 \Delta Rev_{it} + \varepsilon_{it} \quad \text{(Model 2)}$$

$NIBE_{it}$: Earnings predictability

Third hypothesis: earnings persistence and comparability have an interaction effect on the pricing efficiency of

accruals.

$$ACC_{it} = \beta_0 + \beta_1 AcctComp_{it} + \beta_2 E_{it-1} + beta_3 AcctComp_{it} * E_{it-1} + \beta_4 Size_{it} + \beta_5 Lev_{it} + \beta_6 MTB_{it} + \beta_7 Opcycle_{it} + \beta_8 Instit_{it} + \beta_9 Bign_{it} + \beta_{10} \Delta Rev_{it} + \varepsilon_{it} \quad \text{(Model 3)}$$

$AcctComp_{it}$: Comparability

Fourth hypothesis: earnings persistence and comparability have an interaction effect on the earnings predictability.

$$NIBE_{it} = \beta_0 + \beta_1 AcctComp_{it} + \beta_2 E_{it-1} + beta_3 AcctComp_{it} * E_{it-1} + \beta_4 Size_{it} + \beta_5 Lev_{it} + \beta_6 MTB_{it} + \beta_7 Opcycle_{it} + \beta_8 Instit_{it} + \beta_9 Bign_{it} + \beta_{10} \Delta Rev_{it} + \varepsilon_{it} \quad \text{(Model 4)}$$

3.1 Statistical population and sample size

This study is a descriptive-causal and post-event study. To test the hypotheses, a multivariate regression model was used. The statistical population consists of all companies listed on the Tehran Stock Exchange during 2012-2020. In this study, the systematic deletion sampling method was used to select the samples. In the systematic deletion sampling method, members of the statistical population are selected that match the specific measure(s) that the researcher has in mind. In this study, companies that have special conditions for samples have been selected. These conditions include companies whose financial period ends on March 19, were listed on the Tehran Stock Exchange before 2012, whose data is available during 2012-2020, are not part of the companies active in the field of financial activities, and whose stocks are traded at least every six months. Based on these measures, 105 companies have been selected as the final statistical sample.

3.2 Variables definition

3.2.1 Earnings persistence

According to the American FASB's emphasis on the usefulness of information, it is believed that the quality of earnings and the quality of financial reporting, in general, are of interest to those who use these reports for their trading purposes and decisions. Also, the compilers of the standards also indirectly consider the quality of earnings as an indicator to evaluate the quality of financial reporting standards [30]. In the present study, earnings persistence, which is itself a measure of earnings quality, is considered an indicator of financial reporting quality [9, 28]. Following Rostami [28], this study uses the following model to measure earnings persistence. Since the present study examines the past 8 years, the data of the last 16 six-month periods for each year-company is used.

$$E_{i,t+1} = \alpha + \beta E_{i,t} + e_{i,t} \quad \text{(Model 5)}$$

where, $E_{i,t+1}$ is the earnings before abnormal items in year $t+1$ and $E_{i,t}$ is the earnings before abnormal items in year t. All the variables of Model 5 are adjusted using the total assets of the previous period. The above model shows how much the earnings of the current period is persistable in the future period. This model is fitted using the data of the last 16 six-month periods for each year-company, and the coefficient of the independent variable, β, is considered as earnings persistence [9, 28]. The empirical measure for measuring the quality of financial reporting is earnings persistence. The more persistable the earnings is, it indicates the quality of financial reporting. If β is closer to one, earnings persistence higher and the quality of financial reporting is equal to one, and if β is closer to zero, earnings persistence is lower and the quality of financial reporting is considered to be zero.

