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### Earnings quality measurements and determinants: the case of listed firms in Vietnam

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#### Abstract

The study aims to review different measurements of earnings quality and investigate its determinants which are mainly derived from firm characteristics of Vietnamese listed companies from 2011 to 2019. Panel data analysis is implemented, and fixed-effect regression is employed along with post-estimation tests to achieve robust findings. The research results indicate that dividend yield and firm size are positively related to earnings quality while financial leverage, growth, profitability and accounting losses have negative impacts on earnings quality. Meanwhile, firm age as well as the Circular 200 have positive partial impact on the quality of earnings of listed firms in Vietnam.

**Keywords:** Earnings Management, Earnings Quality, Accruals Quality

#### 1. Introduction

Earnings can be viewed as a basis in determining and signalling dividend payment, as a guideline for investment and decisionmaking process, as a proxy for firm's performance, as a criterion in pricing stock and finally as a prediction proxy to predict firm performance (Mohammady, 2010). Earnings quality (EQ) represents the degree of accountability and usefulness of the reported earnings figures. In the same stream of thinking, earnings are also considered to have better quality when they convey more information about financial performance of firms (Dechow *et al.*, 2010). In addition, it is emphasized that EQ is an informative indicator if it can be used as a basis for predicting future earnings. As a result, high-quality earnings can reduce agency cost and information asymmetry, and subsequently help both firm management and other stakeholders to take proper decisions, which is crucial

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for the well-functioning capital markets (Penman, 2003). EQ can be understood as the degree to which reported earnings in the income statement reflect the real situation of firms.

However, with the existence of material misstatements in the financial statements leading to colossal corporate collapse in recent years, there has been a great concern about the quality of reported earnings from listed companies in the stock market. This is justifiable by the fact that there is a significant difference between unaudited and audited financial statements or even material misstatements can not be detected by auditors. A typical example of the latter is the dissolution of Arthur Andersen, the famous audit firms, in association with the collapse of Enron Corporation, an American energy company as a result of misrepresenting earnings to indicate favorable performance. Similarly, in Vietnam, a typical case can be related to Hoang Anh Gia Lai Joint Stock Company (HAG) with the sudden change from the profit after tax of 253 billion VND to the loss of 2,025 billion VND after being audited for the fiscal year 2019 (Ngoc and Thanh, 2020). Put differently, fraudulent financial reporting, earnings management (EM) practices or poor performance can have adverse impacts on the quality of earnings, which affect not only the investors' belief but also the going concern assumptions of the corporation in the future. As a result, EQ measurements and determinants have become the topics of interest to many researchers.

In Vietnam, most studies use accounting-based measures with a focus on accruals quality or detection of EM through changes in discretionary accruals (Dang, 2015; Nguyen and Le, 2016; Dao, 2017; Hoang and Dang, 2018). Most of these studies apply common models developed by Friedlan (1994), Dechow *et al.* (1995), and Kothari *et al.* (2005). These models stand for the first two approaches to measure accruals quality, and subsequently, the role of accruals in recognising timely gain and loss asymmetrically as proposed by Ball and Shivakumar (2006) have not been utilized. This study will focus on synthesizing the EQ measurements and examining its determinants in the context of Vietnamese listed firms. This research paper has conducted quantitative research methodology to examine the impacts financial leverage, growth, profitability, dividend yield, firm age and size on EQ. The sample includes 443 companies listed on the both Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock Exchange (HOSE) from 2011 to 2019, resulting in 3,987 firm-year observations. Multiple regression analysis and fixed-effect (FE) regression are employed to examine the determinants of EQ along with post-estimation tests to achieve robust findings. Our research results indicate that dividend yield and firm size are positively related to EQ while financial leverage, growth, profitability and accounting losses have negative impacts on EQ. Meanwhile, our study has not found any statistically significant relationships between firm age as well as the Circular 200 and the quality of earnings in Vietnam.

The study is organized into five parts as follows. Part 2 provides a theoretical background and a literature review on earnings quality measurements and determinants. Part 3 presents the data collection and research methodology. Part 4 discusses research results and Part 5 concludes the paper.

## 2. Theoretical background on earnings quality measurements

### 2.1 Earnings quality

Dechow and Dichev (2002) considered that earnings can be viewed as a significant proxy that investors use to assess the future cash flows of firms. Lev (1989) defined EQ as the predictability of financial variables. He explained that the higher quality of earnings requires predictable events, which are assumed to have potential influences on the future cash flow, need to be impounded in the company's current earnings and values. Teets (2002) considered EQ to see a company's economic performance through basic events reported in accordance with accounting standards and thereby providing information about quality of accounting information. Besides, EQ is defined as the extent to which profit is reported truthfully, and they proposed seven measures of profit quality: survival, predictability, variability, proportion of cash from operating activities, changes in accrual accruals and adjusted accruals (Schipper and Vincent, 2003). Moreover, EQ is considered as the most comprehensive measure of financial statements quality (Lev, 1989). EQ is also used in many empirical studies to examine the changes in profitability over time as well as to assess the impact of changes in accounting standards and regulatory environment, comparing financial statements across countries along with measuring market prices among businesses with different quality of reported earnings.

### 2.2 Earnings quality measurements

Francis *et al.*, (2004) classified EQ measurements into two main groups: accounting-based measures (i.e. accruals quality, earnings persistence, earnings predictability and earnings smoothness) and market-based measures (i.e. value relevance, timeliness and conservatism). While the former tends to focus on using accounting numbers from financial statements to measure the reliability and predictability of earnings, the latter combines these figures with stock prices or returns to reflect the decision usefulness of accounting information.

#### 2.2.1 Accounting-based measures

For accounting-based approach to measure EQ, these types of measurements are constructed by using two main components of earnings namely cash and accruals. While the cash component is realized, the accrual component is subject to a great uncertainty due to biases in management judgments and estimates (Francis *et al.*, 2005).

##### *Accrual quality*

In spite of such bias which can result in misrepresentation of economic phenomena, accrual component is still considered as a source of relevant information to investors. Therefore, in order to assess the reliability of EQ, several researchers use accruals in different ways. According to DeAngelo (1986), and Schipper and Vincent (2003), the changes in total accruals can represent the degree of EM, resulting in an inverse relationship between this figure and EQ (Equation 1). From the model developed by DeAngelo (1986), Friedlan (1994) added revenues into the model to control for changes in performance (Equation 2) as below:

$$\Delta TAC = TAC_{it} - TAC_{it-1} \text{ and} \quad (1)$$

$$\Delta TAC = \frac{TAC_{it}}{REV_{it}} - \frac{TAC_{it-1}}{REV_{it-1}} \quad (2)$$

where  $TAC_{it}$  denotes total accruals of firm  $i$  at time  $t$ , equal to net income minus CFO;  $TAC_{it-1}$  means total accruals of firm  $i$  at time  $(t-1)$ ;  $REV_{it}$  denotes revenues of firm  $i$  at time  $t$ .

Another approach used by Jones (1991), Dechow *et al.* (1995), and Kothari *et al.* (2005) in three respective equations (3), (4), (5) below is to identify the discretionary accruals resulting from intentional accounting treatments to manipulate earnings (also referred to as abnormal or unexpected accruals) as residuals from regressing total accruals on non-discretionary accruals derived from unmanaged economic transactions including changes in revenues, changes in accounts receivables and book value of property, plant and equipment. While the book value of PPE determines depreciation cost, the change in revenues implies changes in working capital. Assuming that changes in credit sales could also be the sources of EM, Jones model was modified by the adjustment in the changes in revenues (by Dechow *et al.*, 1995) subtracted the corresponding change in receivables from the changes in revenues). Moreover, Kothari *et al.* (2005) controlled for firm performance (ROA) in their model. Overall, the higher the discretionary accruals from each model, the lower the quality of earnings.

$$\frac{TAC_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{\Delta REV_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it}, \quad (3)$$

$$\frac{TAC_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{\Delta REV_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \text{ and} \quad (4)$$

$$\frac{TAC_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{\Delta REV_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \beta_3 ROA_{it-1} + \varepsilon_{it} \quad (5)$$

where  $TAC_{it}$  denotes total accruals of firm  $i$  at time  $t$ , equal to net income minus CFO;  $TA_{it-1}$  means total assets of firm  $i$  at time  $(t-1)$ ;  $\Delta REV_{it}$  indicates changes in revenue from time  $(t-1)$  to time  $t$ ;  $\Delta AR_{it}$  means changes in accounts receivables from time  $(t-1)$  to time  $t$ ;  $PPE_{it}$  represents book value of property, plant and equipment of firm  $i$  at time  $t$ ;  $ROA_{it-1}$  denotes return on assets of firm  $i$  at time  $(t-1)$ .

