



The Effect of Accounting Comparability and Consistency on the pricing efficiency of discretionary accruals

Iraj Torabi

Phd Student, Department of Accounting, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

Mohsen Dastgir

Professor, Department of Accounting, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
Corresponding

Gholamhosein Kiani

C Assistant Professor, Department of Economy, Isfahan University, Isfahan, Iran

Submit: 26/04/2022 Accept 27/07/2022

ABSTRACT

Managers can communicate accounting information to the capital market through discretionary accruals. Increasing the comparability and consistency of accounting allows managers to estimate discretionary accruals more accurately, and this can lead to pricing efficiency in the capital market. The purpose of this study is to investigate the effect of comparability and consistency on the pricing of discretionary accruals. The statistical population of the study includes all companies listed on the Tehran Stock Exchange. In order to achieve the objectives of the research, 107 companies were selected from the companies listed on the Tehran Stock Exchange from 2009 to 2020 as the statistical sample. Accounting consistency has been measured by employing the text mining and vector space model. In order to analyze the data and test the hypotheses, the Mishkin simultaneous equations model was used. The results show that when prior-period comparability (or consistency) is higher, current period discretionary accruals are less positively correlated with contemporaneous returns and less negatively correlated with future returns, consistent with our prediction that comparability (or consistency) improves the pricing efficiency of accruals.

Keywords:

Comparability, Consistency, Pricing of discretionary accruals, Mishkin test

1. Introduction

Earning is a crucial accounting information and a criterion for measuring the financial performance of companies. On the other hand, accrual accounting has caused investors and financial analysts pay attention to earning amounts and its quality to determine the value of the company. Accounting earning consists of accruals and cash flows and is considered as the most important information items presented in the financial statements. One of the issues that has attracted the attention of researchers and organizations drafting accounting rules and regulations in recent decades is the role of accruals in giving signals to the capital market in terms of company performance. This role is in contrast to the negative role of opportunistic earnings management has a positive effect on the capital market (AliAhmadi & Fadaei, 2015). Accrual earnings is far more important in assessing company performance than cash earnings and is a good measure of company performance because it can reduce scheduling and non-conformity issues in cash flow measurements (Dechow, 1994; Dechow & Sloan, 1996). However, due to flexibility in accounting standards, accrual accounting is influenced by the discretion of managers. The discretion of managers can increase earning awareness to increase the interests of shareholders through the disclosure of confidential information (Robin & Wu 2015; Subramanyam 1996; Watts & Zimmerman, 1986). Also, taking into account agency theory and conflict of interest between owner and manager, it is possible that managers use the flexibility of accounting standards to achieve greater personal benefits (Siregar & Utama, 2008; Adut, Holder, & Robin, 2013). One of the main purposes of financial reporting is to provide the information needed by investors to help them evaluate future performance. The value of information lies in its quality. Information having qualitative characteristics such as comparability, consistency of procedure, and the like is useful and valuable for decision making. regulators believe that comparability increases the usefulness of accounting information and enables users of financial statements to identify similarities and differences between economic phenomena (Financial Accounting Standards Board, 2010). Some studies, such as Sloan (1996) and Xie (2001), have shown that greater comparability improves the ability of users of financial statements to process and understand accounting information, resulting in reduction in

overpricing of accruals. Chen & Gong (2019) showed that comparability improves the accuracy of published information in managers' predictions, and as the information environment improves, information asymmetry in the stock market is reduced. Comparability also helps investors to better process accruals, resulting in improved accrual pricing.

The main focus of research so far has been on the benefits of comparability for users of financial statements such as financial analysts and creditors (Foroughi & Ghasemzad, 2016; Marfou & Mehrvarz, 2017; Torabi, Dastgir, & Kiani, 2020). Few studies have examined the concept of comparability for managers as an important part of the process of production and distribution of information (Hajiha & Chenari Bouket, 2017; Kia & Safari Grayli, 2018).

On the other hand, the concept of comparability has not been fully explored for investors. This issue and the lack of sufficient research about it were a motive to study the effect of comparability on the pricing of accruals to better understand investors' implications of the consequences of corporate accruals.

The present research will show empirically to investors, managers, capital market regulators, accounting standards' formulators, and other capital market users to what extent the comparability of financial statements can affect the pricing of accruals.

The results can increase the richness of the literature on pricing of discretionary accruals, highlight the role of comparability for users, especially managers and investors in the capital market, and developers of accounting standards can pay close attention to this important qualitative feature of financial information, i.e. comparability, using the results in developing new standards or revising previous standards.

In the following, theoretical framework, research background, research method, analysis of findings, conclusions, and suggestions for future research are presented.

2. Theoretical Framework

Accrual accounting system inevitably accepts accruals as a complementary part of cash flows in calculating accounting earning. If accruals fail to signal the future performance of the company to the market or cannot make a significant relation to the stock price, this could lead to serious criticism on the value relevance

of earnings and accounting data (AliAhmadi & Fadaei, 2015).

Previous studies such as Ball & Brown (1968), Dechow (1994), and Subramanyam (1996) have shown a relationship between accounting profit and stock price, and accounting profit has a stronger relationship with stock price compared to cash flows. Thus, capital market activists value the accrual component of profits (Matonti, Tommasetti, & Tucker, 2014). Subramanyam believes that the pricing of accruals is the result of a market pricing mechanism and the nature of discretionary accruals. Hence, the pricing of accruals can be examined by proposing two competing perspectives. The first perspective assumes that the capital market is efficient and that value is considered for discretionary accruals because managers can use their authority to increase the economic value of the company by improving the information content of the profit. According to this view, managers may improve the value relevance of earnings through incomes smoothing or transfer on Private information about future profitability that is not provided in historical cost accounting. In the accounting literature, the first view is known as efficient earnings management (Jiraporn, Miller, Yoon, & Kim, 2008). In this view, earnings management is considered as a useful phenomenon for external users of accounting information. The main consequence of this view is that the transfer of private information to the capital market reduces the problem of agency and information asymmetry (Louis & Robinson, 2005). In the second view, the discretionary accrual component of earnings is distorted and manipulated due to opportunistic earnings management. In other words, opportunistic earnings management means that management reports earnings in an opportunistic manner to maximize its utility (Karimi & Rahnama Rudposhti, 2015). So, mispricing of accruals is caused by behavioral stability on accounting profits (Siregar & Utama, 2008).