3.2.2 Comparability of financial reporting

In this study, using previous studies, such as Sohn [32] to measure comparability, De Franco et al. [12] method has been used, which is known as the revenue-return model, as well as the cost-capital model, proposed by Zolghi et al. [36] is introduced to measure comparability and is used as additional tests. In De Franco et al. [12] method to measure comparability in each year, first, Model 6 is estimated for each year of company i using actual information of the last 16 six-month periods:

$$Earnings_{it} = \propto_i + \beta_i Return_{it} + e_{it} \quad \text{(Model 6)}$$

where, $Earnings_{it}$ is the company's six-month net earnings divided by the company's stock market value at the beginning of the period, $Return_{it}$ is the Six-month return of the company i, i is the company symbol, and t is the

year symbol. Using Model 6, parameters $\propto$ and β are calculated for each desired company i based on earnings and return information for the last 16 six-month periods. These parameters are an indicator for the accounting system of company i. The same process is implemented for other companies (j). In the following, according to the following relation, the earnings of the desired company i is calculated using $\propto$ and β estimated for company i in relation (3.3) and the actual return of company i. Then, according to relation (3.1), assuming that the stock return of all companies are equal, the earning of other companies in the industry (j) is calculated using the actual return of company i but the estimated $\propto$ and β of company j.

$$E(Earnings)_{iit} = \widehat{\propto_i} + \widehat{\beta_i} Return_{it} \tag{3.1}$$

$$E(Earnings)_{ijt} = \widehat{\propto_j} + \widehat{\beta_j} Return_{it} \tag{3.2}$$

where, $E(Earnings)_{iit}$ is the predicted earnings of the desired company i using $\propto$ and β and the return of company i in six months t and $E(Earnings)_{ijt}$ is the predicted earnings of company j using $\propto$ and β of company j but the return of the desired company i in six months t. Then the comparability ($AcctComp_{ijt}$) between two companies i and j is calculated as follows.

$$AcctComp_{ijt} = -\frac{1}{16} * \sum_{t-15}^{t} \left| E(Earnings_{iit}) - E(Earnings_{ijt}) \right|. \tag{3.3}$$

In relation (3.3), higher values for $AcctComp_{ijt}$ indicate more comparability between two companies (the numbers obtained because they are multiplied by the negative, so the largest number is the most positive. For example, the number -4 is more than -10 and includes more comparability). In a similar way, the *AcctComp* is calculated for each six-month period and each pair of companies i with companies j members of the same industry. The comparability is calculated for all pairs of the desired companies i and other companies (j) and they are sorted based on the obtained value. Then, the calculated average of the 4 largest numbers is defined as the specific comparability measure of company i [6]. In the present study, six-month reports of companies are used to measure comparability.

3.2.3 Pricing efficiency of accruals

One of the key information in the financial reporting process of companies is the accounting earnings, which are usually used as a measure to evaluate the performance of companies. Providing continuous and favourable information about the financial performance of firms has made the use of the accrual basis in financial reporting inevitable. Accruals are defined as the difference between accounting earnings and cash flows, and from the point of view of investors, the quality of accruals can be defined as the degree of closeness of the company's earnings to the cash flows created [6]. The pricing of accruals is a fundamental issue in accounting because when accruals do not convey a signal to the capital market about future performance and stock prices, the existence of information content in the earnings is questioned [1].

To measure the pricing efficiency of accruals, it is necessary to calculate discretionary accruals and non-discretionary accruals. Those accruals that are affected by the company's chosen procedures and policies are discretionary accruals, and the more discretionary the management has to manipulate accruals, the more it can be used to affect earnings [2]. Those accruals that are not under the control of management and are determined based on standards and guidelines are non-discretionary accruals. In the present study, following [1], to separate accruals into discretionary and non-discretionary components, the modified Jones Model 7 is used.

$$ACC_{it}/AT_{it-1} = \propto_1 + \propto_2 (1/AT_{it-1}) + \propto_3 ((\Delta SAL_{it} - \Delta AR_{it})/AT_{it-1}) + \propto_4 (\Delta PPE_{it}/AT_{it-1}) + e_{i,t} \quad \text{(Model 7)}$$