Apart from the two above-mentioned approaches to measure EQ, given the relation between current accruals and cash flow, Dechow and Dichev (2002) measured EQ as the absolute value or the standard deviation of residuals from regressing changes in working capital<sup>2</sup> on the previous, current and future CFO, finding that the magnitude of this figure is inversely related to EQ as follows:

$$\frac{\Delta WCA_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{CFO_{it-1}}{TA_{it-1}} + \beta_2 \frac{CFO_{it}}{TA_{it-1}} + \beta_3 \frac{CFO_{it+1}}{TA_{it-1}} + \varepsilon_{it} \quad (6)$$

<sup>2</sup> Changes in working capital ( $\Delta WCA$ ) = Changes in current assets ( $\Delta CA$ ) - Changes in cash and cash equivalents ( $\Delta CASH$ ) - Changes in current liabilities ( $\Delta CL$ ) + Changes in short-term loans ( $\Delta STLOAN$ )

where  $\Delta WCA_{it}$  indicates the changes in working capital of firm  $i$  from time  $(t-1)$  to time  $t$ ;  $TA_{it-1}$  means total assets of firm  $i$  at time  $(t-1)$ ;  $CFO_{it-1}$  denotes cash flow from operating activities of firm  $i$  at time  $(t-1)$ ;  $CFO_{it}$  means cash flow from operating activities of firm  $i$  at time  $t$ ;  $CFO_{it+1}$  denotes cash flow from operating activities of firm  $i$  at time  $(t+1)$ .

Given the important role of accrual accounting in recognizing unrealized gain or loss, Ball and Shivakumar (2006) controlled for this conservatism in previous models. This model results in a significant improvement in specification and can be used to explain up to three times the amount of variation in accruals compared with the conventional linear specifications as Jones (1991). At the same time, Ball and Shivakumar (2006) argued that conventional linear accruals models that omit the role of accruals in asymmetrically timely loss recognition (conditional conservatism), result in a rather poor specification of the accounting accrual process. As a result, from modified Jones model, they have added CFO, DCFO and their interaction as follows:

$$\frac{TAC_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{\Delta REV_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \beta_3 \frac{CFO_{it}}{TA_{it-1}} + \beta_4 DCFO + \beta_5 \frac{DCFO * CFO_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (7)$$

where  $TAC_{it}$  denotes total accruals of firm  $i$  at time  $t$ , equal to net income minus CFO;  $TA_{it-1}$  represents total assets of firm  $i$  at time  $(t-1)$ ;  $\Delta REV_{it}$  indicates the changes in revenue of firm  $i$  from time  $(t-1)$  to time  $t$ ;  $\Delta AR_{it}$  denotes the changes in accounts receivables of firm  $i$  from time  $(t-1)$  to time  $t$ ;  $PPE_{it}$  means book value of property, plant and equipment of firm  $i$  at time  $t$ ;  $CFO_{it}$  denotes cash flow from operating activities of firm  $i$  at time  $t$ ;  $DCFO$  denotes dummy variable equal to 1 when  $CFO_{it}$  is negative, and 0 otherwise.

#### *Time-series properties*

In addition to evaluate the accrual quality, some researchers assess EQ through its time-series properties. Accordingly, earnings are considered to be of higher quality when earnings performance persists into the next period (earnings persistence) (Penman and Zhang, 2002; Schipper and Vincent, 2003), or when decision-makers can use the past earnings to make future predictions (earnings predictability) (Lipe 1990; Barth *et al.*, 2001; Cohen, 2003; Barua, 2006). From the same Equation 8 below with previous and current earnings before extraordinary, while earnings persistence is measured as a regression coefficient, earnings predictability is expressed through the standard deviation of residuals from regression model:

$$\frac{EARN_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{EARN_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (8)$$

where  $EARN_{it}$  indicates earnings before extraordinary items of firm  $i$  at time  $t$ ;  $EARN_{it-1}$  denotes earnings before extraordinary items of firm  $i$  at time  $(t-1)$ ;  $TA_{it-1}$  means total assets of firm  $i$  at time  $(t-1)$ .



Last but not least, earnings smoothness is measured as income variability divided by cash flow variability (Leuz *et al.*, 2003). This measurement implies how much earnings will fluctuate from one unit of cash flow variability. As a result, this attribute is also referred as a special case of EM, which means that the artificial smoothness is created by earnings management instead of earnings persistence. Overall, the lower the ratio, the higher the possibilities of EM along with the lower EQ:

$$\text{Earnings smoothness} = \frac{\sigma\left(\frac{\text{EARN}_{it}}{\text{TA}_{it-1}}\right)}{\sigma\left(\frac{\text{CFO}_{it}}{\text{TA}_{it-1}}\right)} \quad (9)$$

where  $\sigma\left(\frac{\text{EARN}_{it}}{\text{TA}_{it-1}}\right)$  is the standard deviation of the ratio of earnings before extraordinary items at time  $t$  to total assets at time  $(t-1)$ ;  $\sigma\left(\frac{\text{CFO}_{it}}{\text{TA}_{it-1}}\right)$  denotes the standard deviation of the ratio of cash flow from operating activities at time  $t$  to total assets at time  $(t-1)$ .

### 2.2.2 Market-based measures

The other group is market-based measures including value relevance, timeliness and conservatism of earnings.

#### Value relevance

Value relevance, referred to as the ability of earnings, is used to explain the changes in stock prices or returns and the greater explanatory power is associated with high EQ (Collins *et al.*, 1997; Dumontier and Labelle, 1998; Cheng *et al.*, 2005). Accordingly, Edward Bell Ohlson (EBO) models have been employed to measure this property of EQ. In this model, stock price is regressed on book value per share, earnings per share or the change in earnings per share (used in modified EBO model), creating price relevance model (Equation 10). Instead of using the stock price, some researchers have used stock return to create return relevance model (Equation 11). Accordingly, EQ is determined based on the coefficient R2 from these equations:

$$P_{it} = \beta_0 + \beta_1 \text{BVPS}_{it} + \beta_2 \text{EPS}_{it} + \beta_3 \Delta \text{EPS}_{it} + \varepsilon_{it} \quad (10)$$

$$\text{RET}_{it} = \beta_0 + \beta_1 \text{BVPS}_{it} + \beta_2 \text{EPS}_{it} + \beta_3 \Delta \text{EPS}_{it} + \varepsilon_{it} \quad (11)$$

where  $P_{it}$  represents closing stock price of firm  $i$  at time  $t$ ;  $\text{RET}_{it}$  indicates stock return of firm  $i$  at time  $t$ ;  $\text{BVPS}_{it}$  denotes book value per share of firm  $i$  at time  $(t-1)$ ;  $\text{EPS}_{it}$  means earnings per share of firm  $i$  at time  $(t-1)$ ;  $\Delta \text{EPS}_{it}$  denotes the changes in earnings per share from time  $(t-1)$  to time  $t$ .

#### Timeliness and conservatism

Timeliness and conservatism describe the situation in which accounting earnings is used as proxies for economic income when exposed to bad or good news in a timely manner. Specifically, Ball *et al.*, (2000) define conservatism as a differential ability of accounting earnings to depict

economic losses against economic gains. In other words, a timely recognition of losses is often referred to as a “conservative” accounting system (Basu, 1997; Pope and Walker, 1999). It is also pointed out that conditional conservatism is more likely to timely recognise bad news than good news in earnings, hence decreasing EM practices and increasing EQ (Basu, 1997; Mora and Walker, 2015). As can be seen from Basu’s regression function in Equation 10 below, this approach is similar with that of Ball and Shivakumar (2006) when considering conditional conservatism in accounting despite the differences in choosing variables to reflect good or bad information. Specifically, instead of considering negative CFO as an indicator of bad information, Basu (1997) employed negative stock return. Accordingly, the Basu’s regression function is as follows:

$$X_{it} = \beta_0 + \beta_1 N + \beta_2 RET_{it} + \beta_3 N * RET_{it} + \varepsilon_{it} \quad (12)$$

where  $X_{it}$  denotes earnings per share of firm  $i$  at time  $t$ , divided by stock price at the beginning of the period;  $RET_{it}$  represents stock return of firm  $i$  at time  $t$ ;  $N$  denotes dummy variable equal to 1 in case of bad information ( $RET_{it} < 0$ ), and 0 otherwise.

EQ measurement based on accrual quality aspect is considered as an appropriate approach. Total accruals (TAC), which reflects EQ, is employed by most models. On the one hand, DeAngelo (1986) and Friedlan (1994) only consider the changes in TAC and do not run any kinds of regression. As a result, such models are less powerful in measuring EQ as they do not take into account the impact of the firms’ operations and characteristics, which can have impacts on EM behaviors and EQ. On the other hand, most models perform regressions with Pooled OLS model in which TAC is regressed on different factors such as revenues, book value of PPE, accounts receivables and CFO to identify the discretionary accruals. However, each model still has limitations which can lead to a low explanatory power. Specifically, Jones (1991), Dechow *et al.* (1995), and Kothari *et al.* (2005) did not consider CFO and conservatism of EQ, Dechow and Dichev (2002) only considered CFO and used working capital accruals (WCA) (short-term accruals) instead of total accruals (TAC) as previous studies. Accordingly, while the former ignored the role of accrual in timely gain or loss recognition, the latter is viewed to be only appropriate with firms having short operating cycle. Ball and Shivakumar (2006) controlled for the conservatism of EQ in modified Jones model developed by Dechow *et al.* (1995). This model offers an enhancement in specification improvement as it can explain up to three times the amount of changes in accrual compared to other previous studies.