The main reason for the importance of comparability is to achieve the goal of financial reporting. The purpose is to provide financial information about the business entity that is useful to actual and potential investors and creditors in deciding on the financing of the business unit. Accounting standardizer bodies have also placed great emphasis on the comparability of financial statements. As the Board of Accounting Principles (1970: 47) has emphasized

that "comparability is one of the most important goals of financial accounting...". The Financial Accounting Standards Board (41:1980) stated in Concept Statement 2 that "the decisions of investors and creditors cannot be made rationally if comparable information is not available". In the theoretical concepts of Iranian financial reporting (2011), it is also stated that if the information is relevant and reliable, its usefulness will be limited if it is not comparable and incomprehensible (Mehrvarz & Marfou, 2016; 85).

Investors may be able to use this information for better profit pricing if more accurate information is provided to investors. Perotti & Wagenhofer (2014) showed that it cannot systematically reduce overpricing or underpricing although higher quality financial reporting may reduce mispricing.

Comparability is positively correlated to the stability of discretionary accruals. This result is consistent with the view that when financial information comparability is higher, managers can better report accruals that are more closely related to the firm's core activities.

Sohn (2016) believes that the feature of comparability of accounting information is an effective regulatory tool to control and limit accrued earnings management. There are several reasons to support this view in the accounting literature. First, the comparability of accounting information reduces the cost of collecting and processing information for investors, financial analysts, and legal entities and enables them to better identify the manipulation of accounting figures and accruals of the company by managers through comparing a company's financial information with other similar companies. Second, it increases the comparability of accounting information, analysts' coverage, and their forecasting accuracy and reduces managers' discretion in using accruals (Gong, Li, & Zhou, 2013; Engelberg, Ozoguz, & Wang, 2016). Consistency of procedures means that the same accounting methods should be used over time to accurately measure performance. The greater the consistency of the procedure in companies of an industry, the greater the comparability of accounting information and the less the space for managers to manipulate earnings by changing accounting methods (Peterson, Schmardebeck, & Wilks, 2015). Previous research (Sloan, 1996; Xie, 2001) shows that the market tends to overestimate the stability of

discretionary accruals, which leads to overpricing these accruals in the current period and returns' reversal in later periods. Cash flows and nondiscretionary accruals are relatively objective, while discretionary accruals may be subjective and require accounting judgment (Lewis, 2012).

Xie (2001) makes a greater distinction between discretionary and nondiscretionary accruals, stating that investors tend to misprice discretionary accruals. This may be due to users' poor recognition of the correct type of accruals or their weakness in recognizing the difference in persistence between earnings components. In fact, investors may have trouble assessing the quality of profits or making appropriate adjustments.

Chen and Gong (2019) showed that discretionary accruals have less positive correlation with current period returns and less negative correlation with future returns in firms with more comparability, i.e. comparability improves pricing efficiency of discretionary accruals. They believe that greater comparability improves the quality of accruals, and investors place less weight on discretionary accruals by increasing the comparability of financial information. Conversely, investors place more weight on companies' discretionary accruals when comparability is low, even if they are less likely to be consistent.

From the point of view of agency theory, the comparability of financial statements affects the pricing efficiency of accruals. Agency theory states that opportunistic managers use their authority to pursue self-interest. In contrast, comparability financial statements enable the identification of similarities and differences of different companies for users and facilitate the evaluation of managers' performance and their monitoring for investors through improving the quality of financial information and information environment. Therefore, it is expected that by increasing the comparability of financial statements, managers' opportunism is limited and their authority to manipulate earnings and accruals figures is reduced, leading to improved pricing efficiency (Habib, Hasan, & Al-Hadi, 2017).

According to signaling theory, accruals represent a sign of the company's future performance. Therefore, changes in accruals are of particular importance to investors. More comparability improves the quality of accruals and reduces information asymmetry and

increases the quality of financial reporting. As comparability increases, positive news and information about the future performance of the company is transmitted to the market and investors' understanding of the concept of accruals, which is a sign of confidential and private information of the company, increases. Thus, the comparability of financial statements may reduce the overpricing of accruals and increase pricing efficiency (Ball, 2013; Chen & Gong 2019).

Comparability affects pricing efficiency of accruals through two channels. First, when more comparability is available, investors are provided with information with higher quantity and quality. For example, analysts' and management' forecasts may provide better quality information for better pricing of accruals at the disposal of investors. De Franco et al. (2011) showed that greater comparability is associated with more analysts' coverage, more accurate analysts' predictions, and less dissipation of their predictions. Comparability helps managers have more accurate expectations of a company's future performance. Also, higher levels of comparability can improve the accuracy of information published in earnings' forecasts (Kim, Kraft, & Ryan, 2013). Secondly, comparability improves the ability of investors to process accounting information. Information with more comparability provides better benchmarks for users and enables them to get a clearer picture of the similarities and differences between companies so that it becomes easier for them to understand economic events and predict how economic events will become accounting reports (Kim et al., 2013; Gong et al., 2013; Chen & Gong, 2019).

3. Research background

Du et al. (2020) carried out a study entitled "Does Cash-Based Operating Profit Explain the Anomaly of Accruals?" in the US and China markets from 1999 to 2018. The results indicated that operating profit on a cash basis may predict the return on accruals and operating profit in the US market. Also, in the Chinese market, operating profit and cash-based profit can both predict returns, but operating profit includes cash-based profit. Chen and Gong (2019) conducted a study entitled "Comparable Impact of Accounting on the Quality of Financial Reporting and Pricing of Accruals" from 1988 to 2017 in the United States. The results showed that the comparability improved the

company's information environment and had a positive and significant effect on the quality of financial reporting. Also, by increasing the comparability, the ability of users of financial statements to understand and process accounting information is improved; as a result, the overpricing of accruals is reduced.