where, ACC (total accruals) is calculated from the difference between operating earnings and operating cash flow, AT_{it-1} is the sum total of assets at the beginning of the year, ΔSAL_{it} is the sales changes, ΔAR_{it} is the changes in accounts receivable, and ΔPPE_{it} is the gross asset, machinery and equipment. Model 7 is estimated cross-sectionally in each year. Since the sum of the first three terms of this relation represents non-discretionary accruals, its remaining component ($e_{i,t}$) represents discretionary accruals [1]. After separating the accruals into discretionary and non-discretionary components using the modified Jones model, to measure the pricing efficiency of the accruals following Hashemi and Matlabian Chalesh Tari [16], as well as Papanastasopoulos et al. [25] and Rahmani and Saeedi [26], is performed as follows. Also, considering that companies are required to publish their financial statements no later than four months after the end of the financial year, therefore, the return calculation period is a 12-month period from the fifth month of the current year (the month after the delivery and publishing of financial statements) to the fourth month of the following year. Accordingly, the adjusted returns are calculated based on the size of the following stages.

First, the sample companies are sorted from small to large based on the market value at the end of the fourth month after the financial year, i.e. the end of July 22. Market value is obtained by multiplying the number of stocks by the market price of each stock. Then, the monthly returns of each of the companies are also extracted through the Tadbir Pardaz and Rahvard Novin databases. Next, to form a portfolio, companies are categorized. To determine which portfolio each of the studied companies belongs to, the row of each portfolio should be calculated first. The portfolio row specifies the separation point of each portfolio from the next portfolio; therefore, there will be three separation points. The portfolio is calculated by relation (3.4).

$$C_{Qa} = \frac{an}{4} + \frac{1}{2}, \quad (a = 1, 2, 3) \tag{3.4}$$

where, n is the number of studied companies, Q is the separation point of each portfolio from the next portfolio and a is the period. Using relation (3.4) and the number of sample companies, the number of portfolios is obtained. After determining the portfolios and specifying the number and monthly returns of the companies in each portfolio, the geometric mean of the stock returns of each company in each portfolio is also calculated for a 12-month period through relation (3.5).

$$R_{G(i.t)} = \prod_{m=1}^{12} (1 + R_{i.m}) - 1 \tag{3.5}$$

where, $R_{i.m}$is the monthly stock return of company i in month m, $R_{G(i.t)}$ is the geometric mean of the company's stock returns for a 12-month period. Then the weighted monthly return of each portfolio is also calculated through relation (3.6).

$$R_{p.m} = \sum_{i=0}^{n} X_i R_{i.m} \tag{3.6}$$

where, $R_{p.m}$ is the weighted monthly portfolio return, X_i is the percentage of the market value of each company in each portfolio compared to the total market value of the companies in the same portfolio, and $R_{i.m}$ is the monthly return of each company's stock. After calculating the monthly weighted return of each portfolio, the geometric mean of the weighted return of each portfolio for a 12-month period is calculated through relation (3.7).

$$R_{G(p.t)} = \prod_{m=1}^{12} (1 + R_{p.m}) - 1 \tag{3.7}$$

where, $R_{p.m}$ is the size-weighted monthly return for each portfolio and $R_{G(p.t)}$ is the geometric mean of the weighted return of the portfolio for a 12-month period. Finally, in order to control the effect of size on the stock returns of each company, the adjusted return based on size is calculated through relation (3.8).

$$R_{i.t}^{Size-adj} = R_{G(i.t)} - R_{G(p.t)} \rightarrow SAR = \prod_{m=1}^{12} (1 + R_{i.m}) - \prod_{m=1}^{12} (1 + R_{p.m}) \tag{3.8}$$

where, $SAR$is the size-based adjusted return, $R_{G(i.t)}$ is the geometric mean of stock returns of company i for a 12-month period, $R_{G(p.t)}$ is the geometric mean of portfolio weighted return for a 12-month period, $R_{i.m}$ is the monthly stocks return of company i, and $R_{p.m}$ is the weighted monthly portfolio return.

