

Nguyen, Anh Huu; Duong, Chi Thi

## Article

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\*Corresponding author Chi Thi Duong,  
School of Accounting and Auditing,  
National Economics University,  
100000, Hanoi, Vietnam  
E-mail: [duongchi@neu.edu.vn](mailto:duongchi@neu.edu.vn)

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## ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

# Earnings management and accounting performance of new firms listings: evidence from the Vietnamese stock market

Anh Huu Nguyen<sup>1</sup> and Chi Thi Duong<sup>1\*</sup>

**Abstract:** The purpose of this article is to investigate the phenomenon of earnings management and its impact on accounting performance at the time of the listing event. The analysis is based on a sample of 189 firms listing their securities on the Ho Chi Minh, Vietnam stock exchange for the period of 2009 to 2017. Four cross-sectional models were adopted for this study to estimate earnings management with two models based on total accruals and two models based on current accruals. The article first provides evidence that Vietnamese firms aggressively manipulate their earnings upward in the year before listing in an attempt to meet listing requirements when adopting current accruals models, but not when earnings management was measured by total discretionary accruals. Additionally, firms exhibit a significant decline in accounting performance (measured by ROE and ROA) for two consecutive years after listing. Consistent with our expectations, earnings management (measured by discretionary current accruals) in the pre-listing year are negatively related to poor accounting performance for two years after listing but not in the listing year. This study also provides an additional robustness check

### ABOUT THE AUTHOR

Huu Anh Nguyen (first author) is an Associate Professor, Dean of School of Accounting and Auditing, National Economics University, Hanoi, Vietnam. His main research interest includes corporate finance, accounting and contemporary financial economics. He has published a number of good quality research papers in national and international journals. Chi Thi Duong (Corresponding author) completed her Phd in Accounting at National Economics University, Vietnam. She has had more than 5 years of experience in the field of auditing and accounting in Vietnam. Moreover, she has been teaching at School of Accounting and Auditing, National Economics University for the last 10 years. Her research and teaching interests are in the areas of contemporary issues in financial accounting and management accounting, trends and issues of integration of Vietnam accounting in the process of globalization. She has published a number of good quality research papers in both national and international journals.

### PUBLIC INTEREST STATEMENT

This study examines the phenomenon of earnings management and its impact on accounting performance at the time of the listing event. Using the sample of 189 listed firms on the Ho Chi Minh, Vietnam stock exchange for the period of 2009 to 2017, the study first provides evidence that Vietnamese firms aggressively manipulate their earnings upward in the year before listing in an attempt to meet listing requirements when adopting current accruals models, but not when earnings management was measured by total discretionary accruals. Additionally, firms exhibit a significant decline in accounting performance (measured by ROE and ROA) for two consecutive years after listing. Consistent with our expectations, earnings management (measured by discretionary current accruals) in the pre-listing year are negatively related to poor accounting performance for two years after listing, but not in the listing year. The findings from this research make a number of contributions to the earnings management literature, and are relevant for investors, policymakers, and firms.

on the results with respect to handling outliers. The findings from this research make a number of contributions to the earnings management literature and are relevant for investors, policymakers, and firms.

**Subjects:** Economics; Finance; Business; Management and Accounting

**Keywords:** Accounting performance; discretionary current accruals; earnings management; new listings; Vietnamese stock market

**JEL classification:** L25; M41

## 1. Introduction

Earnings management has been observed in a variety of issuances of equity, such as initial public offerings (IPO) and seasoned equity offerings (SEO). Many scholars have contributed to the literature of earnings management in terms of its relationship to a firm's performance in the year following the offering. Studies addressing this issue have revealed that on average, firms boost their earnings upward around the time of listing events in order to increase the firm's value, full subscription of the issue, or increase issue prices. These studies provide evidence to show that earnings management can explain the puzzling phenomenon of underperforming post-issue earnings (Aharony et al., 2010; Ball & Shivakumar, 2008; Chakroun & Ben Amar, 2022; Chiraz & Anis, 2013; DuCharme et al., 2001; Espahbodi et al., 2021; Gajewski & Gresse, 2006; J. Gao et al., 2015; Kao et al., 2009; Lin et al., 2021; Mangala & Dhanda, 2019; Perotti & Windisch, 2017; Phadke & Kamat, 2017; Rangan, 1998; Roosenboom et al., 2003; Sletten et al., 2018; Teoh et al., 1998a, 1998b).

Unlike for IPOs and SEOs, there has been little research about earnings management and firm performance around listing events. Listing is the event in which all companies seeking a listing on the stock exchange are required to comply with the rules and listing conditions, which should be prepared prior to listing. Like IPOs and SEOs, managers of firms pursuing listing might inflate their earnings upward before listing in order to meet the requirement and to form overly optimistic expectations of investors (Algharaballi, 2013; Anh Huu & Chi Thi, 2021; Charitou & Louca, 2003; Li et al., 2014). As a result, earnings management (accruals) will later be reserved, leading to a decline in newly listed companies' performance after listing. With the growing importance of listing to the economy and firms, there is an essential need to conduct research to investigate how earnings management affects long-run performance around listing.

Some experts believe that firm performance measurement is important for effective management for any firm (Demirbag et al., 2006). However, firm performance is a complex concept, and its measurement continues to challenge researchers. Although decades of research have tried to identify measures for the concept of performance, there is no specific measurement that can evaluate every aspect of performance. Firm performance literature offers two strands related to performance measures: market performance and accounting performance, which have led to an implicit consensus for performance measurement (Rowe & Morrow, 2009). A stream of empirical studies exploring the association between earnings management and firm performance revealed that most prior studies focused on stock market performance. Stock performance is a measure of the returns on stocks over a certain period of time, which refers to the measurement of shareholders' wealth. These studies have explored stock returns following a major corporate event by comparing them with returns of market benchmarks or matching firms. But relatively few studies have focused on accounting performance, which can be used as an alternative measure to provide a potential explanation of the efficiency of the manager in running the business. Due to the fact that "accounting profitability is arguably a better measure of performance than stock price-based measures in particular for emerging stock markets, which are associated with some degree of inefficiency, and the stock prices do not reflect all available information" (Wang, 2005, p. 1841). Therefore, we utilized accounting-based measures in this study.

Accordingly, the main objective of this study is to examine the effect of earnings management on accounting performance. The study extends previous studies in several ways. First, the study investigates this issue around listing event, whereas most previous studies focused on IPOs, SEOs, and often provided conflicting results. Second, the stock market performance phenomenon around the share issue is well documented, while little attention has been paid to accounting performance. The final motivation is related to the context; while empirical evidence is largely based on studies of firms in developed markets, there is no study to date that has investigated the association between earnings management and firm performance around listing in underdeveloped markets using an accounting performance approach. Therefore, understanding earnings management and accounting performance around listing events in an emerging market such as Vietnam is of great interest and need.

Owing to the unique features and different patterns in the market, we chose Vietnam for this research. The first stock exchange in Ho Chi Minh City was established in 2000, with only 2 listed firms, amounting to 0.28% of the GDP. To date, there are two official stock exchanges: The Ho Chi Minh City Stock Exchange (HOSE) which serves as the country's primary stock exchange, and the Hanoi stock exchange which acts as a trading floor for shares of small- and medium-size companies. The HOSE is the larger of the exchanges with stricter listing requirements. In addition, The Unlisted Public Market (UPCoM) was established in 2009, in which securities of unlisted public companies may be registered to be traded, but these securities are not considered listed in Vietnam.