Robert et al. (2018) examined the effect of comparability of financial statements on the relevance of accounting information, reporting a positive relationship between comparability and current earnings response coefficient (information relevance), and when the number of specialized investors is high and information asymmetry is low, the relationship between comparability and current earnings response coefficient gets stronger.

Choi et al. (2017) examined the effect of comparability of financial statements on stock price awareness through future earnings response coefficient. The results indicated that the comparability of financial statements increased stock price awareness, and it allows investors to better predict the future performance of the company. Artikis and Papanastopoulos (2016) conducted a study entitled "Assessing the Persistence, Pricing, and Importance of Cash Profit Components" on the UK Stock Exchange, showing that the cash profit component has more persistence than accruals, which can be attributed to the cash paid to shareholders. Also, the results of pricing models support the hypothesis of uninformed investors and show that future stock returns have the highest positive correlation with the most persistent sub-component of cash earning.

Peterson et al. (2015) in a study entitled "Earnings Quality and Information Processing Effects of Accounting Practice Consistency" examined the effect of cross-sectional process consistency and also the persistence of procedures over different years on earnings quality, information asymmetry, predictive accuracy of earnings by analysts, and synchronicity of stock returns. Their results showed that consistency has a significant effect on earnings quality indicators such as earnings persistence, earnings predictability, smoothing of earnings and discretionary accruals. Also, their findings confirm that accounting consistency has a negative effect on information asymmetry but has a positive effect on the earnings prediction accuracy of analysts and the concurrence of company stock returns.

Mehrabanpour et al. (2016) conducted a study entitled "The Mediating Role of Financial Reporting Quality regarding the Relationship between Comparability of Financial Statements and Cash Holdings" in the Tehran Stock Exchange from 2011 to 2016. The results showed the comparability financial statements dramatically reduce corporate cash holdings. Also, the quality of financial reporting does not mediate the relationship between the comparability of financial statements and the cash holdings.

Hashemi Dehchi et al. (2015) studied the effect of comparability of financial statements on the relevance of accounting information with emphasis on the role of specialized investors and information asymmetry in the Tehran Stock Exchange from 2009 to 2017. The findings indicates that when there are more specialized investors and less private information, the comparability of financial statements improves the ability of users to identify similarities and differences between economic phenomena. As a result, investors choose the best investment option that allows them to allocate resources optimally.

Farzin and Veisi Hesar (2017) assessed the persistence and pricing of earnings, accruals, and operating cash flow and showed that operating earnings is persistent, and future earnings can be predicted based on current earnings trends. On the other hand, the persistence of the cash component of earnings is higher than the accrual component, but investors are more likely to rely on the accrual component of earnings from a market perspective.

Zafari et al. (2017) investigated the effect of comparability and accounting consistency on earnings quality in the Tehran Stock Exchange from 2012 to 2018. The results showed that accounting comparability has a positive effect on earnings quality. Also, as the firm's consistency increases, the quality of the company's earnings increases.

Foroughi et al. (2017) examined the persistence of earnings and its components at the industry and company level in the Tehran Stock Exchange from 2005 to 2015 and indicated that the persistence of industry-specific earnings is higher than the company's specific earnings, and the most persistent component among other components is the industry-specific cash component, and the most non-persistent component is the company-specific earnings accrual component. Also, the lack of understanding of different persistence

of earning components by investors is another result of this research.

Rahimi Dastjerdi et al. (2016) explored the pricing of ordinary and unordinary accruals cash accrued components of earning in the Tehran Stock Exchange from 2002 to 2004 and showed that the market overestimates ordinary and unordinary positive cash changes and as a result overprices. However, it underestimates unordinary cash changes compared to ordinary cash changes; therefore, it does not overprice. Unordinary accruals are overpriced compared to ordinary accruals and unordinary positive cash changes.

AliAhmadi and Fadaei (2015) conducted assessed the role of information environment and corporate growth on the pricing of accruals in the Tehran Stock Exchange from 2006 to 2013. They showed that discretionary accruals have a positive and significant effect on the value of the stock market. Also, in companies with a strong information environment and high growth, discretionary accruals have a greater impact on stock market value.

Dastgir et al. (2014) studied the persistence of the cash component of earnings in relation to the accrual component of earnings and the role of company characteristics on the anomaly of accruals in the basic metals industry in the Tehran Stock Exchange from 2001 to 2011. The results indicated that the persistence of the cash component of earnings is higher than the accrual component of earnings, and the cash component has a greater ability to forecast the market. The results indicated the existence of anomalies in accruals in the basic metals industry, which were eliminated by considering the characteristics of the company.

4. Research hypotheses

According to the theoretical foundations presented in the theoretical framework and research background, the research hypotheses are as follows:

Hypothesis 1: Accounting comparability is positively associated with the pricing efficiency of discretionary accruals.

Hypothesis 2: Consistency is positively associated with the pricing efficiency of discretionary accruals.

5. Research Methodology

An applied research was conducted because its results could be used directly by different people. In terms of cognitive method, a descriptive correlation study was carried out. In terms of the nature of the data collection, the research was quantitative, which quantitatively analyzes data; in terms of time dimension, it is also a retrospective study, and in terms of time duration, it is a composite research (cross-sectional-time-series). In terms of methods and techniques of data collection, it is archival, and according to the research design, it is quasi-experimental using a post-event approach (through past information). In this research, data related to the theoretical foundations and literature were collected from library sources, scientific databases, and foreign and domestic articles. To collect research data, the reports and financial statements in websites affiliated with the Tehran Stock Exchange, comprehensive information systems of publishers (Codal and Fip Iran), and the RahAvard Novin 3 software were used. After extracting the data, the variables were calculated in Excel software, and to test the hypotheses, the file of variables was transferred to Stata 14. Also, to measure consistency, the attached notes of the financial statements of the sample companies were converted from PDF to Word using a text-based robot and manually typed; finally the Word files were transferred to NetBiz software version 8.2. To test the research hypotheses, nonlinear regression analysis in the form of systems of simultaneous equations and Mishkin (1983) test were used.