## 2.3 Determinants of earnings quality

### 2.3.1 Leverage

Leverage, measured as total liabilities over total assets, represents a trade-off consideration between the benefits of tax shield and the costs of financial distress or even bankruptcy. Leverage reflects the firm’s potential risk and the impact on the accrual accounting quality as well as the financial statements. Many previous studies have found the link between financial leverage and the quality of reported earnings (Dechow *et al.*, 2010; DeFond and Jiambalvo,

1994; Gopalan and Jayaraman, 2012). Specifically, the studies indicated that the higher leverage the firm is using, the closer it is getting to the credit limit, and thus the managerst will have incentives to manipulate earnings. By doing this, they can satisfy the debt covenants in existing credit granting contracts and it is possible to raise new debt with more favorable terms (Dechow *et al.*, 2010) or avoid the breach of loan contracts (DeFond and Jiambalvo, 1994). As a result, EQ might be reduced. This inverse relationship was also found in studies by Gopalan and Jayaraman (2012), Kamau and Waweru (2013), Hassan and Bello (2013), and Liu *et al.* (2017). In contrast, Barton and Waymire (2004) provide evidence that the EQ is positively correlated with leverage. Parte-Esteban and Garcia (2014), and Vasilescu and Millo (2016) indicated that this relationship has no statistical significance.

In Vietnam, the credit institutions have played an important role in the financial market. Debt often accounts for a high proportion of the capital structure in many firms, and thus this factor also has impacts on earnings as well as EQ. Recent studies by Bui and Ngo (2017), and Hoang and Dang (2018) showed a negative impact of financial leverage on the quality of corporate earnings. Therefore, the hypothesis is developed as follows:

*H1: There exists a negative relationship between financial leverage and earnings quality of listed firms in Vietnam.*

### 2.3.2 Growth

Growth is measured as the difference between revenue of firm *i* at time *t* and *t-1* over revenue of firm *i* at time *t-1*  $[(REV_{it} - REV_{it-1})/REV_{it-1}]$ . When considering sales growth or growth in total net operating assets as an indicator of the firm growth rate, Nissim and Penman (2001), and Ghosh *et al.* (2005) showe that companies with higher growth rate have lower EQ. This adverse impact of growth on EQ is also supported by the research of Dechow *et al.* (2010), Gopalan and Jayaraman (2012). However, Lee *et al.* (2006), Vasilescu and Millo (2016), and Liu *et al.* (2017) found insignificant result for this relationship. Given Vietnamese companies are in the early stages of their life cycle, the growth is increasing significantly. Specifically, descriptive statistics in this study show that companies in Vietnam have an average growth rate of 13.9% while research by Liu *et al.* (2017) showed that this figure for US market is only 6.7%.

In Vietnam, Hoang (2016), Nguyen and Nguyen (2019) found that growth has an impact on the company's EQ, however, the their findings shows different directions of correlation signs. Thus, the following hypothesis is proposed:

*H2: There is a relationship between growth and earnings quality of listed firms in Vietnam.*

### 2.3.3 Profitability

As indicated in previous studies, the firm profitability is a significant factor influencing financial reporting and EQ (Lang and Lundholm, 1993; Hamidzadeh and Zeinali, 2015). On the one hand, firms with higher positive profits tend to provide better quality of reported figures (Lin and Wu, 2014). On the other hand, high profitability can enhance the firm's financial position from the perspective of investors and other stakeholders, and thus encouraging firms



to provide income statements with outstanding numbers which can be derived from fraudulent financial reporting or EM behaviors. Meanwhile, Francis *et al.* (1996), and Liu *et al.* (2017) did not find any evidence regarding this relationship.

In Vietnam, previous studies have found empirical evidence on the impact of profitability on EQ. According to Bui and Ngo (2017), firms with outstanding performance and high profitability will have high-quality earnings while Duong (2013), Hoang and Dang (2018) found a negative relationship between profitability and EQ. We measure profitability as EBIT/Total assets. The hypothesis is suggested as follows:

*H3: There exists a relationship between earnings quality and profitability of listed firms in Vietnam.*

#### 2.3.4 Accounting losses

In addition to the force majeure cases in which firms are negatively affected by outside factors such as unexpectedly high lending interest rate in 2011, US-China trade war in the 2018, or COVID-19 pandemic recently, firms may have subjective reasons to adjust negative profit. Specifically, motivated by tax evasion, managers tend to change the accounting policies to increase costs, reduce revenue in the period, which lead to a negative profit and a lower EQ. This argument is also supported by Doyle *et al.* (2007) and Ran *et al.* (2015) in which they indicated that poor performance is associated with lower quality of earnings. In contrast, DeAngelo *et al.* (1994) argued that such poor performance may reduce firms' chances of earnings manipulation, and thus results in a higher EQ. We use dummy variable of loss (LOSS) which is equal to 1 when the firms have negative net income, and 0 otherwise. The hypothesis is proposed as follows:

*H4: There exists a negative relationship between accounting losses and earnings quality of listed firms in Vietnam.*

#### 2.3.5 Dividend yield

Dividend yield is measured as the percentage of dividend paid by firm *i* during the time *t* over the stock price of the firm at the end of time *t*. Managers hesitate to raise dividend unless dividend is believed to be sustained at the new level, and thus, a constant dividend policy is expected to be sustained over time (Lintner, 1956). Brav *et al.* (2005) also supported this finding as earnings persistence contributes mainly in firms' dividend payment decisions. Moreover, fraudulently reported earnings can not maintain sustainability and tend to reverse in the future, therefore, firms with EM behaviors are less likely to increase dividends (Dechow *et al.*, 1996). At the same time, according to signaling theory, changes in dividend payment could send signals of firms' earnings prospects to the market. Put differently, dividend rises may signal good news to the market while dividend declines might convey bad news.

The positive relationship between EQ and dividend yield in emerging markets such as China and Indonesia is also found in the studies by Deng *et al.* (2017) and Sirait and Siregar (2014). Moreover, He *et al.* (2017) highlighted that this relationship may be different across

countries in terms of institutional strength and transparency. In general, these findings are in line with the information effect of dividends. Therefore, the following hypothesis is suggested:

*H5: There is a positive relationship between dividend yield and earnings quality of listed firms in Vietnam.*

### 2.3.6 Firm age

In addition to the financial determinants, firm age may also be related to the quality of earnings. With the same approach as McNichols (2002), we measure firm age as the difference between the year of observation and the year in which the company was officially listed on the Vietnamese stock exchange. On the one hand, the greater the firm age, the more experience it gains, which minimize costs and enhance quality. As a result, they would be less likely to engage in the behaviors that affect EQ and their reputation in the market (Ericson and Pakes, 1995). Similarly, McNichols (2002) argued that firms in growing stage have lower quality of earnings than long-established firms, therefore, firm age is positively related to EQ. This outcome was also supported by He *et al.* (2017), Deng *et al.* (2017), and Nguyen and Tran (2018) whereas Sirait and Siregar (2014) and Gul *et al.* (2009) found that firm age is negatively associated with EQ. Meanwhile, other studies didn't find any significant relationship between EQ and firm age (e.g., Olowokure *et al.*, 2016). Therefore, the hypothesis is proposed as follows:

*H6: Firm age and earnings quality of listed firms in Vietnam are positively related.*

### 2.3.7 Firm size

Firm size is measured by the natural logarithm of its total assets. Under the requirements of obligatory compliance with the regulations set by the authorities and the market supervisors, large firms are under lots of pressure (Karami and Akhgar, 2014), and may have higher EQ compared to small ones. This positive relationship between firm size and EQ was also found in previous research findings. The study by Ball and Foster (1982) indicated that firm size is positively related with earnings quality as large companies often have to spend fixed costs to maintain internal control systems in the process of financial reporting. On the contrary, small firms often have weak internal control systems and tend to revise previously reported earnings targets (Doyle *et al.*, 2007). According to Parte-Esteban and Garcia (2014), Liu *et al.* (2017), Bui and Ngo (2017), there is a positive relationship between firm size and EQ. Nevertheless, they indicated that big firms might have lower EQ than small firms (Watts and Zimmerman, 1990; Gopalan and Jayaraman, 2012; and Vasilescu and Millo, 2016). Therefore, the following hypothesis is developed:

*H7: Firm size and earnings quality of listed firms in Vietnam are positively related.*