Recognizing the important role of the stock market since its establishment, the Vietnamese government was keen to make an effort into setting up a legal framework in order to improve and consolidate the regulatory environment surrounding the stock market. As the result, for more than 20 years, Vietnam's securities market has progressed from a very nascent stage with weak form efficiency to be a great prospective market and one of Asia's most promising. For example, the number of newly listed companies increased sharply during the peak time of the market (2008–2010). Up to the end of June 2020, HOSE had 380 listed stocks, accounting for 90% of the total listing capitalization in Vietnam's stock market and equivalent to 47% of the GDP. However, the market has faced a series of problems over the past years, such as lack of transparency, lack of regulatory coordination, a weak legal environment, market manipulation, and herd behavior (Vo & Phan, 2016; Zingales, 2009).

In comparison with other stock exchanges in the Asia region such as Bangladesh, India, Indonesia, Malaysia, and the Philippines (which have all transformed listed companies on their markets and are running as private companies or joint-stock companies), the stock exchanges in Vietnam are still run as state-owned institutions that are supervised and regulated by the government. In addition, IPOs and listings are distinct processes in Vietnam with listing requirements more stringent than IPO (Allens, 2017), and the actual listing date takes place long after the issue date. Although the government of Vietnam has done much to boost companies to list its shares on official stock exchanges after IPOs, the number of listed companies is quite limited (Nguyen & Trung, 2019). After 2013, a regulation was instated on conducting public offers of securities in which a fine shall be imposed upon failing to put securities made into public offerings into transactions in the systematic market within one year from the day ending the offering. In fact, a series of firms have completed their IPO but failed to be eligible for the listing of securities. For these reasons, Vietnam is an excellent context for examining earnings management behavior and firm performance around listing. Based on a sample of 189 firms listing on HOSE for the period from 2009 to 2017, the objective of this study is to provide an updated view of earnings management and accounting performance around listing in this emerging market.

Our study makes a number of contributions to the earnings management literature. First, the literature on earnings management and subsequent firm stock performance around equity issuance is extensive. However, relatively little is known about earnings management and accounting

performance. Moreover, while the majority of international studies were conducted in developed markets (in which firms do not delay listing after IPO), there is little research around the time of listing in the market in which the delay from the issue date to listing date is long and variable in practice. We are interested in how firms manipulate earnings management around listing and how such response may have affected the accounting performance in Vietnam. Finally, the findings from this paper have important implications for various parties. For example, our findings help investors to evaluate risks associated with new listing firms rationally and avoid the trap of manipulated earnings. Focusing on the impact of earnings management on accounting performance, this study has been useful to policymakers concerning how to improve the regulatory system and strengthen the transparency and quality in financial reporting for the sake of the healthy development of the capital market. For firms, the cost of manipulating earnings before listing is that firms suffer a decline in accounting performance in the following years.

The rest of the paper is organized as follows. Literature review and hypotheses development are described in the first part of this paper. Next, the sample and methodology are outlined. The third part presents the results of an empirical study. Finally, the discussion and conclusion are presented.

## 2. Literature review and hypotheses development

Corporate specific events such as IPOs, SEOs have received a fair amount of attention in the scholarly literature. The extensive literature suggests that a high amount of asymmetric information exists during all major corporate events between issuers and potential investors. This context provides managers with opportunities and incentives to engage in earnings management to achieve predetermined objectives regarding future post-issue performances. Earnings management and the association between earnings management and subsequent firm performance around the time of events has been heavily tested by numerous prior empirical studies. However, the results provide rather mixed evidence. Furthermore, the available literature reveals that there are two basic types of firm performance measures: stock return performance measures (market-based) and accounting performance measures (accounting-based). Both are used to test the relationship between earnings management and firm performance.

With stock return performance measures (market-based), a series of initial research revealed that firms with a high degree of abnormal accruals experience underperformance in the following years. Prior studies in the United States (DuCharme et al., 2001; Lin et al., 2021; Perotti & Windisch, 2017; Sletten et al., 2018; Teoh et al., 1998a; Yang et al., 2016), the Netherlands (Roosenboom et al., 2003), in 15 European countries (Gajewski & Gresse, 2006), Spain (Pastor-Llorca & Poveda-Fuentes, 2006), Malaysia (Ahmad-Zaluki, 2009), China (J. Gao et al., 2015; Kao et al., 2009), France (Chiraz & Anis, 2013), Poland (Lizińska & Czapiewski, 2019), India (Phadke & Kamat, 2017; Shette et al., 2016) and in 28 countries (Premti, 2013) have examined the phenomenon around IPOs.

Similarly, in the context of SEO events (Rangan, 1998; Shivakumar, 2000; Teoh et al., 1998b) in the United States market and Iqbal et al. (2009) in the UK market, there is evidence to support the relationship between earnings management and firm performance. On the contrary, others have come to the opposite view, such as Ball and Shivakumar (2008) in the UK, Armstrong et al. (2008) as well as Chou et al. (2010) in the United States, S. Gao et al. (2017) in China.

With accounting performance measures (accounting-based), several international studies found that newly-listed firms have the worst accounting performance as measured by returns on assets (ROA) and return on equity (ROE) following corporate events. The first study was undertaken by Jain and Kini (1994) and examined the operating performance subsequent to IPOs by using a sample of 682 IPO firms. They found post-issue declines in ROA, operating cash flow, and asset turnover. These results are reinforced by other findings (Aharony et al., 2000; DuCharme et al., 2001; Loughran & Ritter, 1997), providing evidence of underperformance.

A growing body of recent research has emerged exploring the relationship between earnings management and their respective subsequent accounting performance in various markets and various events. In



an effort to extend prior research on earnings management and post-IPO firm performance, by using the data from the Chinese market, Kao et al. (2009) conducted research to consider how government regulations affect the relationship between earnings management and post-IPO profitability. For the purpose of their research, ROA was used as a proxy for measuring firm performance. This work provided further evidence to show that IPO firms in the pricing regime with higher pricing-period accounting performance are not only more engaged in earnings management but also exhibit a decline in post-issue operating performance. In the same vein, in different events, Gong et al. (2008) also used ROA as a measure of post-operating performance. Consistent with previous studies, they added further evidence for the existence of the negative association between earnings management around events and future performance. Recently, Mangala and Dhanda (2019) discovered that earnings management during the IPO year was responsible for post-IPO underperformance, with a fall in accounting performance for the next six years as measured by ROA and ROE. Similarly, in their examination of French market, Chakroun and Ben Amar (2022) found that earnings management has a negative and significant impact on financial performance when using the ROA and ROE measures. In contrast, by using a sample of 59 Egyptian IPOs, Kamel (2012) suggested that pre-issue abnormal accruals are not sufficient to explain the long-term firm underperformance in earnings following IPOs (measured by ROE) that had been reported in previous literature.