5.1. Statistical population and samples

The statistical population includes all companies listed on the Tehran Stock Exchange from 2010 to 2019, whose shares are listed on the stock exchange. To complete the data related to each year, it was necessary to collect data from the previous and subsequent years; therefore, the data related to the years 2009 and 2020 were also collected. Systematic removal method was used to select the samples; applying the following conditions, 107 companies were considered as the statistical sample:

- 1) All data required for the research should be available for the companies under survey;
- 2) The financial year of the company should end in March;

- 3) The financial year should not change in the time frame of the research;
- 4) It should not belong to investment companies, financial intermediaries, banks, and leasing companies;
- 5) To measure comparability, the number of companies in each industry should be at least four companies.

5.2. Research variables

The variables include dependent, independent, and control variables.

5.2.1. Dependent variables

The dependent variables include two variables, return on assets (ROA) and adjusted rate of return based on size (SAR). The ROA was calculated by dividing each company's operating profit by the book value of that company's assets at the beginning of the year. Equation (1) was used to measure the adjusted rate of return based on size:

$$R_{i,t}^{size-adj} = R_{G(i,t)} - R_{G(p,t)} \Rightarrow SAR$$

$$= \prod_{m=1}^{12} (1 + R_{i,m}) - \prod_{m=1}^{12} (1 + R_{p,m})$$

$R_{G(i,t)}$ = Geometric average return on stock of Company i for a period of 12 months.

$R_{G(p,t)}$ = Geometric mean of weighted return of portfolio over a 12-month period.

$R_{i,m}$ = Company i return in month m.

$R_{p,m}$ = Size-weighted monthly return for each portfolio.

First, the sample companies are categorized from small to large in order of market value at the end of the fourth month after the financial year (July). Then, companies are categorized to form a portfolio. After this stage, the monthly returns of each company are also extracted for a period of 12 months from month 5 after the fiscal year to the 4 months of the following year. After determining the number and monthly returns of companies in each portfolio, the geometric average return of shares of each company in each portfolio for a period of 12 months is calculated through Equation (2):

$$R_{G(i,t)} = \prod_{m=1}^{12} (1 + R_{i,m}) - 1 \tag{2}$$

Then the weighted monthly return of each portfolio is calculated through Equation (3):

$$R_{p,m} = \sum_{i=1}^n X_i R_{i,m} \tag{3}$$

" X_i = Percentage of market value of each company in each portfolio compared to the total market value of companies in that portfolio

After calculating the weighted monthly return per portfolio, the geometric mean weighted return per portfolio for a 12-month period is calculated from Equation (4):

$$R_{G(p,t)} = \prod_{m=1}^{12} (1 + R_{p,m}) - 1 \tag{4}$$

5.2.2. Independent variables

The independent variables include comparability and consistency, each of which is examined:

A) Accounting Comparability (AccComp) : To measure comparability, following the research of Su et al. (2017), the De Franco et al. (2011) index adjusted by Cascino and Gassen (2015) was used. This model examines the correlation between the net earnings and return of a couple company in a particular industry. Net earnings is considered as a measure of accounting figures, and return is considered as a measure of economic events. In this model, two companies are considered similar when they have submitted similar financial statements for a set of identical economic events. To measure comparability between Companies i and j, first for each company-year, regression model (5) is estimated as follows using time series data for the last nine-year period leading up to the end of year t:

$$Earnings_{it} = \alpha_i + \beta_i Return_{it} + \varepsilon_{it} \tag{5}$$

where:

$Earnings_{it}$: Company i's net earnings in year t divided by stock market value at the beginning of the year.

$Return_{it}$: Stock return of Company i in year t.

In relation (5), coefficients β_i and α_i show how economic events are reflected in the net earnings of company i, assuming the same economic events (returns), to measure the similarity in the performance of accounting systems of Companies i and j in reflecting economic events. The net earnings of each

company is estimated once using the estimated coefficients of the same company and again using the estimated coefficients of other companies in that industry in the form of relations (6) and (7):

$$E(\text{Earnings})_{ii,t} = \hat{\alpha}_i + \hat{\beta}_i \text{Return}_{i,t} \quad (6)$$

$$E(\text{Earnings})_{ij,t} = \hat{\alpha}_j + \hat{\beta}_j \text{Return}_{i,t} \quad (7)$$

In these relations; $E(\text{Earnings})_{ii,t}$ is the forecasted earning of Company i using function i, and return of company i at time t and $E(\text{Earnings})_{ij,t}$ is the forecasted earning of Company i using function j and the return of company i at time t. Accounting comparability between Company i and Company j ($AccCOMP_{ij}$) is calculated negatively as the absolute mean value of the difference between the forecasted earnings using the accounting functions of Company i and Company j based on Equation (8):

$$AccComp_{i,j,t} = \frac{-1}{10} \sum_{t=9}^t it \left| \begin{matrix} E(\text{Earnings})_{ii,t} \\ -E(\text{Earnings})_{ij,t} \end{matrix} \right| \quad (8)$$

Larger values of this index indicate higher comparability between company i and company j. The average of all $AccCOMP_{ij}$ combinations is considered as an accounting comparability index at the level of each company. Then, the comparability index for all companies is decimated in each year. The four deciles that have the least comparability are assigned one and other deciles are assigned zero.