3.2.4 Earnings predictability

Earnings predictability is the ability of earnings to predict future earnings [24]. In this study, following Kurdistani and Tayefeh [22], the earnings model has been used as follows.

$$NIBE_{j,t} = \alpha + \beta NIBE_{j,t-1} + e_{j,t} \tag{Model 8}$$

where, $NIBE_{j,t}$ is the earnings after normal items (operating and non-operating) of company j in year t, which is divided by the stock market value of the same company at the beginning of the period for standardization, and $NIBE_{j,t-1}$ is the earnings after normal items (operating and non-operating) of company j in year $t-1$, which is divided by the book value of assets of the same company at the beginning of the period for standardization

The coefficient of determination of the Model 8 which is fitted using data of the last 16 six-month periods for each year-company, indicates the earnings predictability [22]. According to the definition of the coefficient of determination and since the coefficient of determination is always between 0 and 1, the closer the coefficient of determination is to the 1, it means that the regression has been able to attribute the changes in the earnings of the current year to the changes in the earnings of the previous year, that is, the earnings predictability is higher.

3.3 Control variables

1. **Company size:** In the present study, the natural logarithm of the company's assets was used to calculate the company's size.
2. **Financial leverage:** This variable is calculated by dividing the total debts by the total assets of the company at the end of the financial year.
3. **Growth opportunities:** It is measured by dividing the market value of the company (the multiplying of the stock price at the end of the period by the number of stocks issued and in the hands of the shareholders) on the book value of the equity in that period [6].
4. **Operating cycle:** the period of buying and selling items and then collecting cash is called the operating cycle. According to Rezaei and Bafahme Mehrabani [27] and Tarkhani et al. [33], the Gong et al. [15] model is used. In this study, the operating cycle includes 2 activity ratios: 1- inventory turnover period, 2- debts collection period, and the operating cycle ratio is obtained from the sum of these two ratios. These activity ratios determine how effectively the company is using its resources. To calculate the operating cycle, the following method is used:

$$OPCYCLE = INVT + RECT \tag{3.9}$$

$INVT$: Inventory turnover period
$RECT$: debts collection period
5. **Institutional ownership:** Institutional ownership is equal to the percentage of stocks held by institutional shareholders of the total capital stock. To calculate the amount of institutional ownership, the total number of stocks held by banks and insurance companies, holding companies, investment companies, investment funds, state organizations and institutions and state companies is divided by the total issued stocks of the company and the percentage of institutional ownership [29].
6. **Size of the audit institute:** It is a virtual variable so that if the auditor of the company is an audit organization, it is equal to one and otherwise it is equal to zero.
7. **Sales revenue changes:** It shows the sales revenue changes which is obtained through the ratio of sales in the current year minus sales in the previous year to the sales of the year of sale [6].

4 Findings

4.1 Descriptive statistics of variables

The descriptive statistics of the research variables that were measured using the data of 105 active companies in the Tehran Stock Exchange during 2012-2020 (9 years) are as described in the following table.

Table 1: Descriptive statistics of research variables

Variables	Symbol	Mean	Maximum	Minimum	Standard deviation
Earnings persistence	E_{it-1}	0.517	0.981	0.384	0.114
Pricing efficiency of accruals	ACC_{it}	-0.007	0.083	-0.018	0.048
Earnings predictability	$NIBE_{it}$	0.482	0.839	0.219	0.276
Comparability	$AcctComp_{it}$	-0.245	0.092	-0.428	0.127
Company size	$Size_{it}$	17.076	29.418	12.741	2.768
Financial Leverage	Lev_{it}	0.412	0.619	0.122	0.256
Growth opportunities	MTB_{it}	1.662	3.617	0.183	0.129
Operating cycle of the company	$Opcycle_{it}$	0.381	0.953	0.213	0.126
Institutional ownership	$Instit_{it}$	0.487	0.782	0.395	0.162
Size of the audit institute	$Bign_{it}$	0.338	1	0	1.317
Sales revenue changes	ΔRev_{it}	0.439	0.762	-0.137	1.193

4.2 Hypotheses test

4.2.1 First hypothesis test

According to table 2, the significance level of the F-Limer statistic is less than the significance level of 5%, and therefore, the panel data method was used to test the first hypothesis. Also, according to the probability of Hausman's chi-square test, which is less than 5%, the data have fixed effects. The Wooldridge test was used to check the absence of autocorrelation. According to the results of the Wooldridge test, which indicates a significance level of less than 5%, and based on this, the null hypothesis, that is, the absence of correlation, is rejected, so the autocorrelation is evident

in the model. The variance inflation factor shows that there is no colinearity between the independent variables, and to check the results of the heteroskedasticity, the modified Wald test was used, the results of which indicate a significance level of less than 5%, so the null hypothesis, that is, equality of variance is rejected and to solve the problem of heteroskedasticity and autocorrelation of disturbance components, the generalized least squares method has been used to fit Model 1. The estimation results of the Model 1 shown in the table 2 indicate that Fisher's F-statistic (21.607), which indicates the significance of the research model, is significant at 5% level. The results related to the adjusted coefficient of determination show that 41% of the pricing efficiency of accruals is explained by the independent and control variables of the model.