In summary, prior studies have extensively investigated earnings management and subsequent firm stock performance around equity issuance, while little attention has been given to earnings management and accounting performance. Various scholars (Carton & Hofer, 2006; Combs et al., 2005; Richard et al., 2009) have proposed that profitability ratios are the most popular metrics used to represent firm performance. Whereas the vast majority of studies were conducted in the context of equity issues in developed markets (firms do not delay listing), little attention has been paid to the listing event in the market in which the delay from issue date to listing date is enormous. Thus, there is an imperative need to investigate this phenomenon in the Vietnamese market for reasons such as low transparency, weak legal environment (Zingales, 2009) and unique listing process. In addition, in the context of asymmetric information theory and agency theory, issuers have private information about the internal operation of firms, whereas outsiders, such as investors, possess less information and rely heavily on published financial statements and prospectuses. Therefore, issuers have strong incentives to inflate their earnings prior to listing to meet the listing requirement and to maximize stock prices by adopting very aggressive accounting policies that lead to highly optimistic investors' expectations for the firms' future value (Aharony et al., 2000; DuCharme et al., 2001; Fan, 2007; Ronen & Yaari, 2008). Consequently, accruals tend to reverse in later reporting periods. Hence, the first testable hypothesis is as follows:

*H1: Listing firms exhibit aggressive income-increasing earnings management in the pre-listing year rather than in the listing year.*

In addition, the window of opportunity hypothesis advocates that most firms choose to be publicly listed when the firm's operating performance is at its peak, a situation that could be temporary and unsustainable. Thus, future earnings can be affected by past manipulation, which leads to a fall in future earnings (Chakroun and Ben Amar (2022), Jain and Kini (1994), Mangala and Dhanda (2019), and Kamel (2012); DuCharme et al., 2001). The above arguments from the two theories and the mixed findings of the empirical evidence led us to conduct this research to identify accounting performance and evaluate the existence of a negative association between earnings management and accounting performance around listing in the Vietnamese stock market. Our next research hypotheses are:

*H2: Listing firms exhibit a declining trend in post-listing accounting performance.*

*H3: Earnings management and post-issue accounting performance of listing firms are negatively associated.*

### 3. Sample and methodology

#### 3.1. Sample selection

In order to calculate earnings management in pre-listing years and listing years, we obtained financial statements of the two years before listing (such data of listing firms before 2009 was not available). In addition, firms needed enough time to calculate accounting performance for two years after listing. Therefore, we investigated listing firms on HOSE from 2009 to 2017. Listing firms were identified by using the data collected from the official website of HOSE. Accounting data were collected from open-source databases (HOSE, companies' websites). We eliminated financial sector firms because they have distinct regulations and disclosures, being more complex in determining accruals. In addition, information technology (with five companies), communication services (with two companies), utilities (with two companies), and energy (with two companies) sectors are excluded from the sample because

**Table 1. Sample selection**

<b>Listing firms (2009–2017): Distribution by Industry</b>	<b>Numbers of firms</b>
Consumer Staples	17
Consumer Discretionary	24
Materials	34
Industrials	61
Utilities	12
Real Estate	33
Health Care	5
Energy	3
Final sample	189

those firms have insufficient data to estimate accruals. Hence, the final sample consisted of 189 firms, categorized into eight sectors, as presented below (Table 1):

#### 3.2. Measure earnings management

“A fundamental issue in assessing earnings management is the unobservability of the managed and un-managed components of reported earnings” (Elgers et al., 2003, p. 406). Because earnings management is not directly observed, researchers have developed a variety of accrual models to detect earnings management. The models are usually estimated by industry and year and have a three-step approach to estimate accruals: (1) estimating total accruals (TA)/current accruals (CA); (2) estimating nondiscretionary accruals (NDA)/nondiscretionary current accruals (NDCA); and (3) computing discretionary accruals (DA)/discretionary current accruals (DCA). Different models add varying additional conditioning variables. Each model has its own advantages of detecting one aspect of earnings management. Hence, there is no perfect method for measuring earnings management. Inspired by previous studies, we adopted the following selected models.

##### 3.2.1. Model 1: the modified Jones model

The first modified Jones model, suggested by Dechow et al. (1995), improves the Jones model to reduce errors by covering the treatment of accounts receivable in the model. The first step of estimating total accruals is the same as the Jones model (1.1). In the second step, NDA (1.2) is



used instead of the change in revenues, and the model used the change in cash revenues (equal to the change in revenues deducts the change in trade receivables) for the estimation.

In order to mitigate potential heteroscedasticity, most studies of earnings management have scaled all variables in accruals models by using lagged total assets. However, according to contemporary studies (Aharony et al., 1993; Algharaballi, 2013; Anh Huu & Chi Thi, 2021; Armstrong et al., 2016; Ball & Shivakumar, 2008; Stubben, 2010), authors argued that firms going public may experience rapid growth and lagged total assets may not representative of the listing-year or post-listing year total assets. Due to growth, NDA may rise but might not remain stable. With the aim of reducing the effect of firm growth on DA estimates, the authors of these studies developed the Jones model by deflating all variables by the average of total assets in the period. In addition, according to Kothari et al. (2005), a constant term can mitigate model mis-specification problems generating from heteroskedasticity in residuals and an omitted variable(s). We support these approaches in our research.

$$\frac{TA_{it}}{(A_{i,t-1} + A_{i,t})/2} = \alpha_0 + \alpha_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \alpha_2 * \frac{\Delta REV_{it}}{(A_{i,t-1} + A_{i,t})/2} + \alpha_3 * \frac{PPE_{it}}{(A_{i,t-1} + A_{i,t})/2} + e_{it} \quad (1.1)$$

$$NDA_{it} = \alpha_0 + \widehat{\alpha_1} * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \widehat{\alpha_2} * \frac{\Delta REV_{it} - \Delta TR_{it}}{(A_{i,t-1} + A_{i,t})/2} + \widehat{\alpha_3} * \frac{PPE_{it}}{(A_{i,t-1} + A_{i,t})/2} \quad (1.2)$$

$$DA_{it} = \frac{TA_{it}}{(A_{i,t-1} + A_{i,t})/2} - NDA_{it} \quad (1.3)$$

$$\frac{TA_{it}}{(A_{i,t-1} + A_{i,t})/2} = \frac{(NIBE_{it} - CFO_{it})}{(A_{i,t-1} + A_{i,t})/2} \quad (1.4)$$

Where:

$TA_{it}$ : Total accruals for company i in year t;

$DA_{it}$ : Discretionary accruals for company i in year t;

$NDA_{it}$ : Nondiscretionary Accruals for company i in year t;

$NIBE_{it}$ : Company i's net income in year t;

$CFO_{it}$ : Company i's net cash flow in year t;

$(A_{i,t-1} + A_{i,t})/2$ : Average of beginning and end of year total asset for company i in year t;

$\Delta REV_{it}$ : The change in revenues for company i in year t;

$\Delta TR_{it}$ : The change in net receivables for company i in year t;

$PPE_{it}$ : Gross property plant and equipment at the end of year t;

$\alpha_1, \alpha_2, \alpha_3$ : industry-specific parameters;

$\widehat{\alpha_1}, \widehat{\alpha_2}, \widehat{\alpha_3}$ : coefficient estimates;