B) Consistency: to measure consistency following the research of Brown and Tucker (2011), Peterson et al. (2015), and Hoberg and Phillips (2015), the standard approach extracted from natural language processing and information science literature, called the criterion of degree of similarity of text (document), is used. Geometrically, this criterion is the cosine of the angle between two vectors. To measure the degree of similarity in two documents (including two vectors x and y), the vector space model is used according to Equation (9).

$$\text{Cosine similarity } (d_1, d_2) = \frac{\sum_i x_i y_i}{\sqrt{\sum_i x_i^2} \sqrt{\sum_i y_i^2}} \quad (9)$$

Each vector consists of n expressions in each document according to Equation (10):

$$x_i \text{ or } y_i = (w_1, w_2, w_3, \dots, w_n) \quad (10)$$

The length of each vector is calculated from Equation (11):

$$\|x_i \text{ or } y_i\| = \sqrt{w_1^2 + w_2^2 + \dots + w_n^2} \quad (11)$$

The product of the inner product of two vectors x and y is obtained as a scalar multiplication from Equation (12):

$$\sum_i x_i y_i = w_{1,x} w_{1,y} + w_{2,x} w_{2,y} + \dots + w_{n,x} w_{n,y} \quad (12)$$

In this study, the degree of similarity of the text was used as a proxy for consistency so that the Word file of the attached notes to the financial statements of the sample companies in different years was transferred to the NetBinz software version 8.2, and then using the Python Programming Language, these files were converted into a series of numerical vectors. Using, Equation (9), the degree of similarity of the notes attached to the financial statements of each company each year was calculated through the average degree of similarity of each company with other companies in the same industry. The range of this criterion is zero to one if the degree of similarity of the notes attached to the financial statements is zero. This means that it is not possible to compare, and companies use different procedures in reporting. But if the degree of similarity of the notes attached to the financial statements is one, it means that there is comparability and companies have used the same procedures for reporting. Accordingly, consistency index is considered a virtual variable so that all companies are classified into deciles each year based on the consistency index. The four deciles that have the least consistency are assigned one and the other deciles are assigned zero.

C) Discretionary accruals (DA): To measure discretionary accruals, the Dechow and Dichev (2002) model, modified by McNichols, was used according to Equation (13):

$$ACC_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it} \quad (13)$$

ACC_{it} = Total accruals of Company i in year t calculated from Equation (14):

$$ACC_{it} = Earn_{it} - CFO_{it} \quad (14)$$

$Earn_{it}$ = i company's net profit in year t.

CFO_{it} = i company's operating cash flow in year t.

ΔREV_{it} = changes in sales revenue of the current year compared to the previous year.

PPE_{it} = gross property, plant and equipment firm i in year t.

ε_{it} = discretionary accruals and in fact the error values of model (13) measured cross-sectionally and separately for each industry and in each year.

D) Non-discretionary accruals (NA) is calculated equal to the values fitted from regression model number (13) cross-sectionally and separately for each industry and year from relation number (15).

$$NA_{it} = ACC_{it} - \varepsilon_{it} \quad (15)$$

E) Cash Flow from Operations (CFO) is equal to the operating cash flow of each company in each year, which is divided by the book value of assets at the beginning of each year.

5.3. Testing research hypotheses

To test the research hypotheses, the simultaneous equation model based on composite data was used.

The reason for using simultaneous equations is that the dependent variable in one equation appears as an explanatory variable in another equation. To test the first hypothesis, following the research of Chen and Gong (2019), the simultaneous equations of Mishkin (1983) were used according to equations (16) and (17):

$$ROA_{t+1} = \gamma_0 + \gamma_1 DA_t + \gamma_2 NA_t + \gamma_3 CFO_t + \gamma_4 Accomp_{t-1} + \gamma_5 DA_t * Accomp_{t-1} + \eta_{t+1} \quad (16)$$

$$SIZEAJR_{t+1} = \alpha + \beta (ROA_{t+1} - \gamma_0 - \gamma_1^* DA_t - \gamma_2^* NA_t - \gamma_3^* CFO_t - \gamma_4^* Accomp_{t-1} - \gamma_5^* DA_t * Accomp_{t-1}) + \varepsilon_{t+1} \quad (17)$$

In the system of the above equations, the first equation is called the forecasting equation (measure of the ability of earnings components in forecasting the earnings of a year later) and the second equation is called the valuation equation (market pricing criterion for each of the earnings components). Also, the coefficient of earnings components in the forecasting equation is called the coefficient of objective persistence, and the coefficient of earnings components in the valuation equation is called subjective persistence (Aflatoni, 2015: 279). To investigate the effect of comparability on the pricing of discretionary accruals, the equations $\gamma_1 = \gamma_1^*$ and $\gamma_5 = \gamma_5^*$

must be tested. If γ_1 (γ_5) does not differ significantly from γ_1^* (γ_5^*), greater comparability improves investors' understanding of accruals and increase pricing efficiency. For the equality test of $\gamma_1 = \gamma_1^*$, the system of simultaneous equations is estimated by the nonlinear least squares method. To obtain the coefficients γ_1 , γ_1^* , and β , it is necessary to assume that γ_0 is the same in both equations. If γ_1 and γ_1^* are statistically equal, the sum of squared residuals from the constraint system (SSRC) should not be significantly different from the sum of squared residuals from the unconstraint system (SSRU). Mishkin (1983) showed that this test can be tested using the following likelihood ratio (which under the assumption of zero asymptotically follows the distribution of χ^2):

$$Mishkin = 2n \ln(SSR^C / SSR^U)$$

Where, n is the number of observations of each equation (and 2n is the total number of observations).

To test the second hypothesis, simultaneous equations of Mishkin (2004) were used according to Equations (18) and (19):

$$ROA_{t+1} = \gamma_0 + \gamma_1 DA_t + \gamma_2 NA_t + \gamma_3 CFO_t + \gamma_4 Consistency_{t-1} + \gamma_5 DA_t * Consistency_{t-1} + \eta_{t+1} \quad (18)$$

$$SIZEAJR_{t+1} = \alpha + \beta (ROA_{t+1} - \gamma_0 - \gamma_1^* DA_t - \gamma_2^* NA_t - \gamma_3^* CFO_t - \gamma_4^* Consistency_{t-1} - \gamma_5^* DA_t * Consistency_{t-1}) + \varepsilon_{t+1} \quad (19)$$

The effect of consistency on the pricing of discretionary accruals must be tested to establish equations $\gamma_5 = \gamma_5^*$ and $\gamma_1 = \gamma_1^*$. If γ_1 (γ_5) is not significantly different from γ_1^* (γ_5^*), consistency improves investors' understanding of accruals and increases price efficiency. Mishkin statistic is calculated to test this hypothesis similar to the first hypothesis test.

6. Analysis of findings

To analyze the research results, statistical and inferential methods were used, which are described in the following. Descriptive statistics include describing the status and distribution of research variables such as

mean, median, standard deviation, maximum, minimum, etc. Inferential statistics are related to how research hypotheses are tested.