### 2.3.8 Circular 200

In Vietnam, from 2001 to 2005, Vietnam Ministry of Finance (MoF) has issued 26 standards (VAS-Vietnam Accounting Standards) which were customized to fit Vietnam based on the old versions of the respective International Accounting Standards (IAS). In addition, these standards have been supplemented by many guidances such as Circulars or Decisions. The

latest and most comprehensive one is the Circular 200/2014/TT-BTC dated 22 December 2014, which has come into effect since 1 January 2015. Accordingly, principles related to presentation and disclosure of financial statements under this Circular No. 200 are viewed to be closer to the International Financial Reporting Standards (IFRS) than the previous ones. Therefore, to assess the impact level of this Circular on EQ, the author will use dummy circular variable (CIR) which takes value of 1 when the year of observation is greater than 2014, and 0 otherwise. The hypothesis is advanced as follows:

*H8: Circular 200 and earnings quality of listed firms in Vietnam are positively related.*

### **3. Research methodology and data collection**

#### **3.1 Data collection**

The data used in this study were collected from the audited financial statements of companies listed on both HNX) and HOSE from 2010 to 2019 using Fiinpro database. Among 18 industries according to Industry Classification Benchmark (ICB) level 2, three industries in the field of financials including Banking, Insurance and Real Estate were excluded from the research sample due to their distinct features in the financial reporting system as well as accounting treatments. Meanwhile, the minimum number of observations for each industry in each year is required to be greater than 20 for the purpose of regression with Ball and Shivakumar (2006) model, some of them are excluded from research sample. As a result, research sample consist of 9 remaining industries with 443 firms from 2011 to 2019, resulting in 3,987 firm-year observations.

#### **3.2 Research methodology**

This research employed quantitative research method. Multiple regression analysis is considered as an appropriate approach to investigate the impact level of firm characteristics on its quality of earnings. Besides, the dataset used in this research is presented in the form of panel data. Therefore, to capture the effects of all variables that are individual-specific and constant over time, panel data analysis is implemented and FE regression is employed as the main model. In addition, FE regression is a powerful tool in solving omitted variable bias for panel data. FE regression has also been used in studies related to EQ and EM such as Nguyen and Bui (2018), Bui and Ngo (2017).

#### **3.3 Research model**

##### **3.3.1 Measurement of earnings quality**

Given the conditions of Vietnamese stock market, EQ measurements by market-based approach tend to be inappropriate as changes in stock price or returns are mainly affected by psychological factors of individual investors or even market manipulation behaviors rather than accounting figures such as EPS or BVPS. Besides, Vietnamese stock exchanges have been established for a while so the data are available for a short period of time. Thus, it can be difficult to measure EQ through accounting-based measures with time-series properties. As a result, accounting-based measures is more appropriate compared to market-based ones.

Many previous studies in Vietnam have not yet considered cash flows for operating activities (CFO) and the role of accruals in recognising timely gain and loss asymmetrically. Therefore, we apply the method by Ball and Shivakumar (2006) to measure EQ as we believe this is as an appropriate approach to measure EQ given the condition of Vietnamese stock market. The model is as follows:

$$\frac{TAC_{it}}{TA_{it-1}} = \beta_0 + \beta_1 \frac{\Delta REV_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \beta_3 \frac{CFO_{it}}{TA_{it-1}} + \beta_4 DCFO + \beta_5 \frac{DCFO * CFO_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (13)$$

where  $TAC_{it}$  means total accruals of firm  $i$  at time  $t$ , equal to net income minus CFO;  $TA_{it-1}$  represents total assets of firm  $i$  at time  $(t-1)$ ;  $\Delta REV_{it}$  indicates the changes in revenue of firm  $i$  from time  $(t-1)$  to time  $t$ ;  $\Delta AR_{it}$  denotes the changes in accounts receivables of firm  $i$  from time  $(t-1)$  to time  $t$ ;  $PPE_{it}$  indicates book value of property, plant and equipment of firm  $i$  at time  $t$ ;  $CFO_{it}$  means cash flow from operating activities of firm  $i$  at time  $t$ ;  $DCFO$  denotes dummy variable equal to 1 when  $CFO_{it}$  is negative, and 0 otherwise;  $\beta_0$  denotes intercept coefficient of regression model;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are estimated slope coefficients of regression model;  $\varepsilon_{it}$  means residuals of regression model.

We measure EQ by using the absolute value of residuals from regression model 11. This approach has also been applied in research by Cohen (2008), Li and Wang (2010). Following the research by Chen *et al.* (2010), we multiply the absolute values of the residuals by -1 (R). Thus, higher values of residuals represent higher EQ. Specifically, EQ is determined as follows:

$$EQ_{it} = -|\varepsilon_{it}| \quad (14)$$

where  $EQ_{it}$  denotes earnings quality of firm  $i$  at time  $t$ ;  $|\varepsilon_{it}|$  represents the absolute value of residuals from regression model (11).

### 3.3.2 Empirical model

With 3,987 firm-year observations of 443 companies listed on the HNX) and HOSE from 2011 to 2019, as illustrated in research methodology, the study used the FE regression controlling for firm-specific characteristics as the main model for such a panel data. The regression model to investigate the impact level of factors influencing EQ is as follows:

$$EQ_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 GROWTH_{it} + \beta_3 OROA_{it} + \beta_4 LOSS_{it} + \beta_5 DIV_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 CIR_{it} + \varepsilon_{it} \quad (15)$$

where  $EQ_{it}$  indicates earnings quality of firm  $i$  at time  $t$ ;  $LEV_{it}$  represents financial leverage of firm  $i$  at time  $t$ ;  $GROWTH_{it}$  means revenue growth rate of firm  $i$  at time  $t$ ;  $OROA_{it}$  denotes operating return on assets of firm  $i$  at time  $t$ ;  $LOSS_{it}$  means dummy variable equal to 1 if net income is negative, and 0 otherwise;  $DIV_{it}$  denotes dividend yield of firm  $i$  at time  $t$ ;  $AGE_{it}$  represents the age of firm  $i$  at time  $t$ ;  $SIZE_{it}$  means the size of firm  $i$  at time  $t$ ;  $CIR_{it}$  denotes

dummy variable equal to 1 if year of observation is greater than 2014, and 0 otherwise;  $\beta_0$  means intercept coefficient of regression model;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  are estimated slope coefficients of regression model;  $\varepsilon_{it}$  means residuals of regression model.

## 4. Research results

### 4.1 Descriptive statistics

Table 1 shows the descriptive statistics of p this study. After controlling missing values, the dataset is strongly balanced. Also, outliers for variables as EQ, GROWTH, OROA and DIV are winsorized at 5%. EQ has an average value of -0.037, and its minimum and maximum value are -0.110 and -0.002, respectively. This indicates the existence of discretionary accruals in reported earnings during the period from 2011 to 2019, and therefore, the higher the absolute value of discretionary accruals, the lower the EQ.

The average financial leverage (LEV) takes an average value of 0.504, which implies that listed firms employ both debt and equity. However, the lowest figure for this ratio is 0.002 while the highest one is 1.294. This indicates that some firms have not utilized the advantage of leverage whereas others can be at the risk of bankruptcy with total liabilities exceeding total assets. In addition, revenue growth rate (GROWTH) and operating returns on asset (OROA) is 13.9% and 7.4% on average, respectively. This is justifiable since Vietnamese firms are still in the early stages of their life cycle. Besides, accounting losses (LOSS) accounts for 5.7% in the total of 3,987 observations from 2011 to 2019. Regarding the dividend yields (DIV), this figure points out that beside capital gain which is the realized change in market value of stock, investors will receive additional returns of 6.6% on average from holding this type of financial instruments.