### 3.2.2. Model 2: the current accruals model

The second model is suggested by various scholars (Ahmad-Zaluki et al., 2011; Anh Huu & Chi Thi, 2021; DuCharme et al., 2001; Roosenboom et al., 2003; Teoh et al., 1998a, 1998b). These scholars argued that current accruals are easier for managers to manipulate. Therefore, adjustments are made by using current accruals as another alternative to predict earnings management instead of total accruals in the traditional Jones model. In this way, a current accruals model can be obtained as below:

$$\frac{CA_{it}}{(A_{i,t-1} + A_{i,t})/2} = \alpha_0 + \alpha_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \alpha_2 * \frac{\Delta REV_{it}}{(A_{i,t-1} + A_{i,t})/2} + \varepsilon_{it} \quad (2.1)$$

$$NDCA_{it} = \alpha_0 + \hat{\alpha}_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_2 * \frac{\Delta REV_{it} - \Delta TR_{it}}{(A_{i,t-1} + A_{i,t})/2} \quad (2.2)$$

$$DCA_{it} = \frac{CA_{it}}{(A_{i,t-1} + A_{i,t})/2} - NDCA_{it} \quad (2.3)$$

$$CA_{it} = \Delta CAssets_{it} - \Delta Cash_{it} - \Delta CL_{it} + \Delta STD_{it} \quad (2.4)$$

Where:

$CA_{it}$ : Current accruals for company i in year t;

$\Delta CAssets_{it}$ : The change in current assets for company i in year t;

$\Delta Cash_{it}$ : The change in cash and cash equivalent for company i in year t;

$\Delta CL_{it}$ : The change in current liabilities for company i in year t;

$\Delta STD_{it}$ : The change in debt included in current liabilities for company i in year t;

$NDCA_{it}$ : Nondiscretionary current accruals for company i in year t;

$DCA_{it}$ : Discretionary current accruals for company i in year t;

All other variables are defined as mentioned above.

### 3.2.3. Model 3. the cash flow model

A growing body of scholars (Anh Huu & Chi Thi, 2021; Dechow, 1994; Dechow & Dichev, 2002; Francis et al., 2005; Myers et al., 2007; Ye, 2007) focus on the quality of earnings. They make an argument that cash flow is a natural variable for performance control. Therefore, they add changes in cash flow as a variable different from previously established models to provide better explanatory power in detecting earnings management. Thus, this research extends the two versions of total accruals and current accruals as follows in equations 3.1 to 3.5:

$$\begin{aligned} \frac{TA_{it}}{(A_{i,t-1} + A_{i,t})/2} = & \alpha_0 + \alpha_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \alpha_2 * \frac{\Delta REV_{it}}{(A_{i,t-1} + A_{i,t})/2} \\ & + \alpha_3 * \frac{PPE_{it}}{(A_{i,t-1} + A_{i,t})/2} + \alpha_4 * \frac{\Delta CFO_{it}}{(A_{i,t-1} + A_{i,t})/2} + \varepsilon_{it} \end{aligned} \quad (3.1)$$

$$\begin{aligned} NDA_{it}(CFO) = & \alpha_0 + \hat{\alpha}_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_2 * \frac{\Delta REV_{it} - \Delta TR_{it}}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_3 * \frac{PPE_{it}}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_4 \\ & * \frac{\Delta CFO_{it}}{(A_{i,t-1} + A_{i,t})/2} \end{aligned} \quad (3.2)$$

$$DA_{it}(CFO) = \frac{TA_{it}}{(A_{i,t-1} + A_{i,t})/2} - NDA_{it}(CFO) \quad (3.3)$$

$$\frac{CA_{it}}{(A_{i,t-1} + A_{i,t})/2} = \alpha_0 + \alpha_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \alpha_2 * \frac{\Delta REV_{it}}{(A_{i,t-1} + A_{i,t})/2} + \alpha_3 * \frac{\Delta CFO_{it}}{(A_{i,t-1} + A_{i,t})/2} + \varepsilon_{it} \quad (3.4)$$

$$NDCA_{it}(CFO) = \alpha_0 + \hat{\alpha}_1 * \frac{1}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_2 * \frac{\Delta REV_{it} - \Delta TR_{it}}{(A_{i,t-1} + A_{i,t})/2} + \hat{\alpha}_3 * \frac{\Delta CFO_{it}}{(A_{i,t-1} + A_{i,t})/2} \quad (3.5)$$

$$DCA_{it}(CFO) = \frac{CA_{it}}{(A_{i,t-1} + A_{i,t})/2} - NDCA_{it}(CFO) \quad (3.6)$$

Where:

$CFO_{it}$ : the change in cash flow firm  $i$  in year  $t$ ;

$DA_{it}(CFO)$ : Discretionary accruals from cash flow model for company  $i$  in year  $t$ ;

$NDA_{it}(CFO)$ : Nondiscretionary accruals from cash flow model for company  $i$  in year  $t$ ;

$NDCA_{it}(CFO)$ : Nondiscretionary current accruals from cash flow model for company  $i$  in year  $t$ ;

$DCA_{it}(CFO)$ : Discretionary current accruals from cash flow model for company  $i$  in year  $t$ ;

All other variables as mentioned above.

### 3.3. Measure accounting performance (accounting-based)

Following Rowe and Morrow (2009) and Al-Matari et al. (2014), return on total asset (ROA) and return on equity (ROE) are the most popular in accounting-based measures of firm performance. As the result, they have been extensively used in the earnings management literature (Aharony et al., 2000; Algharaballi, 2013; DuCharme et al., 2001; Gong et al., 2008; Kamel, 2012; Mangala & Dhanda, 2019; Mikkelsen et al., 1997). Furthermore, regarding the regulation on listing registration in the Vietnamese stock market, ROE is one indicator of the profitability requirements. In light of these arguments, we used both ROA and ROE for measuring accounting performance in this study.

Consistent with previous studies and listing requirement for HOSE, ROA and ROE can be calculated as follows:

$$ROE = \frac{Netincome}{Average\ shareholder's\ equity}$$

$$ROA = \frac{Netincome}{Average\ total\ assets}$$

### 3.4. Regression models

Two multiple regressions are employed to test hypothesis 3 (H3). The dependent variable was accounting performance (measured by combining ROE and ROA for listing year, year +1 and year +2), whereas the key independent variable was earnings management in the pre-listing year. In addition, nondiscretionary (current) accruals components are also included in the regression to compare and evaluate the respective impacts on a firm's performance between the discretionary and nondiscretionary components (DuCharme et al., 2001; Haque & Imam, 2014; Teoh et al.,

**Table 2. Descriptive statistics of four accruals measures**

	Mean	Median	Min	Max	Std
Panel A: Modified Jones model (total accruals)					
DA (pre)	0.0146	0.0233	-0.9179	1.101	0.2443
DA (listing)	-0.0166	-0.0025	-1.3507	0.9412	0.2389
Panel B: Current accruals model					
DCA (pre)	0.0726***	0.0452***	-0.5189	1.0788	0.2349
DCA (listing)	0.0146	0.0049	-0.5196	0.882	0.1936
Panel C: Cash flow model (total accruals)					
DA(CFO) (pre)	0.0171	0.0303***	-0.9744	0.5075	0.1884
DA(CFO) (listing)	0.0002	0.0223	-1.3498	0.4915	0.1911
Panel D: Cash flow model (current accruals)					
DCA(CFO) (pre)	0.0815***	0.0631***	-0.9532	1.0987	0.2409
DCA(CFO) (listing)	0.0245	0.0169**	-0.9363	0.6103	0.2063