6.1. Descriptive statist

Table 1 presents descriptive statistics for the primary variables used in the analyses.. These indicators mainly include information about central indicators such as mean, median, and also information about dispersion indicators such as standard deviation.

The most important central indicator is the average and is a good indicator to show the centrality of data.

The presented results showed that the rate of return on assets in the

surveyed companies is on average 10%. Also, the average comparability is -0.161, i.e. about 84% of the sample companies have comparability; the average consistency is 0.623, which shows that about 62% of the sample companies have similar text in the attached notes of financial statements, and the average of the discretionary accruals is -0.001. Due to the closeness of the mean and median values, the research variables have a suitable statistical distribution

Table 1. The results of the Descriptive Statistics of Research Variables

variables	symbol	mean	median	max	min	SD	skewness	kurtosis
return on assets	ROA	0.119	0.098	0.413	-0.121	0.137	0.470	2.65
Size-adjusted returns	SIZEAJR	-0.256	-0.294	2.58	-2.48	0.648	0.429	3.82
Accounting Comparability	AccComp	-0.161	-0.129	-0.032	-0.381	0.105	-0.669	2.29
consistency	consist	0.623	0.627	0.722	0.504	0.059	-0.280	2.35
Discretionary Accruals	DA	-0.0014	-0.0102	0.202	-0.170	0.093	0.316	2.72
Non-Discretionary Accruals	NA	-0.0002	-0.00005	0.219	-0.215	0.112	-0.012	2.52
Cash flow of operation	CFO	0.134	0.11	0.446	-0.084	0.140	0.594	2.69

6.2. Correlation Matrix

Table 2 presents the correlation matrix allows us to study the existence (or not) of the multi-collinearity problem between the explanatory variables. Before conducting any econometric study, it is necessary to ensure that the explanatory variables do not communicate the same information. The existence of a multi-collinearity problem is explained by the high correlation between the explanatory variables. The study of the correlation matrix allows us to detect the existence or not of a multi-linearity problem. The correlation study between the variables gives an idea

of the statistical link between them. It allows us to verify the hypothesis of the independence of the explanatory variables and thus to detect the problem of multi-collinearity. Obtaining strong correlation coefficients raises the problem of multi-collinearity between the values of two variables.

In our study, we notice a low correlation between the different explanatory variables

(the majority of the variables have a correlation coefficient lower than 0.5), which shows the absence of the problem of multi-collinearity. Therefore we can introduce all the variables in the same model.

Table 2. Pearson Correlations

Variables	AccComp	consistency	SIZEAJR	ROA	DA	NA	CFO
AccComp	1						
consistency	0.194	1					
SIZEAJR	0.094	0.004	1				
ROA	0.352	0.146	0.089	1			
DA	-0.046	-0.102	-0.135	0.137	1		
NA	0.162	-0.068	-0.024	0.217	-0.128	1	
CFO	0.290	0.121	0.093	0.513	0.001	-0.453	1

6.3. The first hypothesis test

Table 3 show the results of the Mishkin test, in which the forecasting and valuation coefficients for DA are 0.244 and 0.491, respectively. That is, the coefficient of subjective persistence of discretionary accruals is significantly higher than the objective persistence coefficient of discretionary accruals. The significance of Mishkin statistic (4.183) at the level of 5% shows that the coefficients of DA in the two equations of forecasting and valuation are significantly different. This means that the capital market has not been efficient in the

pricing of discretionary accruals and overestimates persistence of discretionary accruals. Also, the forecasting and valuation coefficients on DA for low comparability firms (i.e. γ_5 and γ^*_5) are -0.693 and

6.650 respectively. The significance of Mishkin statistic (5.06) at the level of 5% shows that the coefficients of DA*LOACCCOMP in the two equations of forecasting and valuation are significantly different.

This suggests that when comparability is low, relative to when it is high, investors place greater weight on discretionary accruals, even though they are less persistent. This result provides an explanation for why investors place less weight on discretionary accruals even though the persistence of discretionary accruals increases with comparability. That is, investors place less weight on discretionary accruals when there are greater levels of comparability because the extent to which investors overestimate.

Table3. Results of estimation of system of equations (1)

Panel A: forecasting equation					
Variables	coefficient	Z-Statistic	P-VALUE	R ²	Chi2(P>Chi2)
DA	0.244	5.434	0.000	0.62	1747.8 (0.000)
NA	0.748	26.81	0.000		
CFO	0.797	34.73	0.000		
LOACCCOMP	0.353	2.228	0.026		
DA*LOACCCOMP	-0.693	-5.099	0.000		
Panel B: valuation equation					
ROA	1.425	3.551	0.0004	0.05	52.8 (0.000)
DA	0.491	2.234	0.0127		
NA	1.318	4.350	0.000		
CFO	0.827	3.908	0.0001		
LOACCCOMP	-0.629	-2.014	0.044		
DA*LOACCCOMP	6.650	2.397	0.0165		
Panel C: Mishkin (1983) test					
Null Hypotheses	Chi2	P>Chi2			
$\gamma_1 = \gamma^*_1$	4.183	(0.040)			
$\gamma_5 = \gamma^*_5$	5.06	(0.024)			

6.4. The second hypothesis test

the persistence of discretionary accruals is greater than the incremental increase in persistence associated with greater comparability. Overall, the results from this analysis are consistent with the notion that comparability helps investors to better understand the implications of firms' discretionary accruals, and improves the pricing efficiency of accruals.