**Table 1.** Descriptive statistics of the research variables

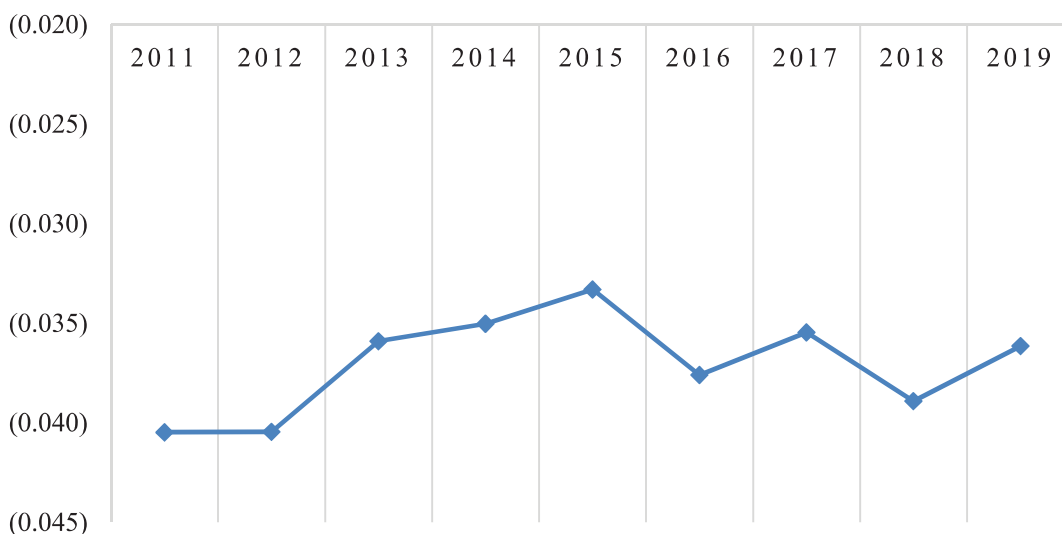
Variables	Obs	Mean	Sd	Min	Max
EQ	3987	-0.037	0.030	-0.110	-0.002
LEV	3987	0.504	0.225	0.002	1.294
GROWTH	3987	0.139	0.299	-0.388	0.661
OROA	3987	0.074	0.070	-0.017	0.240
LOSS	3987	0.057	0.231	0.000	1.000
DIV	3987	0.066	0.069	0.000	0.241
AGE	3987	7.209	3.854	1000	21.000
SIZE	3987	27.077	1.486	23.330	32.254
CIR	3987	0.556	0.497	0.000	1.000

**Notes:** EQ is earnings quality. LEV is financial leverage. GROWTH is revenue growth rate. OROA is operating return on assets. LOSS is dummy accounting losses variable. DIV is dividend yield. AGE is firm age. SIZE is firm size. CIR is dummy control Circular 200 variable.

**Source:** The authors' calculation



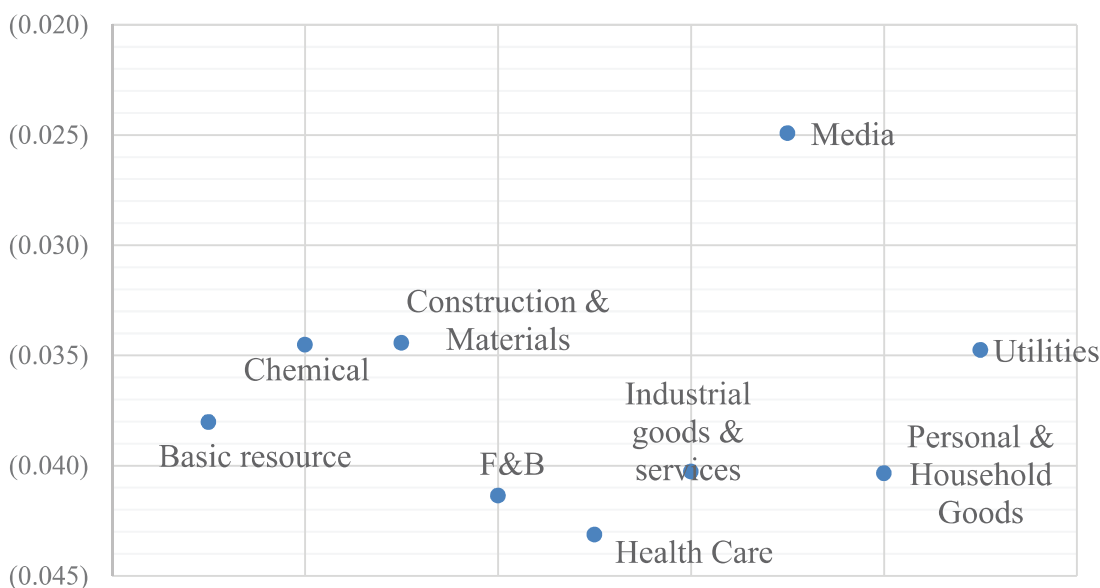
Two non-financial determinants including firm age and firm size take an average value of 7.209 and 27.077, respectively. This indicates that most of the companies are officially listed on Vietnamese stock exchange since the beginning of 2013, and thus, they are still the early stages of their operating cycles.



**Figure 2.** Earnings quality (2011-2019)

**Source:** The authors' calculation

The research sample consists of nine remaining industries with 443 firms from 2011 to 2019. From processed and calculated figures, detailed descriptive statistics of EQ is implemented by year (Figure 1) and by industry (Figure 2). Regarding EQ in Vietnam during 9-year period as illustrated in Figure 1, the figure gradually increased from 2011 before reaching the highest 4 years later and subsequently experienced a fluctuation during the remaining years of the study period.



**Figure 3.** Earnings quality across industries

**Source:** The authors' calculation

To some extent, this trend of EQ is consistent with that of economic development in Vietnam. Specifically, after the global financial crisis in 2008, with changes in economic policies such as adjusting interest rate for credit growth while controlling the inflation at an appropriate level, Vietnamese firms not only had lending opportunities to make investments and productions but also witnessed the increase in consumption demand, thereby improving the earnings along with the quality of these figures.

Meanwhile, with the issuance of Circular 200 which has come into effect since the beginning of 2015, the financial statements have been provided to investors with higher degree of transparency in both presentation and disclosure than the previous ones, hence enhancing EQ. However, the fluctuation of this figure from 2015 to 2019 can be viewed as a signal of unsustainable development of Vietnamese stock market. Accordingly, this can partly derive from EM behaviors or poor performance, resulting in adverse impacts on the quality of earnings, which affect not only the investors' belief but also the going concern assumptions of the corporation in the future.

Regarding the EQ across nine industries in the research sample, Figure 2 indicated that Media industry has the highest EQ while Health Care industry is the one with the lowest EQ. In addition, Utilities, Construction and Materials, and Chemical industries are at the same level followed by the four remaining ones.

#### **4.2 Regression results**

Table 2 illustrated the regression analysis results from FE regression model. With regards to financial leverage (LEV), this ratio is negatively associated with EQ at the significance level of 5%. Specifically, the regression coefficient equal to -0.010 indicates that when the other factors are held constant, a 1-percent increase in leverage leads to a decrease in EQ by 0.01% on average. Although this result has statistical significance, it has quite low economic significance. However, our finding indicates that companies with high level of financial leverage are viewed to have low-quality of earnings.

Our finding implies that Vietnamese listed firms that employ more debt in their capital structure are more likely to manipulate earnings to meet the requirements of creditors as well as to extend the ability of raising additional debt in the future, hence, their EQ might be decreased. Our finding is consistent with the results by DeFond and Jiambalvo (1994), Dechow *et al.* (2010), Gopalan and Jayaraman (2012), Nguyen and Nguyen (2019). In addition, Nguyen and Tran (2018) also indicated the existence of EM behaviors is in association with the use of financial leverage in Vietnamese listed companies.

In terms of growth (GROWTH) which is measured as the growth rate of net revenues, this ratio has an adverse partial impact on EQ at the significance level of 1%. With the regression coefficient equal to -0.005, the study indicates that when the other factors are held constant, a 1-percent increase in revenues growth results in a decrease in EQ by 0.005% on average. Although our result has low economic significance, it implies that companies with a high revenues growth rate have low-quality of earnings, which is similar to the research outcomes

by Nissim and Penman (2001), Ghosh *et al.* (2005), Dechow *et al.* (2010), Gopalan and Jayaraman (2012), and Hoang (2016).

**Table 2.** Result of regression analysis

	<b>FE regression</b>
LEV	-0.010** (0.005)
GROWTH	-0.005*** (0.002)
OROA	-0.188*** (0.012)
LOSS	-0.040*** (0.002)
DIV	0.022** (0.008)
AGE	-0.000 (0.000)
SIZE	0.002* (0.001)
CIR	0.002 (0.002)
Constant	-0.080** (0.034)
Observations	3,987
R-squared	0.13

**Notes:** Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  indicate statistical significance at the 1%, 5% and 10% test levels, respectively. EQ is earnings quality. LEV is financial leverage. GROWTH is revenue growth rate. OROA is operating return on assets. LOSS is dummy accounting losses variable. DIV is dividend yield. AGE is firm age. SIZE is firm size. CIR is dummy control Circular 200 variable.

**Source:** The authors' calculation

Operating ROA (OROA), measured as the profit or loss from operation divided by average total assets, is also negatively associated with EQ at the significance level of 1%. With the regression coefficient equal to -0.188, the outcome shows that when the other factors are held constant, an average decrease of 0.188% in EQ is derived from a 1-percent increase in OROA. As a result, companies with high OROA are viewed to have low-quality of earnings. This can be explained from the context of Vietnamese stock market that many investors are

mainly concerned with the profitability of their capital, thereby only investing in companies which can yield high and sustainable profit ratios over time. Consequently, this has put a pressure on the managers not only to make overproduction decisions or cut discretionary expenses but also to apply “creative accounting treatments” in order to manipulate reported earnings, thereby reducing EQ. In Vietnam, such findings are also found in the studies by Duong (2013), and Hoang and Dang (2018).