\*Significant differences between the means(median) and 0 at the 10 percent level

\*\* Significant differences between the means (medians) and 0 at the 5 percent levels

\*\*\*Significant differences between the medians and 0 at the 5 and 1 percent levels

1998a, 1998b). To control for the diversity of firms' accounting performance based on characteristics of firms and to control other cross-sectional effects, several control variables are included in the models, such as company size (Size), offering size (Ofsize), liquidity (Liq), leverage (Lev), audit quality (Audit), industry (Ind), and the listing year (Year). As a result, the following equations are:

$$ROE_{it} = \beta_0 + \beta_1 * EM_{ipre} + \beta_2 * NDA_{ipre} + \beta_3 * Ofsize_i + \beta_4 * Size_{it} + \beta_5 * Liq_{it} + \beta_6 * Lev_{it} + \beta_7 * Audit_{it} + \beta_8 * Year_i + \beta_9 * Ind_i + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 * EM_{ipre} + \beta_2 * NDA_{ipre} + \beta_3 * Ofsize_i + \beta_4 * Size_{it} + \beta_5 * Liq_{it} + \beta_6 * Lev_{it} + \beta_7 * Audit_{it} + \beta_8 * Year_i + \beta_9 * Ind_i + \varepsilon_{it}$$

Where:

t (0,1,2): t = 0: listing year; t = 1: the first post-listing year; t = 2: the second post-listing year;

$ROE_{it}$ ,  $ROA_{it}$ : Return on equity; Return on total asset firm i in year t;

$EM_{ipre}$ : discretionary (current) accruals of listing firm i from accruals models in the fiscal year prior to listing;

$NDA_{ipre}$ : nondiscretionary (current) accruals of listing firm i from accruals models in the fiscal year prior to listing;

$Ofsize_i$ : natural logarithm of issue amount firm i is taken as offer size;

$Size_{it}$ : Natural logarithm of total assets firm i in the year t;

$Liq_{it}$ : The value of current assets of firm i divided by current liabilities in year t;

$Lev_{it}$ : The book value of total debts of firm i divided by total assets in the year t;

**Table 3. Descriptive statistics for accounting performance variable**

ROE	Obs	Mean	Median	Min	Max	Std. Dev.
ROE (pre)	189	0.2185	0.1685	0.0052	1.587	0.2118
ROE (listing)	189	0.2150	0.1850	0.0009	0.7358	0.1448
ROE (+1)	189	0.1597	0.1430	-0.3178	0.6996	0.1330
ROE (+2)	189	0.1206	0.1031	-0.1813	0.6187	0.1240
ROA	Obs	Mean	Median	Min	Max	Std. Dev.
ROA (pre)	189	0.0991	0.0745	0.0015	0.7426	0.0970
ROA (listing)	189	0.1069	0.0806	0.0005	0.62181	0.0905
ROA (+1)	189	0.0860	0.0648	-0.0688	0.5934	0.0904
ROA (+2)	189	0.0667	0.0423	-0.0856	0.5360	0.0857

**Table 4. Comparison of mean accounting performance (ROE; ROA) based on matched—pairs t-test**

	T	H1-Alternative hypothesis		
		P- value mean(diff) <0	P- value mean(diff) #0	P- value mean(diff) >0
<b>ROE</b>				
ROE (pre) and ROE (listing)	0.2544	0.6003	0.7994	0.3997
ROE (pre) and ROE (+1)	4.0418	1.0000	0.0001	0.0000
ROE (pre) and ROE (+2)	6.5878	1.0000	0.0000	0.0000
<b>ROA</b>				
ROA (pre) and ROA (listing)	(1.7620)	0.0399	0.0797	0.9601
ROA (pre) and ROA (+1)	2.7748	0.9970	0.0061	0.0030
ROA (pre) and ROA (+2)	6,1516	1.0000	0.0000	0.0000

$Audit_{it}$ : Dummy variable coded one 1 if a firm  $i$  is audited by one of the top 4 auditors (big4), otherwise, zero (0) in year  $t$ ;

$Ind_i$ : Dummy variables firm  $i$  belongs to an industry;

$Year_t$ : listing year firm  $i$  dummy variables to control the year effect;

## 4. Empirical results

### 4.1. First hypothesis

Table 2 illustrates the descriptive statistics of four accruals models in the pre-listing year and the listing year. The results in Table 2 are consistent between four earnings management proxies in the pre-listing year and the listing year except for the modified Jones model in the listing year. The magnitude of means and medians of accruals estimated from all models in the pre-listing year are positive, peaking in the pre-listing year and decreases in the listing year, indicating that firms aggressively managed their earnings in the year prior to listing.

**Table 5. Comparison of accounting performance (ROE; ROA) based on Wilcoxon signed-rank test**

	Positive rank	Negative rank	p-value	Z-value
ROE				
ROE (pre) and ROE (listing)	89	100	0.5157	-0.650
ROE (pre) and ROE (+1)	116	73	0.001	4.052
ROE (pre) and ROE (+2)	139	50	0.000	7.2270
ROA				
ROA (pre) and ROA (listing)	90	99	0,0992	-1,6490
ROA (pre) and ROA (+1)	115	74	0,0053	2,7910
ROA (pre) and ROA (+2)	136	53	0,0000	6,314

*Positive ranks mean the variable former were greater than the variable latter*

**Table 6. Regression analysis of earnings management (measured by DCA in the pre-listing year) and accounting performance**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
DCA <sub>pre</sub>	-0.0009	-0.0749*	-0.0961**	-0.0227	-0.0546**	-0.0754***
	[0.0412]	[0.0412]	[0.0376]	[0.0225]	[0.0234]	[0.0258]
NDCA <sub>pre</sub>	-0.0616	0.0902	0.0762	0.0177	0.0540	0.0688
	[0.1251]	[0.1130]	[0.0995]	[0.0687]	[0.0683]	[0.0729]
Ofsize	-0.0732***	-0.0282	-0.0379*	-0.0036	0.0165	0.0081
	[0.0274]	[0.0201]	[0.0206]	[0.0147]	[0.0120]	[0.0136]
Size	0.0805***	0.0335*	0.0358**	0.0007	-0.0132	-0.0118
	[0.0284]	[0.0188]	[0.0179]	[0.0148]	[0.0110]	[0.0123]
Liqfirm	0.0083**	0.0064***	0.0002	0.0119***	0.0099***	0.0004
	[0.0034]	[0.0024]	[0.0003]	[0.0026]	[0.0018]	[0.0003]
Lev	-0.0178**	-0.0051	-0.0087**	-0.0155***	-0.0049**	-0.0074*
	[0.0070]	[0.0031]	[0.0042]	[0.0052]	[0.0019]	[0.0038]
Audit	0.0032	0.0062	0.0218	0.0180	0.0147	0.0168
	[0.0323]	[0.0241]	[0.0234]	[0.0137]	[0.0145]	[0.0146]
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-0.1870	-0.0378	0.0427	0.1687	0.0872	0.2048
	[0.2763]	[0.2150]	[0.2080]	[0.1379]	[0.1218]	[0.1413]
N	189	189	189	189	189	189
R-sq	0.1950	0.2190	0.2390	0.346	0.339	0.272
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

In order to determine whether the means and medians of the four accruals in the pre-listing year and the listing year are statistically different from zero, we used a two-tailed t-test and a Wilcoxon's signed-rank test, respectively. It can be observed from Panel A and Panel C that the means of discretionary accruals estimated from total accruals models are insignificant in both the pre-listing year and the listing year. Similarly, the total accruals models reported medians discretionary accruals are no longer statistically significant except for the cash flow model based on total accruals DA(CFO) in the pre-listing year, which reported a positive median of 0.0303 and is significant at the 1% level.