Table 4 show the results of the Mishkin test, in which the forecasting and valuation coefficients for DA are 0.133 and 2.031, respectively. That is, the coefficient of subjective persistence of discretionary

accruals is significantly higher than the objective persistence coefficient of discretionary accruals. The significance of Mishkin statistic (4.371) at the level of 5% shows that the coefficients of DA in the two equations of forecasting and valuation are significantly different. This means that the market has not rational pricing of discretionary accruals and overestimates persistence of discretionary accruals. Also, the forecasting and valuation coefficients on DA for low consistency firms (i.e. γ_5 and γ^*_5) are 0.427 and 0.657, respectively. The significance of Mishkin statistic (4.963) at the level of 5% shows that the

coefficients of DA*LOCONSISTENCY in the two equations of forecasting and valuation are significantly different. That is, investors place less weight on discretionary accruals when there are greater levels of consistency because with increasing the consistency of accounting procedures, information asymmetry decreases and the quality of financial reporting

increases, so investors more accurately analyze the financial information of companies operating in an industry, and therefore limit the space for earning manipulation and the use of accruals by managers. This suggests that increasing the consistency of accounting procedures improves the pricing of discretionary accruals.

Table4. Results of estimation of system of equations (2)

Panel A: forecasting equation					
Variables	coefficient	Z-Statistic	P-VALUE	R ²	Chi2(P>Chi2)
DA	0.133	2.407	0.008	0.625	1782.9 (0.000)
NA	0.753	29.19	0.000		
CFO	0.790	38.03	0.000		
LOCONSISTENCY	0.156	3.564	0.0004		
DA*LOCONSISTENCY	0.427	1.967	0.049		
Panel B: valuation equation					
ROA	1.322	3.253	0.0011	0.035	38.9 (0.000)
DA	2.031	1.702	0.044		
NA	1.122	3.964	0.0001		
CFO	0.594	2.734	0.0062		
LOCONSISTENCY	-0.491	-2.664	0.0039		
DA*LOCONSISTENCY	0.657	3.171	0.0008		
Panel C: Mishkin (1983) test					
Null Hypotheses	Chi2		P>Chi2		
$\gamma_1 = \gamma_1^*$	4.371		0.0365		
$\gamma_5 = \gamma_5^*$	4.963		0.0259		

7. Conclusion

In this study, the effect of comparability and consistency on the pricing of discretionary accruals of companies listed in the Tehran Stock Exchange was investigated. For this purpose, two hypotheses were developed and tested. The results and findings of the first hypothesis show that investors and users of financial information in the Iranian capital market place great importance on comparability as an inter-firm criterion of the quality of accounting information. The greater the comparability of corporate information, the less managers use discretionary accruals, and this improves the pricing efficiency of accruals. The results of this study are consistent with the results of the research by Chen and Gong (2019). The results and findings of the second hypothesis indicate that the use of the same procedures by different companies in an industry will lead to a better evaluation of companies' performance by investors and improve their decision-making model. The same methods for reflecting similar events reduce

opportunistic earning management, and in fact managers will have less position for earning manipulation. Results indicate that greater levels of consistency improve the information environment and allow managers to estimate discretionary accruals more accurately and signal private information more effectively. The results of this study are consistent with the findings of Peterson et al. (2015).

Compilers of accounting rules and standards as well as the Tehran Stock Exchange are advised to pay more attention to the comparability of financial statements to better protect the rights of users, and in formulating standards, more importance should be given to converging with international standards and the need to use extensible business reporting language and web reporting to increase the comparability of statements.

Managers of companies are advised to use the consistent procedures in providing information to improve the information environment and better understand economic events because comparability

enhances the ability of managers to more accurately predict accruals and helps managers to have more accurate expectations of the company's future performance.

Investors are advised to pay special attention to the comparability of financial statements as an important source of information because comparability provides a clearer picture of the similarities and differences of companies for investors. It also improves investors' understanding of accruals, which are a sign of the company's confidential and private information and increases pricing efficiency.

Auditors are advised to audit more carefully if they observe a change in procedure during auditing due to the importance of consistency.

Researchers are recommended to further examine the role of managers' ability on the effect of comparability and consistency on the pricing of accruals and also study the effect of comparability on efficiency in labour investments, board compensation, and trading volume after announcement of earnings.

References

- 1) AliaAhmadi, S., & Fadaei, Z. (2015). Assessing the role of information environment and company growth on pricing of accruals in companies listed on the Tehran Stock Exchange. *Journal of Financial Accounting Research*, 3(25), 91-104.
- 2) Adut, D., Holder, A., & Robin, A. (2013). Predictive Versus Opportunistic Earnings Management, Executive Compensation, and Firm Performance. *Journal Accounting Public Policy*, 32, 126-146.
- 3) Artikis, P.G., & Papanastasopoulos, G.A. (2016). Implications of the cash component of earnings for earnings persistence and stock returns, *The British Accounting Review*, doi: 10.1016/j.bar.2016.02.002.
- 4) Ball, R. (2013). Accounting informs investors and earnings management is rife: Two questionable beliefs. *Accounting Horizons*, 27(4), 847-853.
- 5) Ball, R., & Brown, P. (1968). An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research*, 6, 159-178.
- 6) Chen, A., & Gong, J.J. (2019). Accounting comparability, financial reporting quality, and the pricing of Accruals. *Journal of Advances in Accounting*, 30, 1-16
- 7) Choi, J.H., Choi, S., Myers, L & Ziebart, D. (2017). Financial statement comparability and the informativeness of Stock Prices about future earnings, www.ssrn.com.
- 8) Dastgir, M., Heidari, S., & Turki, L. (2014). Investigating the persistence of the cash component in relation to the accrual component of profit and the role of company characteristics on the anomaly of accruals in the base metals industry. *Journal of Financial Accounting Research*, 4(22), 1-22.
- 9) Dechow, P. (1994). Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals. *Journal of Accounting and Economics*, 17, 3-42.
- 10) Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by SEC. *Contemporary Accounting Research*, 13(1), 1-36.
- 11) Engelberg, J., Ozguz, A., & Wang, S. (2016). Know thy neighbor_ industry cluster, information spillover and market efficiency. *Journal of Financial and Quantitative Analysis*. (forthcoming), 21(3), 326-359.
- 12) Financial Accounting Standards Board (FASB) (1980). Qualitative Characteristics of Accounting Information. Norwalk, CT: Statement of Financial Accounting Concepts No. 2 Available at <http://www.fasb.org/pdf/con2.pdf>.
- 13) Financial Accounting Standards Board (FASB) (2010). Statement of financial accounting concepts no. 8. Conceptual framework for financial reporting.
- 14) Foroughi, D., & Ghasemzad, P. (2015). The effect of financial statement comparability on stock price synchronicity. *Journal of Financial Accounting Research*, 27(1), 39-54.
- 15) Foroughi, D., Amiri, H., & Ebrahimian, A. (2017). Profit persistence and its components at the industry and company level. *Accounting Advances*, 9(2), 63-92.
- 16) Gong, G., Li, L. Y., & Zhou, L. (2013). Earnings non-synchronicity and voluntary disclosure. *Contemporary Accounting Research*, 30(4), 1560-1589.
- 17) Habib, A., Hasan, M. M., & Al-Hadi, A. (2017). Financial statement comparability and corporate