The dummy accounting losses variable (LOSS) is found to have a negative relationship with EQ at a significant level of 1% with a coefficient of -0.040. This result is consistent with the studies by Doyle *et al.* (2007) and Ran *et al.* (2015). This outcome implies that negative earnings can be derived from poor performance or intentional adjustments of management to increase costs in order to lower profit figure. Therefore, companies can not only lower or even avoid the tax liabilities but also create “hidden reserves” which will eventually be used to increase income in future periods. Such an accounting treatment in some cases is also referred to as “artificial earnings smoothness” or “income smoothing”.

The relationship between EQ and dividend yield (DIV) is found to be positive and statistically significant at 5%. Specifically, with the regression coefficient equal to 0.022, our finding indicates that a 1-percent increase in dividend yield also leads to a rise in EQ by 0.022% on average. Accordingly, higher dividend yields result in higher EQ, which is consistent with the information effect of dividends and other previous findings by Sirait and Siregar (2014), Deng *et al.* (2017), and He *et al.* (2017).

In terms of firm size (SIZE), the research result is consistent with many previous studies. Specifically, under this thesis, this ratio has a positive impact on EQ at the significance level of 10%. With the regression coefficient equal to 0.002, the outcome indicates that when the other factors are held constant, a 1-percent increase in firm size results in a rise in EQ by 0.002% on average. This means companies with a larger scale have higher quality of earnings, which is understandable given the economies of scale. Accordingly, large companies have lower cost per unit produced compared to small ones, thereby increasing profit as well as the competitive advantage in the market. In addition, as pointed out by Ball and Foster (1982), firm size is positively correlated with the quality of earnings as large companies often have to incur fixed costs to maintain internal control system during the financial reporting process. Such findings are also agreed by Parte-Esteban and Garcia (2014), Liu *et al.* (2017), and Bui and Ngo (2017).

Firm age (AGE) and Circular 200 (CIR) are found to have no significant relationships with EQ. However, the positive relationship between Circular 200 and EQ implies that in addition to comprehensive and updated guidance provided by the Circular, there have been certain existing gaps that firms can manipulate their earnings in some ways. Therefore, despite the highest level of EQ achieved during the year 2015, it could not maintain a stable level or continued to increase in 4 years later. Such an outcome also implies the need for higher financial reporting standard such as International Financial Reporting Standards (IFRS) which

can create a better quality of earnings in terms of both accountability and decision usefulness for listed companies in Vietnam.

### 4.3 Post-estimation tests and results

#### 4.3.1 Multicollinearity

The multicollinearity phenomena have been tested by using Variance Inflation Factors (VIF) and the results are shown in Table 3. If the VIF values of all variables are under 5, there is no signal of multicollinearity problem in the research model. At the same time, such a result is consistent with the matrix of correlation in which the correlation coefficients between the independent variables are lower than 0.85. Therefore, it can be concluded that the multicollinearity problem does not exist in this research model.

**Table 3.** Multicollinearity test

	VIF	1/VIF
LEV	1.63	1.28
GROWTH	1.16	1.08
OROA	1.65	1.29
LOSS	1.16	1.08
DIV	1.14	1.07
AGE	1.50	1.23
SIZE	1.21	1.10
CIR	1.49	1.22
Mean VIF	1.37	

**Notes:** EQ is earnings quality. LEV is financial leverage. GROWTH is revenue growth rate. OROA is operating return on assets. LOSS is dummy accounting losses variable. DIV is dividend yield. AGE is firm age. SIZE is firm size. CIR is dummy control Circular 200 variable.

**Source:** The authors' calculation

#### 4.3.2 Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity in FE regression model has been employed to test the heteroskedasticity phenomena in this study. Under the null hypothesis, the variance of the error is the same for all individuals (homoskedasticity). The testing result indicates that the p-value is equal to 0.000, which leads to a significant rejection of the null hypothesis. Thus, it can be concluded that heteroskedasticity is present in the model.

#### 4.3.3 Autocorrelation

Autocorrelation (also referred to as serial correlation) is responsible for too optimistic standard errors. Wooldridge's test for autocorrelation in panel data is performed with the null hypothesis assuming that there is no first-order autocorrelation in the model (Wooldridge,



2002). The test result indicates the p-value equal to 0.1663 greater than 0.1; and therefore, we failed reject the null hypothesis. It can be concluded that autocorrelation is not present.

#### *4.3.4 Cross-sectional dependence*

With many cross-sectional units and a few time-series observations as panel data, there are possibilities of significant cross-sectional dependence, which may arise because of the existence of common shocks and unobserved components that become part of the error term as indicated in many previous studies. Pesaran's CD test of cross-sectional independence is performed under the null hypothesis that the error terms are not correlated across entities (cross sectional independence). The result shows that FE model produces regression residuals that are cross-sectional dependent. On average, the average absolute value of correlation between the residuals is 0.293. Therefore, Pesaran's CD test rejects the cross-sectional independence at any level of significance. In other words, it can be concluded that cross-sectional dependence is present in the model.

#### *4.3.5 Omitted-variable bias*

Ramsey RESET test has been employed to test whether the omitted variables bias. The result shows that the p-value are all significant, and thus, the study rejects null hypothesis that the model has no omitted variables. However, since FE regression assumes that unobservable factors that may affect the two sides of the regression at the same time are time unchanged. Moreover, FE regression deploys within-group changes over time and by including FE (i.e. firm and time effects), we can control the mean differences across the firms in any observable predictors. Thus, the FE coefficients absorb all the across-firm variance with unchanged time. As a result, FE regression is considered as an optimal solution to deal with omitted variables bias for panel data.

#### *4.3.6 Endogeneity*

Regarding endogeneity problem, we consider financial leverage as an endogenous variable as financial leverage is dependent on many other factors (Booth *et al.*, 2001; Frank and Goyal, 2009). Accordingly, by using capital intensity as an instrumental variable, measured by the gross amount of PPE divided by total assets, the result shows that this instrumental variable is appropriate and endogeneity problem is not present in this research as p-value of endogeneity test is equal to 0.2565, which fails to reject of null hypothesis that financial leverage is an exogenous variable.

#### *4.3.7 Post-estimation results*

Table 4 reports the comparison between estimates using different regressions including FE, ordinary least squared (OLS) and FE with Driscoll-Kraay standard errors (1998). At the same time, the results of FE and OLS are robust to heteroskedasticity using Huber-White standard errors while FE with Driscoll-Kraay standard errors is asymptotically robust to heteroskedasticity and cross-sectional dependence.

**Table 4.** Summary of post-estimation research results

	FE with Huber-White standard errors	OLS with Huber-White standard errors	FE with Driscoll-Kraay standard errors
LEV	-0.010* (0.006)	-0.001 (0.002)	-0.010* (0.005)
GROWTH	-0.005*** (0.002)	-0.005*** (0.002)	-0.005*** (0.001)
OROA	-0.188*** (0.016)	-0.176*** (0.009)	-0.188*** (0.012)
LOSS	-0.040*** (0.003)	-0.045*** (0.003)	-0.040*** (0.001)
DIV	0.022** (0.009)	0.027*** (0.006)	0.022** (0.007)
AGE	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
SIZE	0.002 (0.002)	0.000 (0.000)	0.002** (0.001)
CIR	0.002 (0.002)	0.002* (0.001)	0.002 (0.001)
_cons	-0.080* (0.041)	-0.030*** (0.008)	-0.080** (0.025)
Observations	3987	3987	3987
R-squared	0.13	0.20	0.13

**Notes:** EQ is earnings quality. LEV is financial leverage. GROWTH is revenue growth rate. OROA is operating return on assets. LOSS is dummy accounting losses variable. DIV is dividend yield. AGE is firm age. SIZE is firm size. CIR is dummy control Circular 200 variable.

**Source:** The authors' calculation

As can be seen from the Table 4, while OLS regression has higher R-squared compared to FE and FE with Driscoll-Kraay standard errors. Specifically, while R-square of OLS with Huber-White standard errors is equal to 0.20, which means 20% of the dependent variable is explained by the independent variables, that of FE and FE with Driscoll-Kraay standard errors is only 0.13. However, FE and FE with Driscoll-Kraay standard errors tend to share the same results, and especially the latter approach is robust to problems of the research model and is consistent with previous studies. Three models report quite consistent results in terms the impact of leverage, growth, operating ROA, dividend and age on EQ as well as the significance levels. However, the significant positive impacts of size and Circular 200 on EQ are found at 5% and 10% level of significance, respectively. The positive impact of Circular

200 on EQ implies that despite the updated guidance provided by the Circular 200, there have been certain existing gaps that firms can manipulate their earnings in some ways. There is a need for higher financial reporting standard such as International Financial Reporting Standards (IFRS) to create a better quality of earnings to ensure both accountability and decision usefulness for listed companies in Vietnam.