With the models based on current accruals, the results of panel B show that only in the pre-listing year are means and medians of discretionary current accruals statistically different at the 1% level. The opposite was true for the listing year. By comparison, the results of Panel D show the means and medians from the cash flow model based on current accruals are statistically significant in the pre-listing year at the 1% level. While listing year shows that only the medians of discretionary current accruals were significant at 5%.

In summary, the results provide evidence that aggressive income-increasing earnings management occur in the pre-listing year rather than in the listing year, which supports the first hypothesis (H1). This finding also is in harmony with the arguments of various scholars (Ahmad-Zaluki et al., 2011; DuCharme et al., 2001; Roosenboom et al., 2003; Teoh et al., 1998a, 1998b), who all provided evidence that current accruals were more flexible than noncurrent accruals.

**Table 7. Regression analysis of earnings management (measured by DCA(CFO) in pre-listing year) and accounting performance**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
DCA(CFO) <sub>pre</sub>	0.0228 [0.0417]	-0.0767* [0.0420]	-0.0670* [0.0343]	-0.0067 [0.0207]	-0.0476** [0.0236]	-0.0544** [0.0230]
NDCA(CFO) <sub>pre</sub>	-0.1206 [0.0845]	-0.0746 [0.0745]	-0.1768*** [0.0561]	-0.0782* [0.0420]	-0.0532 [0.0379]	-0.1276*** [0.0379]
Ofsize	-0.0810*** [0.0273]	-0.0297 [0.0194]	-0.0428** [0.0203]	-0.0085 [0.0147]	0.0158 [0.0120]	0.0045 [0.0135]
Size	0.0882*** [0.0281]	0.0285 [0.0184]	0.0385** [0.0179]	0.0048 [0.0146]	-0.0135 [0.0114]	-0.0099 [0.0125]
Liqfirm	0.0076** [0.0034]	0.0065*** [0.0025]	-0.0001 [0.0003]	0.0115*** [0.0026]	0.0100*** [0.0018]	0.0003 [0.0003]
Lev	-0.0210*** [0.0069]	-0.0041 [0.0035]	-0.0111** [0.0044]	-0.0174*** [0.0050]	-0.0053*** [0.0020]	-0.0091** [0.0039]
Audit	0.0018 [0.0320]	0.0082 [0.0231]	0.0259 [0.0222]	0.0179 [0.0134]	0.0163 [0.0144]	0.0195 [0.0138]
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-0.2116 [0.2692]	0.1225 [0.2023]	0.0825 [0.2004]	0.1707 [0.1320]	0.1118 [0.1193]	0.2364* [0.1361]
N	189	189	189	189	189	189
R-sq	0.214	0.2090	0.242	0.358	0.330	0.268
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01



#### 4.2. Second hypothesis

Table 3 presents ROE and ROA values, which are calculated for four years (two years before and two years after listing). A mean of ROE peaks in the pre-listing year and decreases in following years. Our interpretation is that due to listing profit requirements with ROE in the pre-listing year, firms might have a greater incentive to inflate their earnings in the pre-listing year in order to meet profit requirements in ROE. By comparison, there is no specific listing requirements in regards to ROA, and the means and median of ROA have the highest figures in the listing year and the pre-listing year, decreasing in year +1 and year +2.

In order to investigate whether the difference between means (medians) of accounting performance (i.e., ROE, ROA) before and after the listing year are statistically significant, we used Wilcoxon signed-rank tests and matched-pairs t-tests. Table 4 reveals that means of ROE peak in the pre-listing year and the listing year and then decline in subsequent years at a significant 1% level. Although the mean of ROE in the pre-listing year is higher than that of the listing year, the result is not significant. In comparison, the mean of ROA in the listing year is significantly higher than the pre-listing year at a 10% level, while means of ROA in year +1 and year +2 are both smaller than the pre-listing year at significant 1% levels.

Similarly, Table 5 shows the same trend in three different years of medians of ROE (ROA). The result reveals that the highest medians of ROE (ROA) are reported in the pre-listing year and the listing year. In addition, sample firms exhibit a significant decline in both two years after listing. The declining pattern of median ROE (ROA) reported in Table 5 is consistent with the results in Table 4.

In brief, the evidence suggests that the highest figure of accounting performance was found in the listing year and the pre-listing year and then declined in following years, which supports hypothesis 2 (H2).

#### 4.3. Third hypothesis

Based on the results from the first hypothesis, Vietnamese listing firms opportunistically advance current discretionary accruals in the pre-listing year rather than in the listing year, with the aim of improving reported earnings and meeting listing requirements. Additionally, we hypothesized that listing firms significantly underperform in the long run after listing. Therefore, in this section, we

**Table 8. Regression analysis of earnings management (measured by DCA in pre-listing year) and accounting performance—marginal effect**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
DCA <sub>pre</sub>	−0,0019	−0,0722*	−0,091**	−0,0049	−0,0542**	−0,0536**
NDCA <sub>pre</sub>	−0,0556	0,0955	0,077	0,0146	0,028	0,0313
Osize	−0,0695***	−0,0271	−0,0279	−0,0215*	0,0139	−0,0142
Size	0,0777***	0,0387**	0,0259	0,021*	−0,0075	0,0133
Liqfirm	0,0079**	0,0061***	0,0001	0,0055***	0,0053***	0,00006
Lev	−0,0168**	−0,0049	−0,0098*	−0,0423***	−0,0157***	−0,0506***
Audit	0,0004	0,0077	0,0258	0,0088	0,0148	0,0167
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	189	181	177	189	181	177

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

**Table 9. Regression analysis of earnings management (measured by DCA(CFO) in pre-listing year) and accounting performance—marginal effect**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
DCA(CFO) <sub>pre</sub>	0,0181	−0,0696*	−0,0751*	0,0051	−0,0452*	−0,0446*
NDCA(CFO) <sub>pre</sub>	−0,1187	−0,0908	−0,1426**	−0,0468	−0,0736**	−0,0846**
Ofsize	−0,0759***	−0,0245	−0,03	−0,0241*	0,0128	−0,0165
Size	0,0842 ***	0,0299*	0,02545	0,0232*	−0,0081	0,0139
Liqfirm	0,0072**	0,0056***	−0,00003	0,0053***	0,0050***	−0,0000
Lev	−0,0193***	−0,0047	−0,0114	−0,0429***	−0,0171***	−0,0521***
Audit	−0,0013	0,0095	0,0252	0,0081	0,0136	0,0159
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	189	181	177	189	181	177

