SUBSTITUTION BETWEEN ACCRUAL AND REAL EARNINGS MANAGEMENT: IMPACT OF FIRM CHARACTERISTICS, AUDIT QUALITY, AND INSTITUTIONS

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EUROPEAN JOURNAL OF BUSINESS SCIENCE AND TECHNOLOGY

Volume 11 Issue 1
ISSN 2694-7161
www.ejobsat.com

ABSTRACT

We study the trade-off between real earnings management activities (REM) and accrual-based earnings management (AEM) among newly listed Vietnamese firms from 2009 to 2019. First, we found that firms exhibit REM as well as AEM around listing events to beat earnings targets. We further explore whether managers use REM and AEM as substitutes, considering both internal factors- firms' characteristics and external factors like audit quality and institutional environments. Our results indicate that companies employ a greater amount of AEM and less REM when they have a higher firm size, measured by total assets, experience higher levels of liquidity. Nevertheless, firms experiencing higher levels of cash flow from operating activities, net operating assets are more likely to engage in REM and but less likely to use AEM. However, when considering external factors including audit quality and institutional environments, there is limited evidence of a trade-off between the two methods. While audit quality appears to constrain only AEM, the corruption index has a negative impact on REM. Interestingly, consistent with previous studies, we also provide evidence that managers make adjustments to the level of accruals after the fiscal year-end based on the actual level of real earnings realized during the year.

KEY WORDS

real earnings management, accrual-based earnings management, trade-off, audit quality, institutional environments, firms' characteristics

JEL CODES

M41

1 INTRODUCTION

Earnings management (EM) has been a key topic in accounting literature, focusing primarily on accrual-based earnings management (AEM) and more recently on real earnings management (REM) (Habib et al., 2022). Previous research has explored EM during events like IPOs and SEOs, showing that companies often manipulate earnings to boost firm value and stock prices. Similarly, firms seeking listing may engage in AEM or REM to meet listing

PHAM, Duc Cuong, and DUONG, Thi Chi. 2025. Substitution between Accrual and Real Earnings Management: Impact of Firm Characteristics, Audit Quality, and Institutions. *European Journal of Business Science and Technology,* 11 (1): 67–84. ISSN 2694-7161, DOI 10.11118/ejobsat.2025.006.

requirements and create positive investor expectations. Understanding the trade-off between AEM and REM is crucial for evaluating their impact around listing events.

According to Zang (2012), managers switch between the two types of EM based on the comparative cost involved. Recent studies focus primarily on internal factors, particularly firm characteristics, to explain the substitution between AEM and REM. Various internal factors are likely to influence managers' choice in favor of EM methods (Anagnostopoulou and Tsekrekos, 2017; Bassiouny, 2016; Jang and Kim, 2017), despite mixed results.

In addition to internal factors, the decision to employ one of the two methods of EM is likely to be influenced by external factors such as audit quality and institutional environments. Scholars suggest that auditors possess mechanisms that enable them to scrutinize REM and AEM. However, the evidence about the effect of audit quality on these two types of EM remains inconclusive. Futhermore, the choice between AEM and REM is also influenced by the institutional environments of a country. Differences in institutional characteristics lead to varying motivations for firms to select between these two methods of earnings management (Braam et al., 2015; Gao et al., 2017). For instance, Cohen et al. (2008) found that firms shifted from AEM to REM after the enactment of the SOX. On the other hand, Gao et al. (2017) argued that frequent government intervention and varying legal environments across provinces influence Chinese firms' EM decisions. These studies have mainly focused on audit quality or institutional environments as external regulatory mechanisms for constraining EM methods without considering a combined analysis of both factors. Therefore, research on external factors and earnings management should include a comprehensive investigation of the combination of both factors.

Following prior studies, this study aims to investigate whether firms use both types of EM around listing and to examine the impact of internal factors (i.e., firm characteristics) and external factors like audit quality and institutional environments on firm behavior in choosing between REM and AEM. Our study contributes to ongoing research on EM in several ways.

First, our research is conducted in the context of the Vietnamese market, which exhibits several unique features distinguishing it from other countries, as detailed below. Unlike other Asian markets where stock exchanges operate as private or joint-stock companies—Vietnam's exchanges remain state-owned and government-regulated. Despite this, the market faces persistent challenges, including weak policies, a complex legal framework, low transparency, poor regulatory coordination, and issues like market manipulation and herd behavior (Duong, 2023). According to Goncharov and Zimmermann (2007), the legal system and accounting standards influence EM by offering varying accounting flexibility. In Vietnam, the government-led, rules-based system—based on outdated IAS/IFRS through the Vietnam Accounting Standards (VAS)—enforces rigid, uniform policies that often misalign economic substance with accounting treatment, creating opportunities for EM (Duong, 2025). Finally, in developed markets, the IPO-to-listing gap is typically short—ranging from 5 to 70 days (Boubaker et al., 2017)—but in Vietnam, it is often longer due to stricter and separate processes. This raises concerns about earnings management (EM) during listings, which we aim to examine.

Second, unlike previous studies that typically use one method to measure EM, this study extends the literature by considering both REM and AEM as substitutes for managing earnings.

Finally, our study adds to the literature by jointly considering internal factors (firm characteristics) and external ones (audit quality and institutional environments) that influence managers' trade-offs between REM and AEM. While the impact of institutional environments on EM is well-documented at the cross-country level, little is known at the local level. To address this gap, we evaluate institutional environments at the provincial level—a novel approach in the existing literature.

The rest of this research is structured as follows: Section 2 contains the literature review and hypothesis development. Section 3 presents the sample and research design. Section 4 reports the main empirical results. Section 5 presents the discussion, and Section 6 concludes and discusses the implications of the study's key findings.