- cash holdings. *Journal of Contemporary Accounting & Economics*, 13(3), 304-321.
- 18) Hajiha, Z., & Chenari-Buket, H. (2018). Financial Statement Comparability and Expected Crash Risk. *Financial Knowledge of Securities Analysis*, 11(39), 37-48.
- 19) Hashemidahchi, M., Izadinia, N., & Amiri, H. (2020). The effect of financial statement comparability on the relevance of accounting information with emphasis on the role of specialized investors and information asymmetry. *Accounting and Auditing Review*, 27 (3), 473-494.
- 20) Jiraporn, P., Miller, G. A., Yoon, S. S., & Kim, Y. S. (2008). Is Earnings Management Opportunistic or Beneficial? An Agency Theory Perspective. *International Review of Financial Analysis*, 17, 622-634.
- 21) Kia, A., & Safari Graili, M. (2017). Financial statement comparability, accrual earnings management and real earnings management. *Journal of Financial Accounting Knowledge*, 4(2), 115-137.
- 22) Kim, S., Kraft, P., & Ryan, S. (2013). Financial statement comparability and credit risk. *Review of Accounting Studies*, 18, 783-823
- 23) Kothari, S. P., & Verdi, R.S. (2011). The benefits of financial statement comparability. *Journal of Accounting Research*, 49(4), 895-931.
- 24) Lewis, C. (2012). "Risk Modeling at the SEC: The accounting quality model." speech before financial executives international committee on finance and information technology. <https://www.sec.gov/news/speech/2012-spch121312cml.htm>
- 25) Louis, H., & Robinson, D. (2005). Do Managers Credibly Use Accruals to Signal Private Information? Evidence from the Pricing of Discretionary Accruals Around Stock Splits. *Journal of Accounting and Economic*, Vol. 39, Pp. 361-380.
- 26) Matonti, G., Tommasetti, A., & Tucker, J. (2014). Do Italian non Listed Firms Manage Earnings Efficiency or Opportunistically? GV - Proceedings in GV- *Global Virtual Conference*.
- 27) Mehrabanpour, M. R., Faraji, O., & Sajadpour, R. (2020). The mediating role of financial reporting quality in the relation between comparability of financial statements and cash holdings. *Accounting and Auditing Review*, 27(1), 132-153.
- 28) Mehrvarz, F., & Marfou, M. (2016). The relation between the financial statement comparability and price informativeness about future earnings. *Empirical Studies in Financial Accounting*, 49(1), 89-110.
- 29) Mishkin, F. (1983). A rational expectations approach to macroeconometrics: Testing policy effectiveness and efficient-market models. *Chicago, IL: University of Chicago Press*.
- 30) Peterson, K., R. Schmardebeck., & Wilks, T.J. (2015). The Earning Quality and Information Processing Effects of Accounting Consistency. *The Accounting Review*, 90(6), 2483-2514
- 31) Perotti, P., & Wagenhofer, A. (2014). Earnings quality measures and excess returns. *Journal of Business Finance & Accounting*, 41(5), 545-571.
- 32) Rahimi Dastjerdi, M., Khodamipour, A., & Bahar Moghadam, M. (2016). Investigating the pricing of normal and abnormal items of cash and accrued components of profit. *Financial Accounting Quarterly*, 3(31), 133-161.
- 33) Rezaei, F., & Veisi-Hesar, S. (2019). Evaluating the Persistence and Pricing of Earnings, Accruals, and Operating Cash Flows in Companies. *Journal of Financial Accounting Knowledge*, 6(1), 187-210.
- 34) Robert, K., Sangwan, K., & Prianka, M. (2018). When Does Comparability Better Enhance Relevance? Policy Implications from Empirical Evidence. *Journal of Accounting and Public Policy*, 37(5), 436-457.
- 35) Robin, A., & Wu, Q. (2015). Firm Growth and the Pricing of Discretionary Accruals. *Review of Quantitative Finance and Accounting*, 45(3), 1-30.
- 36) Siregar, S. V., & Utama, S. (2008). Type of Earnings Management and the Effect of Ownership Structure, Firm Size, and Corporate-Governance Practices: Evidence from Indonesia. *The International Journal of Accounting*, 43(1), 1-27.
- 37) Sloan, R. (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review*, 71(3), 289-315.
- 38) Sohn, B. C. (2016). The effect of accounting comparability on the accrual-based and real earnings management. *Journal of Accounting*

- 39) Subramanyam, K. (1996). The pricing of discretionary accruals. *Journal of Accounting and Economics*, 22(1–3), 249–281.
- 40) Torabi, I., Dastgir, M., & Kiani, GH.H. (2020). The Moderating Effect of Information Asymmetry and Imperfect Market on the Impact Severity of Comparability and Accounting Consistency on the Cost of Equity Capital in Listed Companies in Tehran Stock Exchange. *Journal of Financial Accounting Research*, 2(44), 1-22.
- 41) Watts, R., & Zimmerman, J. (1986). *Positive accounting theory*. Englewood Cliffs, NJ: Prentice Hall.
- 42) Xie, H. (2001). The mispricing of abnormal accruals. *The Accounting Review*, 76(3), 357–373.
- 43) Zafari, S., Foroughi, D., & Kiani, GH.H. (2019). The effect of comparability and consistency on profit quality: a text mining approach. *Empirical Studies in Financial Accounting*, 16(64), 1-30.