The coefficient of earnings persistence is positive (0.047) and significant at the 5% level. This shows that earnings persistence has a positive and significant effect on the pricing efficiency of accruals. Also, company size, growth opportunities, sales revenue changes, and the size of the audit institute have positive and significant effects on the pricing efficiency of accruals. In contrast, financial leverage and institutional ownership have negative and significant effects on the pricing efficiency of accruals, but the operating cycle does not have a significant effect on the pricing efficiency of accruals. Considering the positive and significant effect of earnings persistence on the pricing efficiency of accruals, the first hypothesis is confirmed.

Table 2: Results of the first hypothesis test

Variables		**Coefficients**	**t-statistic**	**p-value**	**VIF**
Constant		0.102	1.152	0.97	-
Earnings persistence		0.047	3.05	0.028	1.71
Company size		0.048	3.01	0.025	1.43
Financial Leverage		-0.065	-2.68	0.036	1.58
Growth opportunities		0.062	2.71	0.033	1.48
Operating cycle		0.094	1.51	0.072	1.29
Institutional ownership		-0.042	-3.19	0.019	1.38
Size of audit institute		0.045	3.11	0.021	1.59
Sales revenue changes		0.039	3.28	0.015	1.73
R^2	Adjusted R^2		Wooldridge test		p-value
0.46	0.41		19.103		0.006
Fisher's F-statistic	p-value		χ^2 of Modified Wald test		p-value
21.607	0.0004		11.734		0.004
Test type	Test statistic value		Degrees of freedom		p-value
Chow test	3.316		(104, 936)		0.004
Hausman	18.517		3		0.008

4.2.2 Second hypothesis test

According to table 3, the probability value of the F-Limer statistic is less than the significance level of 5%, and therefore, the panel data method was used to test the second hypothesis. Moreover, according to the probability of Hausman's chi-square test, which is less than 5%, the data have random effects. The Wooldridge test was used to check the absence of autocorrelation. According to the results of the Wooldridge test, which indicates a significance level of less than 5%, and based on this, the null hypothesis, that is, the absence of correlation, is rejected, so the autocorrelation is evident in the model. The variance inflation factor shows that there is no colinearity between the independent variables, and to check the results of the heteroskedasticity test, the modified Wald test was used, the results of which indicate a significance level of less than 5%, so the null hypothesis, that is, equality of variance is rejected and to solve the problem of heteroskedasticity and autocorrelation of disturbance components, the generalized least squares method has been used to fit Model 2. The estimation results of Model 2 shown in the table 3 indicate that Fisher's F-statistic (20.158), which indicates the significance of the research model, is significant at a 5% level. The results related to the adjusted coefficient of determination show that 23% of the pricing efficiency of accruals is explained by the independent and control variables of the research.

The coefficient of earnings persistence is positive (0.075) with a probability level (0.054), which is more than 5%. This shows that earnings persistence has no significant effect on earnings predictability. Moreover, the sales revenue changes and the size of the audit institute have positive and significant effects on earnings predictability. In contrast, financial leverage has a negative and significant effect on earnings predictability, but operating cycle, company size and institutional ownership do not have significant effects on earnings predictability. Considering the non-significance

of the effect of earnings persistence on earnings predictability, the second hypothesis is not confirmed.