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

**Table 10. OLS regression analysis of earnings management (measured by DCA in pre-listing year) and accounting performance—model without outliers**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
DCA <sub>pre</sub>	−0.0281	−0.0731**	−0.0888***	−0.0029	−0.0482**	−0.0639***
	[0.0399]	[0.0310]	[0.0317]	[0.0203]	[0.0186]	[0.0181]
NDCA <sub>pre</sub>	0.0327	0.1987**	0.1437*	0.0166	0.1015**	0.0332
	[0.1141]	[0.0949]	[0.0824]	[0.0555]	[0.0495]	[0.0521]
Ofsize	−0.0630**	−0.0455**	−0.0555***	−0.0274**	0.0028	−0.0179*
	[0.0289]	[0.0176]	[0.0161]	[0.0125]	[0.0095]	[0.0095]
Size	0.0698**	0.0489***	0.0441***	0.0304**	−0.0026	0.0119
	[0.0281]	[0.0160]	[0.0145]	[0.0120]	[0.0088]	[0.0089]
Liqfirm	0.0078***	0.0078***	0.0053**	0.0123***	0.0103***	0.0081***
	[0.0028]	[0.0018]	[0.0023]	[0.0022]	[0.0010]	[0.0022]
Lev	−0.0156	−0.0047	−0.0101	−0.0251***	−0.0064***	−0.0124***
	[0.0114]	[0.0049]	[0.0067]	[0.0047]	[0.0024]	[0.0035]
Audit	0.0093	−0.0157	0.0345*	−0.0007	0.0040	0.0252**
	[0.0274]	[0.0223]	[0.0184]	[0.0124]	[0.0127]	[0.0106]
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	−0.1840	−0.0990	0.1753	−0.0583	0.0691	0.1468*
	[0.1923]	[0.1774]	[0.1552]	[0.0919]	[0.0978]	[0.0869]
N	176	175	173	176	176	172
R-sq	0.2130	0.3420	0.3750	0.471	0.506	0.4390
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

investigate the effect of earnings management (current discretionary accruals) in the pre-listing year on accounting performance.

#### 4.3.1. Main regression results

In empirical studies in finance and accounting, profitability ratios (such as ROA) are generally observed in the unit interval (Liu & Xin, 2014). Similarly, Gallani and Krishnan (2017) concluded that bounded dependent variables are naturally bounded by the response-scale options commonly encountered in accounting research. Therefore, linear estimation methods (OLS) may no longer be appropriate due to producing biased values that lie outside those thresholds (Papke & Wooldridge, 1996). Papke and Wooldridge (1996) have developed a technique and statistical diagnostic that is a viable solution for bounded dependent variables, the fractional regression model (FRM), to address many limitations of linear solutions.

Our research shows that 100% of ROA and ROE values in all three years (listing year, year +1, year +2) are less than 1. All 189 firms in the sample exhibit positive ROA and ROE in the listing year. Only eight firms (approximately 4%) in year +1 and 12 firms (approximately 6%) in year +2 have negative figures. Firms with negative net income clearly show underperformance after listing. But the majority of firms still reveal positive net income in post-listing years, a signal to convey the high quality of issuers. With the aim of focusing on firms with good performance after listing, fractional logit models are capable of handling extreme values of 0 and 1 without having to manipulate the data. In this paper, we first perform an estimation using OLS and then compares the results with a model estimated by using the fractional logit approach.

#### 4.3.2. OLS regression results

Table 6 presents the main results of an OLS regression to test the association between earnings management in the pre-listing year (DCA<sub>pre</sub>) and accounting performance (ROA and ROE in the listing year and

**Table 11. OLS regression analysis of earnings management (measured by DCA(CFO) in pre-listing year) and accounting performance—Model without outliers**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
DCA(CFO) <sub>pre</sub>	0.0044 [0.0388]	−0.0706** [0.0313]	−0.0702** [0.0324]	0.0070 [0.0195]	−0.0345* [0.0178]	−0.0484*** [0.0149]
NDCA(CFO) <sub>pre</sub>	−0.1820*** [0.0585]	−0.0457 [0.0614]	−0.1515*** [0.0489]	−0.0936*** [0.0322]	−0.0625* [0.0320]	−0.1129*** [0.0289]
Ofsize	−0.0831*** [0.0275]	−0.0471** [0.0181]	−0.0566*** [0.0162]	−0.0350*** [0.0122]	−0.0022 [0.0102]	−0.0206** [0.0095]
Size	0.0802*** [0.0265]	0.0496*** [0.0167]	0.0447*** [0.0147]	0.0356*** [0.0116]	0.0015 [0.0095]	0.0147* [0.0088]
Liqfirm	0.0070*** [0.0026]	0.0077*** [0.0017]	0.0061** [0.0024]	0.0140*** [0.0021]	0.0100*** [0.0011]	0.0086*** [0.0019]
Lev	−0.0192* [0.0106]	−0.0063 [0.0049]	−0.0119* [0.0067]	−0.0258*** [0.0045]	−0.0077*** [0.0026]	−0.0140*** [0.0038]
Audit	0.0112 [0.0276]	−0.0125 [0.0229]	0.0408** [0.0185]	0.0024 [0.0119]	0.0077 [0.0129]	0.0264*** [0.0100]
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	−0.0399 [0.1714]	−0.0696 [0.1773]	0.1959 [0.1551]	−0.0365 [0.0832]	0.0819 [0.0960]	0.1390* [0.0825]
N	175	173	172	173	176	172
R-sq	0.252	0.308	0.395	0.502	0.457	0.478
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

**Table 12. Fractional logit regression analysis of earnings management (measured by DCA in pre-listing year) and accounting performance model without outliers (marginal effect)**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
DCA(t-1)	-0.031	-0.0799**	-0.0736**	0.004	-0.0465**	-0.0458***
NDCA(t-1)	0.0421	0.1465	0.1722**	0.0147	0.0613	0.0563
Ofsize	-0.0578**	-0.0444***	-0.0539***	-0.0298***	-0.0001	-0.0228***
Size	0.0656***	0.0465***	0.0371***	0.0343***	0.0016	0.0149**
Liqfirm	0.0077***	0.0061***	0.0032**	0.0069***	0.0051***	0.0033***
Lev	-0.0133	-0.0054	-0.011	-0.0354***	-0.0124***	-0.0271***
Audit	0.0081	-0.0095	0.045	-0.0047	0.0062	0.0286***
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	176	170	162	176	169	160

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

**Table 13. Fractional logit regression analysis of earnings management (measured by DCA(CFO) in pre-listing year) and accounting performance model without outliers (marginal effect)**

Variable	ROE (listing)	ROE (+1)	ROE (+2)	ROA (listing)	ROA (+1)	ROA (+2)
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
DCA(CFO) (t-1)	-0.0018	-0.0858**	-0.0659**	0.0119	-0.0370*	-0.0373**
NDCA(CFO) (t-1)	-0.1851***	-0.0643	-0.1040**	-0.0824***	-0.0661**	-0.0760***
Ofsize	-0.0772***	-0.0445**	-0.0515**	-0.0353***	-0.0037	-0.0246***
Size	0.0747***	0.0437***	0.0327**	0.0371***	0.0031	0.0175**
Liqfirm	0.0067***	0.0057***	0.0033**	0.0077***	0.0047***	0.0034***
Lev	-0.0166*	-0.0067	-0.0121	-0.0352***	-0.0138***	-0.0307***
Audit	0.0094	-0.0096	0.0478***	-0.0012	0.0067	0.0259***
Ind	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	175	168	161	173	169	160