## 5. Conclusion

Our study reviews the measurements of EQ and investigates its determinants that are mainly derived from firm characteristics. The panel data with 3,987 firm-year observations were collected from 443 listed firms on the Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock Exchange (HSX) during 2011 to 2019. Our research findings indicate that dividend yield and firm size are positively related to EQ while financial leverage, growth, profitability and accounting losses have negative impacts on EQ. Also, firm age and Circular 200 are found to have positive partial impact on EQ on listed firms in Vietnam.

Our results imply that while maintaining an attractive dividend yields alongside with a balanced capital structure, a stable revenue growth and operating ROA, firms should mitigate EM. Despite its possible short-term benefits, EM would not be an effective solution in the long run. If such manipulation of earnings is detected and published, it will affect not only the investors' belief but also the going concern assumptions of enterprises in the future. For big firms, utilizing their economies of scale and having strong internal control system are better solutions to achieve higher profits as well as higher degrees of transparency and higher accounting information quality.

Our study has some shortcomings. We focused mainly on accrual quality aspect of EQ, which was regressed on seven independent variables and one control variable. Although having compared with research results of previous studies and obtained a certain degree of similarities, our study has not considered EQ in a multi-dimensional approach due to the lack of data. Thus, this is the gap for future study. Also, we only focus on firm characteristics. The further study can be conducted in the way that other macro factors at the industry level and the country level might be included in the empirical model. Lastly, endogeneity problem has not been fully controlled. The research can be extended by apply GMM model to control for endogeneity.

## References

- Ball, R. and Foster, G. (1982), "Corporate financial reporting: a methodological review of empirical research", *Journal of Accounting Research*, Vol. 20, pp. 161 - 234.
- Ball, R. and Shivakumar, L. (2006), "The role of accruals in asymmetrically timely gain and loss recognition", *Journal of Accounting Research*, Vol. 44 No. 2, pp. 207 - 242.
- Ball, R., Kothari, S. and Robin, A. (2000), "The effect of international institutional factors on properties of accounting earnings", *Journal of Accounting and Economics*, Vol. 29 No. 1, pp. 1 - 51.
- Barth, M., Beaver, W. and Landsman, W. (2001), "The relevance of the value relevance literature for financial accounting standard setting: another view", *Journal of Accounting and Economics*, Vol. 31 No. 1-3, pp. 77 - 104.

- Barton, J. and Waymire, G. (2004), "Investor protection under unregulated financial reporting", *Journal of Accounting and Economics*, Vol. 38, pp. 65 - 116.
- Barua, A. (2006), "Using the FASB's qualitative characteristics in earnings quality measures", Working paper, Louisiana State University.
- Basu, S. (1997), "The conservatism principle and the asymmetric timeliness of earnings", *Journal of Accounting and Economics*, Vol. 24 No. 1, pp. 3 - 37.
- Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V. (2001), "Capital structure in developing countries", *The Journal of Finance*, Vol. 56, pp. 87 - 130.
- Bui, V.D. and Ngo, H.D. (2017), "Dac diem hoi dong quan tri va hanh vi quan tri loi nhuan cua cac cong ty niem yet tren thi truong chung khoan Viet Nam", *Tap chi Khoa hoc Dai hoc Mo TP.HCM*, Tap 54, So 3, tr. 71 - 84.
- Brav, A., Graham, J. and Harvey, C. (2005), "Payout policy in the 21st century", *Journal of Financial Economics*, Vol. 77 No. 3, pp. 483 - 527.
- Chen, F., Hope, O.K., Li, Q. and Wang, X. (2010), "Financial reporting quality and investment efficiency of private firms in emerging markets", *Accounting Review, Forthcoming*, Available at <https://ssrn.com/abstract=1722804> (Accessed 28 September, 2020).
- Cheng, C., Ferris, K., Hsieh, S. and Su, Y. (2005), "The value relevance of earnings and book value under pooling and purchase accounting", *Advances in Accounting*, Vol. 21, pp. 25 - 59.
- Cohen, D. (2003), "Quality of financial reporting choice: determinants and economic consequences", Working paper, Kellogg School of Management, Northwestern University.
- Cohen, D.A. (2008), "Does information risk really matter? An analysis of the determinants and economic consequences of financial reporting quality", *Asia-Pacific Journal of Accounting and Economics*, Vol. 15 No. 2, pp. 69 - 90.
- Collins, D., Maydew, E. and Weiss, I. (1997), "Changes in the value-relevance of earnings and book values over the past forty years", *Journal of Accounting and Economics*, Vol. 24 No. 1, pp. 39 - 67.
- Dang, N.H. (2015), "Nghien cuu xu huong quan tri loi nhuan do thay doi thue suat thu nhap doanh nghiep cua cac cong ty niem yet tren thi truong chung khoan Viet Nam", *Tap chi Kinh te va Phat trien*, So 21, tr. 46 - 54.
- Dao, N.G. (2017), "Tong quan nghien cuu ve thao tung loi nhuan cong bo boi cac ngan hang thuong mai", *Tap chi Khoa hoc trong Dai hoc Can Tho*, Tap 48, So 1, tr. 120 - 134.
- DeAngelo, H., DeAngelo, L. and Skinner, D. (1994), "Accounting choice in troubled companies", *Journal of Accounting and Economics*, Vol. 17 No.1-2, pp. 113 - 143.
- DeAngelo, L. (1986), "Accounting numbers as market valuation substitutes: a study of management buyouts of public stockholders", *Accounting Review*, Vol. 61 No. 3, pp. 400 - 420.
- Dechow, P. and Dichev, I. (2002), "The quality of accruals and earnings: the role of accrual estimation errors", *The Accounting Review*, Vol. 77, pp. 35 - 59.
- Dechow, P., Ge, W. and Schrand, C. (2010), "Understanding earnings quality: a review of the proxies, their determinants and their consequences", *Journal of Accounting and Economics*, Vol. 50, pp. 344 - 401.
- Dechow, P., Sloan, R. and Sweeney, A. (1995), "Detecting earnings management", *The Accounting Review*, Vol. 70 No. 2, pp. 193 - 225.

- Dechow, P., Sloan, R. and Sweeney, A. (1996), "Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC", *Contemporary Accounting Research*, Vol. 13 No. 1, pp. 1 - 36.
- DeFond, M. and Jiambalvo, J. (1994), "Debt covenant violation and manipulation of accruals", *Journal of Accounting and Economics*, Vol. 17 No. 1-2, pp. 145 - 176.
- Deng, L., Li, S. and Liao, M. (2017), "Dividends and earnings quality: evidence from China", *International Review of Economics and Finance*, Vol. 48, pp. 255 - 268.
- Doyle, J., Ge, W. and McVay, S. (2007), "Accruals quality and internal control over financial reporting", *The Accounting Review*, Vol. 82 No. 5, pp. 1141 - 1170.
- Driscoll, J. and Kraay, A. (1998), "Consistent covariance matrix estimation with spatially dependent data", *Review of Economics and Statistics*, Vol. 80, pp. 549 - 560.
- Dumontier, P. and Labelle, R. (1998), "Accounting earnings and firm valuation: the French case", *European Accounting Review*, Vol. 7 No. 2, pp. 163 - 183.
- Duong, N.T.T. (2013), "Tac dong cua cau truc no den chat luong loi nhuan cua doanh nghiep", *Tap chi Cong nghe Ngan hang*, Tap 85, So 4, tr. 51 - 59.
- Ericson, R. and Pakes, A. (1995), "Markov-perfect industry dynamics: a framework for empirical work", *The Review of Economic Studies*, Vol. 62 No. 1, pp. 53 - 82.
- Frank, M.Z. and Goyal, V.K. (2009), "Capital structure decisions: which factors are reliably important?", *Financial Management*, Vol. 38 No. 1, pp. 1 - 37.
- Francis, J., Hanna, J. and Vincent, L. (1996), "Causes and effects of discretionary asset write-offs", *Journal of Accounting Research*, Vol. 34, pp. 117 - 134.
- Francis, J., LaFond, R., Olsson, P. and Schipper, K. (2004), "Costs of equity and earnings attributes", *The Accounting Review*, Vol. 79 No. 4, pp. 967 - 1010.
- Francis, J., Lafond, R., Olsson, P. and Schipper, K. (2005), "The market pricing of accrual quality", *Journal of Accounting and Economics*, Vol. 39 No. 2, pp. 295 - 327.
- Friedlan, J. (1994), "Accounting choices of issuers of initial public offerings", *Contemporary Accounting Research*, Vol. 11 No. 1, pp. 1 - 31.
- Ghosh, A., Gu, Z. and Jain, P. (2005), "Sustained earnings and revenue growth, earnings quality, and earnings response coefficients", *Review of Accounting Studies*, Vol. 10 No. 1, pp. 33 - 57.
- Gopalan, R. and Jayaraman, S. (2012), "Private control benefits and earnings management: evidence from insider-controlled firms", *Journal of Accounting Research*, Vol. 50 No. 1, pp. 117 - 157.
- Gul, F., Fung, S. and Jaggi, B. (2009), "Earnings quality: some evidence on the role of auditor tenure and auditors' industry expertise", *Journal of Accounting and Economics*, Vol. 47, pp. 265 - 287.
- Hamidzadeh, S. and Zeinali, M. (2015), "The asset structure and liquidity effect on financial reporting quality at listed companies in Tehran Stock Exchange", *Arabian Journal of Business Management and Review*, Vol. 4 No. 7, pp. 121 - 127.
- Hassan, S. and Bello, A. (2013), "Firm characteristics and financial reporting quality of listed manufacturing firms in Nigeria", *International Journal of Accounting, Banking and Management*, Vol. 1 No. 6, pp. 47 - 63.
- He, W., Ng, L., Zaiats, N. and Zhang, B. (2017), "Dividend policy and earnings management across countries", *Journal of Corporate Finance*, Vol. 42, pp. 267 - 286.