Table 3: Results of the fifth hypothesis test

Variables	**Coefficients**	**t-statistic**	**p-value**	**VIF**
Constant	0.119	1.11	0.095	-
Earnings persistence	0.075	1.64	0.054	1.57
Company size	0.105	1.31	0.086	1.52
Financial Leverage	-0.50	-3.03	0.025	1.48
Growth opportunities	0.064	2.75	0.041	1.63
Operating cycle	0.117	1.08	0.092	1.72
Institutional ownership	-0.085	-1.41	0.064	1.37
Size of audit institute	0.042	3.17	0.018	1.43
Sales revenue changes	0.056	2.94	0.031	1.82

R^2	Adjusted R^2	Wooldridge test	p-value
0.24	0.23	19.256	0.007
Fisher's F-statistic	p-value	χ^2 of Modified Wald test	p-value
20.158	0.0003	12.108	0.005
Test type	Test statistic value	Degrees of freedom	p-value
Chow test	3.026	(936, 10)	0.008
Hausman	21.067	3	0.102

4.2.3 Third hypothesis test

According to table 4, the probability value of the F-Limer statistic is more than the significance level of 5%, and therefore, the pooled data method was used to test the third hypothesis. The Wooldridge test was used to check the absence of autocorrelation. According to the results of the Wooldridge test, which indicates a significance level of less than 5%, and based on this, the null hypothesis, that is, the absence of correlation, is rejected, so the autocorrelation is evident in the model. The variance inflation factor shows that there is no colinearity between the independent variables, and to check the results of the heteroskedasticity, the modified Wald test was used, the results of which indicate a significance level of less than 5%, so the null hypothesis, that is, equality of variance is rejected and to solve the problem of heteroskedasticity and autocorrelation of disturbance components, the generalized least squares method has been used to fit Model 3. The estimation results of Model 3 shown in the table 4 indicate that Fisher's F-statistic (20.862), which indicates the significance of the research model, is significant at a 5% level. The results related to the adjusted coefficient of determination show that 53% of the pricing efficiency of accruals is explained by the independent and control variables of the research. The coefficient of comparability of financial reporting (0.045) has a significance level (0.018) which is less than 5%. This shows that the comparability of financial reporting has a positive and significant effect on the pricing efficiency of accruals. The coefficient of earnings persistence is positive (0.047) with a significance level (0.028), which is less than 5%. This shows that earnings persistence has a positive and significant effect on the pricing efficiency of accruals.

The coefficient of the interaction term (Comparability $*$ Earnings persistence), equals 0.041 and has a significance level (0.019) that is less than 5%. This shows that the interaction of earnings persistence and the comparability of financial reporting has a positive and significant effect on the pricing efficiency of accruals. Moreover, company size, growth opportunities, sales revenue changes and size of the audit institute have positive and significant effects on the pricing efficiency of accruals. In contrast, financial leverage and institutional ownership have negative and significant effects on the pricing efficiency of accruals, but the operating cycle does not have a significant effect on the pricing efficiency of accruals. Considering the positive and significant effect of earnings persistence as a mediating role on the relationship between comparability and pricing efficiency of accruals, the third hypothesis is confirmed.

4.2.4 Fourth hypothesis test

According to Table 5, the probability value of the F-Limer statistic is more than the significance level of 5%, and therefore, the pooled data method was used to test the fourth hypothesis. The Wooldridge test was used to check the absence of autocorrelation. According to the results of the Wooldridge test, which indicates a significance level of less than 5%, the null hypothesis of no autocorrelation is rejected, so the autocorrelation is evident in Model 4. The variance inflation factor shows that there is no colinearity between the independent variables, and to check the results of the heteroskedasticity, the modified Wald test was used. The results indicate a significance level of less than

Table 4: Results of the third hypothesis test

Variables	**Coefficients**	**t-statistic**	**p-value**	**VIF**
Constant	0.085	1.59	0.063	-
Comparability	0.045	3.14	0.018	1.58
Earnings persistence	0.047	3.05	0.028	1.71
Comparability × Earnings persistence	0.041	3.23	0.019	1.73
Company size	0.043	3.17	0.017	1.61
Financial Leverage	-0.068	-2.54	0.037	1.25
Growth opportunities	0.066	2.57	0.036	1.39
Operating cycle	0.089	1.67	0.066	1.16
Institutional ownership	-0.055	-2.82	0.031	1.75
Size of audit institute	0.041	3.22	0.017	1.52
Sales revenue changes	0.038	3.36	0.012	1.88