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01

**Table 14. Research objective and corresponding hypotheses and hypotheses test results**

Main research objective	Hypotheses	Results
Examine the effect of earnings management on accounting performance	H1: Listing firms exhibit aggressive income-increasing earnings management in the pre-listing year rather than in the listing year.	Supported when models based on current accruals are adopted Not supported when models based on total accruals are adopted
	H2: Listing firms exhibit a declining trend in post-listing accounting performance.	Supported
	H3: Earnings management and post-issue accounting performance of listing firms are negatively associated.	Supported when models based on current accruals are used

the two subsequent years). In the listing year, the OLS shows a negative correlation between DCApre and accounting performance (both ROE and ROA) but it is an insignificant effect. Nevertheless, results from the long-term performance (year +1 and year +2) illustrate that the coefficients on four models were negative and significant, which indicates that firms with a high level of DCA in the pre-listing year significantly underperform. Specifically, DCA in the pre-listing year has a negative impact on ROE in both year +1 and year +2 with an estimated coefficient of  $-0.0749$  (significance level of 10%) in year +1 and  $-0.0961$  in year +2 (significance level of 5%). Similarly, the impact of DCA in the pre-listing year on ROA in year +1 and +2 was significant, with a coefficient of  $-0.0546$  (5% significance) and  $-0.0748$  (1% significance), respectively.

Table 7 provides the results testing the association between DCA(CFO) and accounting performance. The coefficients on all models are negative. However, there was no significant impact of DCA(CFO) in the pre-listing year on ROE and ROA in the listing year. In contrast, the negative and significant relationship between DCA(CFO) and accounting performance was found for two years post-listing at 5% significance in the ROA model and at 10% significance in the ROE model.

Comparing Table 6–7, the findings are consistent with hypothesis 3, demonstrating that a high level of discretionary current accrual in the pre-listing year is associated with a high level of poor accounting performance (ROE and ROA) in the two years after listing but not in the listing year.

#### 4.4. Fractional logit regression results

Tables 8–9 present the results of fractional logit regression, which are consistent with the OLS regression results. Empirical results indicate that DCA and DCA(CFO) in the pre-listing year are negatively but not significantly associated with accounting performance in the listing year. The opposite was true in year +1 and year +2. Specifically, mean of ROE in year +1 and year +2 are significantly affected by earnings management in the pre-listing year at 10% and 5% significance. Similarly, when accounting performance is measured by ROA, the results show a negative and significant influence of DCA and DCA(CFO) on long-term performance at 5% and 10% significance.

In summary, the main results from this research indicate that, consistent with our expectations, all sample firms listed in HOSE engaged in aggressive earnings management before listing, when earnings management was measured by current discretionary accruals. As a result, these firms will likely suffer by the existence of a negative association between pre-listing DCA and DCA (CFO) and accounting performance in two years after listing, but not in listing year.

#### 5. Robustness check

Outliers are one of the most pervasive methodological challenges in empirical research because just a few outliers may be enough to distort research results (Cousineau & Chartier, 2010) or lead to false acceptance or rejection of hypotheses (Bollen & Jackman, 1985, 2013). Therefore, it is necessary to detect potential outliers and to determine whether these outliers have an excessive influence on substantive conclusions (Aguinis et al., 2013). To further ensure the robustness of the main results and better preserve the comparability of results from outliers, we used deletion as a handling technique. In doing so, we recalculated the results for all models after excluding outliers by using a metric known as DFFITS, which assesses the presence of prediction outliers in the context of regression, but no effect on the overall magnitude, direction, or statistical significance.

Tables 10 to 13 report the results without the outliers obtained from OLS regression models and fractional logit models. In general, the results of models excluding outliers are consistent with the results of models including outliers reported in Table 6–9. To specify, earnings management in the pre-listing year shows no significant negative effect on accounting performance in the listing year for all models, while it produces a significant negative effect in year +1 and year +2. Interestingly, when removing outliers, the sign of the correlation coefficient remains unchanged, while its value changed little. In summary, the main results held after various robustness checks, which indicate

that firms with larger current discretionary accruals exhibit future lower long-run accounting performance.

Overall, Table 14 presents the main search objective and three corresponding hypotheses developed, and summarises the test results from examining these hypotheses. According to the results in Table 14, the hypotheses of H1, H2, H3 are all accepted. On average, consistent with the extant of asymmetric information theory and agency theory, the main findings from this study illustrates that firms newly listed on the HOSE associated with aggressive earnings management in pre-listing year, tend to suffer from subsequently poor performance.

## 6. Discussion and conclusion

In this study, we first examined the role of earnings management in the Vietnamese stock market by providing evidence of income-increasing earnings management in the pre-listing year, but not in the listing year. Moreover, based on adopting four different versions of the modified Jones accruals models (two models based on current accruals and two models based on total accruals), the evidence strongly supports that current accruals appear to be valued more highly than total accruals in the case of Vietnamese firms. Consistent with previous research (Ahmad-Zaluki et al., 2011; Algharaballi, 2013; Chiraz & Anis, 2013; DuCharme et al., 2001; Pastor-Llorca & Poveda-Fuentes, 2006; Roosenboom et al., 2003; Teoh et al., 1998a, 1998b), our finding suggests that managers use current discretionary accruals to improve earnings in the pre-listing year to meet profit requirements. In conformation with prior literature, our results from testing accounting performance using ROE and ROA suggest that after listing, firms underperform in the long run with a consistent fall in mean and median ROE and ROA for the next two years. In addition, our work provides evidence that discretionary current accruals in the pre-listing year can explain the post-listing underperformance.

In the light of above, our findings have important implications for investors, policymakers, and firms. First, the results from this study may help investors evaluate risks associated with new listing firms and improve their investment decisions. With the existence of a negative relationship between earnings management and post-listing poor performance, investors should be cautious of their investments in new listings. They need to beware of the high magnitude of earnings management in financial statements. Second, our findings can inform policymakers that they should improve monitoring and control to decrease the level of information asymmetry and enhance the transparency and quality in financial reporting of listed companies. Finally, for firms seeking listings of their securities on the stock exchange, the cost of manipulating earnings before listing is that firms suffer a decline in accounting performance in the following years. Additionally, our work makes new contributions to earnings management literature. Unlike previous research conducted in developed countries such as the U.S., United Kingdom, or Spain, this study provides the first evidence of earnings management around listing and its impact on accounting performance by using multiple regression analysis in an underdeveloped market.

Despite overall contribution, these results may be interpreted with various limitations. First, due to data availability in HOSE, the maximum period length was limited to 9 years (from 2009 to 2017) for this study. The pre-listing earnings management was estimated for only one year before listing because of difficulty in accessing the pre-listing financial statements of listing firms. Second, the findings were based on a sample of listing firms on HOSE which may not be generalizable to other markets. In addition, the use of discretionary accruals as a technique of measuring earnings management can be seen as a limitation. Adopting only discretionary accruals models may not capture the entire level of earnings management behavior. Therefore, a more comprehensive approach of the earnings management proxy remains a potential alternative explanation for the results obtained in this paper, which provides an interesting avenue for future study.

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## Author details

Anh Huu Nguyen<sup>1</sup>

Chi Thi Duong<sup>1</sup>

E-mail: [duongchi@neu.edu.vn](mailto:duongchi@neu.edu.vn)

<sup>1</sup> School of Accounting and Auditing, National Economics University, 100000, Hanoi, Vietnam.

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