- Hoang, K. (2016), “Cac nhan to tac dong toi chat luong chi tieu loi nhuan trong bao cao tai chinh doanh nghiệp niem yet tai Viet Nam”, *Tap chi Kinh te va Phat trien*, Tap 22, So 230, tr. 71 - 80.
- Hoang, T.V.H. and Dang, N.H. (2018), “Yeu to anh huong den quan tri loi nhuan: nghien cuu truong hop cac doanh nghiệp niem yet tai Viet Nam”, *Tap chi Khoa hoc va Cong nghe Dai hoc Cong nghiep Ha Noi*, Tap 46, So 6, tr. 60 - 67.
- Jones, J. (1991), “Earnings management during import relief investigations”, *Journal of Accounting Research*, Vol. 29 No. 2, pp. 193 - 228.
- Kamau, R. and Waweru, N. (2013), “Corporate governance and level of internet reporting in Kenya”, Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2310098](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2310098) (Accessed 20 November, 2020).
- Karami, A. and Akhgar, M. (2014), “Effect of company’s size and leverage features on the quality of financial reporting of companies listed in Tehran Stock Exchange”, *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 6 No. 5, pp. 71 - 81.
- Kothari, S., Leone, A. and Wasley, C. (2005), “Performance matched discretionary accrual measures”, *Journal of accounting and Economics*, Vol. 39 No. 1, pp. 163 - 197.
- Lang, M. and Lundholm, R. (1993), “Cross-sectional determinants of analyst ratings of corporate disclosures”, *Journal of Accounting Research*, Vol. 31 No. 2, pp. 246 - 271.
- Lee, C., Li, L. and Yue, H. (2006), “Performance, growth and earnings management”, *Review of Accounting Studies*, Vol. 11 No. 2-3, pp. 305 - 334.
- Leuz, C., Nanda, D. and Wysocki, P. (2003), “Earnings management and investor protection: an international comparison”, *Journal of Financial Economics*, Vol. 69 No. 3, pp. 505 - 527.
- Lev, B. (1989), “On the usefulness of earnings and earnings research: lessons and directions from two decades of empirical research”, *Journal of Accounting Research*, Vol. 27, pp. 153 - 192.
- Li, Q. and Wang, T. (2010), “Financial reporting quality and corporate investment efficiency: Chinese experience”, *Nankai Business Review International*, Vol. 1 No. 2, pp. 197 - 213.
- Lin, Y. and Wu, L. (2014), “Exploring the role of dynamic capabilities in firm performance under the resource-based view framework”, *Journal of Business Research*, Vol. 67 No. 3, pp. 407 - 413.
- Lintner, J. (1956), “Distribution of incomes of corporations among dividends, retained earnings, and taxes”, *The American Economic Review*, Vol. 2, pp. 97 - 113.
- Lipe, R. (1990), “The relation between stock returns and accounting earnings given alternative information”, *Accounting Review*, Vol. 65 No. 1, pp. 49 - 71.
- Liu, M., Shi, Y., Wilson, C. and Wu, Z. (2017), “Does family involvement explain why corporate social responsibility affects earnings management?”, *Journal of Business Research*, Vol. 75, pp. 8 - 16.
- McNichols, M. (2002), “Discussion of the quality of accruals and earnings: the role of accruals estimation errors”, *The Accounting Review*, Vol. 77 No. 1, pp. 61 - 69.
- Ministry of Finance. (2014), Circular 200/2014/TT-BTC dated December 22, 2014 on guidelines for accounting policies for enterprises.
- Mohammady, A. (2010), “Earnings quality constructs and measures”, Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1678461](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1678461) (Accessed 12 January, 2021).
- Mora, A. and Walker, M. (2015), “The implications of research on accounting conservatism for accounting standard setting”, *Accounting and Business Research*, Vol. 45 No. 5, pp. 620 - 650.

- Ngoc, V. and Thanh, H (2020), “Sau kiem toan, Hoang Anh Gia Lai bat ngo tu lai chuyen sang lo nghin ty dong”, Available at <https://vtc.vn/sau-kiem-toan-hoang-anh-gia-lai-bat-ngo-tu-lai-chuyen-sang-lo-nghin-ty-dong-ar539418.html> (Accessed 10 December, 2020).
- Nguyen, A.H. and Nguyen, R.D. (2019), “Nhan to anh huong den chat luong loi nhuan cua cac cong ty niem yet tren HOSE”, *Tap chi Tai chinh*, Tap 715, So 10, tr. 64 - 66.
- Nguyen, D.Q. and Tran, Q.H. (2018), “Hanh vi quan tri loi nhuan va hieu qua hoat dong cua cac doanh nghiep niem yet tren thi truong chung khoan Viet Nam”, *Tap chi Kinh te doi ngoai*, So 99, tr. 57 - 71.
- Nguyen, H.A. and Nguyen, T.T. (2017), “Cac yeu to anh huong den loi nhuan doanh nghiep niem yet trên HOSE”, *Tap chi Tai chinh*, Tap 671, So 12, tr. 85 - 87.
- Nguyen, T.N.L. and Le, T.A. (2016), “Quan tri thu nhap va loi suat chung khoan tuong lai: kiem chung thuc nghiem tai thi truong Viet Nam”, *Tap chi Kinh te doi ngoai*, So 85, tr. 123 - 135.
- Nguyen, T.N.T and Bui, K.P. (2018), “Cac yeu to anh huong den chat luong loi nhuan cua cac cong ty niem yet tai Viet Nam”, *Tap chi Nghien cuu Kinh te va Kinh doanh Chau A*, Tap 29, So 7, tr. 5 - 20.
- Nissim, D. and Penman, S. (2001), “Ratio analysis and equity valuation: from research to practice”, *Review of Accounting Studies*, Vol. 6 No. 1, pp. 109 - 154.
- Olowokure, O., Tanko, M. and Nyor, T. (2016), “Firm structural characteristics and financial reporting quality of listed deposit money banks in Nigeria”, *International Business Research*, Vol. 9 No. 1, pp. 106 - 122.
- Parte-Esteban, L. and Garcia, C. (2014), “The influence of firm characteristics on earnings quality”, *International Journal of Hospitality Management*, Vol. 42, pp. 50 - 60.
- Penman, S. (2003), “The quality of financial statements: perspectives from the recent stock market bubble”, *Accounting Horizons*, Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=319262](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=319262) (Accessed 18 January, 2021).
- Penman, S. and Zhang, X. (2002), “Accounting conservatism, the quality of earnings, and stock returns”, *The Accounting Review*, Vol. 77 No. 2, pp. 237 - 264.
- Pope, P. and Walker, M. (1999), “International differences in the timeliness, conservatism, and classification of earnings”, *Journal of Accounting Research*, Vol. 37, pp. 53 - 87.
- Ran, G., Fang, Q., Luo, S. and Chan, K. (2015), “Supervisory board characteristics and accounting information quality: evidence from China”, *International Review of Economics and Finance*, Vol. 37, pp. 18 - 32.
- Schipper, K. and Vincent, L. (2003), “Earnings quality”, *Accounting Horizons*, Vol. 17, pp. 97 - 110.
- Sirait, F. and Siregar, S. (2014), “Dividend payment and earnings quality: evidence from Indonesia”, *International Journal of Accounting and Information Management*, Vol. 22 No. 2, pp. 103 - 117.
- Teets, W. (2002), “Quality of earnings: an introduction to the issues in accounting education”, *Issues in Accounting Education (Special Issue)*, Vol. 17, pp. 35 - 39.
- Vasilescu, C. and Millo, Y. (2016), “Do industrial and geographic diversifications have different effects on earnings management? Evidence from UK mergers and acquisitions”, *International Review of Financial Analysis*, Vol. 46, pp. 33 - 45.
- Wooldridge, J. (2002), *Econometric analysis of cross section and panel data*, MIT Press.