R^2	Adjusted R^2	Wooldridge test	p-value
0.55	0.53	20.415	0.009
Fisher's F-statistic	p-value	χ^2 of Modified Wald test	p-value
20.862	0.0003	12.397	0.007
Test type	Test statistic value	Degrees of freedom	p-value
Chow test	4.817	(936, 104)	0.0823

5%, so the null hypothesis, that is, equality of variance, is rejected, and to solve the problem of heteroskedasticity and autocorrelation of disturbance components, the generalized least squares method has been used to fit Model 4. The estimation results of Model 4 shown in the table 5 indicate that Fisher's F-statistic (21.008), which indicates the significance of the research model, is significant at a 5% level. The results related to the adjusted coefficient of determination show that 18% of the pricing efficiency of accruals is explained by the independent and control variables of the research. The coefficient of comparability of financial reporting (0.078) has a significance level (0.056) which is more than 5%. This shows that the comparability of financial reporting does not have a positive and significant effect on earnings predictability. The coefficient of the earnings persistence variable (0.075) has a significance level (0.054), which is more than 5%. This shows that earnings persistence has no significant effect on earnings predictability.

The coefficient of the interaction term (Comparability * Earnings persistence) equals 0.077 and has a significance level (0.055) that is more than 5%. This shows that the interaction term of earnings persistence and the comparability of financial reporting does not have a significant effect on earnings predictability. Also, the sales revenue changes and the size of the audit institute have a positive and significant effect on earnings predictability. Moreover, financial leverage has a negative and significant effect on earnings predictability, but the operating cycle, company size and institutional ownership do not have significant effects on earnings predictability. Considering the non-significant effect of the interaction term of earnings persistence and comparability of financial reporting on earnings predictability, the fourth hypothesis is not confirmed.

5 Conclusion

The financial statement comparability can significantly improve the company's information environment and increase the overall quantity and quality of information about a company and its peers. Financial reports are more comparable, better benchmarked against each other, provide better information, and are better processed. Previous research shows that financial statements of partner companies are an important source of information for managers; therefore, higher financial statement comparability can make managers more aware of the company's competitors, industry trends, economic conditions, and their effect on the company. This advanced knowledge facilitates managers' abilities to evaluate company performance and predict future events.

The comparability feature will expand the information available to managers, making it easier to generate information and reduce uncertainty in judgment. Instead, managers need to know more about the company, its industry and peers, and its overall environment. This should be in a better position to evaluate the company's relative performance and understand and predict economic events and their effect on the company. Managers with more understanding and knowledge of their company's environment are expected to be able to report higher-quality accruals. There is an expectation of comparability that enables managers to make reliable future estimates and predict future company performance with discretionary accruals. The results of this study are in line with the results of Kim et al. [21], Chen and Gong [9], and Boubakri [7].

Table 5: Results of the fourth hypothesis test

Variables	**Coefficients**	**t-statistic**	**p-value**	**VIF**
Constant	0.066	2.59	0.043	-
Comparability	0.078	1.77	0.056	1.66
Earnings persistence	0.075	1.64	0.054	1.57
Comparability × Earnings persistence	0.077	1.67	0.055	1.75
Company size	0.105	1.31	0.086	1.52
Financial Leverage	-0.50	-3.03	0.025	1.48
Growth opportunities	0.064	2.75	0.041	1.63
Operating cycle	0.117	1.08	0.092	1.72
Institutional ownership	-0.085	-1.41	0.064	1.37
Size of audit institute	0.042	3.17	0.018	1.43
Sales revenue changes	0.056	2.94	0.031	1.82

R^2	Adjusted R^2	Wooldridge test	p-value
0.20	0.18	19.103	0.005
Fisher's F-statistic	p-value	χ^2 of Modified Wald test	p-value
21.008	0.0004	11.815	0.003
Test type	Test statistic value	Degrees of freedom	p-value
Chow test	4.415	(934, 104)	0.0763

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