2 RELATED LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 REM and AEM Around Corporate Events

Agency theory suggests income smoothing can be achieved through accounting discretion or manipulating real activities. Recent studies have shifted the focus from AEM to REM, examining the likelihood of managers distorting earnings by manipulating real transactions around corporate events. For instance, Li (2019), Cohen et al. (2020), Roychowdhury (2006) provided compelling evidence of using REM by altering the level of discretionary expenses, including research and development expenses, as well as expenses related to sales, administration, general operations, or overproduction.

Previous studies on EM have mostly focused on only one type of EM, neglecting other types that are likely to occur (Cohen et al., 2008). Few studies have considered both AEM and REM (Boulhaga et al., 2022), with the main emphasis on IPOs and SEOs, while limited attention has been given to listing events. Unlike developed markets, in certain contexts like Vietnam, listings and IPOs are separate procedures, with listing regulations being stricter compared to IPO regulations (Nguyen and Duong, 2021). Furthermore, the actual listing date occurs considerably later than the issue date.

Given the techniques of EM, as discussed in the literature review, firms are likely to employ a combination of EM methods around equity events. Hence, managers can utilize REM or AEM to meet their target around the listing event. Considering the points mentioned above, the first hypothesis is:

H_1: *Newly listed firms exhibit evidence of both REM and AEM.*

2.2 The Role of Internal Factors – Firm Characteristics in Constraining AEM and REM

EM is a crucial component of strategic decision-making, executed through company operations and accounting policies. Consequently, firm characteristics play a significant role in influencing EM, as they can act as constraints. These characteristics are vital to understanding how and why companies engage in EM.

Firm Characteristics and AEM

Regarding firm size, the agency theory suggests that larger firms may have stronger internal control systems and better oversight of their transactions, which could potentially prevent them from manipulating earnings. Some authors, such as Bassiouny (2016) and Ashiq et al. (2022) found that larger firms may possess stronger internal control systems, better control over their transactions, and a deeper understanding of their activities than small firms. Therefore, this likely prevents large firms from manipulating earnings. A study conducted by Aburisheh et al. (2022) found an insignificant correlation between firm size and AEM, the studies conducted by Bassiouny (2016) identified a positive relationship between firm size and AEM driven by increased capital market pressure and the bargaining power of large firms.

Leverage, or a firm's use of debt to finance operations, has been studied in relation to earnings manipulation, particularly to meet debt covenant obligations. While some studies suggest that firms engage in income-boosting to reduce the risk of covenant breaches, the relationship between leverage and AEM remains mixed. Rodríguez-Pérez and van Hem-

men (2010) found a negative correlation between AEM and leverage, while other studies Ashiq et al. (2022) and Rakshit et al. (2021) found no significant relationship. Research also examines factors like firm age, liquidity, cash flow from operating activities (CFO), and financial health, with inconsistent findings. Some studies (Jang and Kim, 2017; Li, 2019; Rakshit and Paul, 2020; Zang, 2012) report a negative correlation between CFO and AEM, while others Andreas (2017) found a positive correlation.

Firm Characteristics and REM

Research on the impact of firm characteristics on REM is growing, but it remains somewhat limited and open to debate. For example, Hoang and Nguyen (2018) demonstrated that large firms tend to have better-designed internal control systems than small firms, reducing the level of REM. Conversely, Roychowdhury (2006) argued that firm size mainly acts as a control variable, as it is positively correlated with REM. Additionally, when the firm characteristics are measured by age, Gul et al. (2009) concluded that firms with a long history are likely to have more experience in corporate governance and are exposed to greater reputational risks. As a result, managers in these firms would be more conservative in manipulating REM. However, the opposite was found in the research by Hoang and Nguyen (2018).

The Trade-Off between REM and AEM in Connection with Firm Characteristics

The argument is that managers may consider both REM and AEM to achieve their targets. Investigating each type of EM individually is insufficient to fully capture their overall impact (Pappas, 2015). Research on AEM and REM concerning firm characteristics has been undertaken. Authors argue that managers balance between REM and AEM by considering their respective costs, and they adjust the extent of AEM in response to the level of REM employed (Zang, 2012). The investigation into the trade-off between REM and AEM has been extended by identifying a range of firm characteristics that explain the cost of the two methods. For example, firm size has also been used as a control proxy for a trade-off between AEM and REM in the studies by Zang (2012). Moreover, the impact of leverage on AEM-REM substitution has been explored in a study of Anagnostopoulou and Tsekrekos (2017). Authors discovered a positive influence of financial leverage on a company's upward real earnings but no significant impact on income-increasing accrual earnings. In contrast, Awuye and Aubert (2022) found that leverage only constrains AEM, and firms with a high level of leverage tend to switch to REM.

The relative use of AEM and REM also depends on the flexibility of the accounting systems within firms (Cohen and Zarowin, 2010; Gao et al., 2017; Owusu et al., 2022; Zang, 2012). Due to constraints imposed by accounting regulations and the reversal of accruals, the flexibility to manipulate accruals earnings in the current period is limited by the accruals utilized in previous periods. Net operating assets at the beginning of the year can be used as a substitute to measure the degree of accrual management in preceding periods. Furthermore, it is supposed that companies with longer operating cycles tend to possess greater flexibility in reversing accruals. Subsequently, operating cycles are used to measure firms' accounting flexibility. Both net operating assets and operating cycles serve as indicators of companies' accounting system flexibility. They should be considered as measures of the relative costliness of the two types of EM in the study.

Existing research indicates that REM and AEM are influenced by ownership structure. According to the agency theory, managers of state-owned enterprises may lack motivation to improve earnings quality due to easier access to capital (Ding et al., 2007; Gaio and Pinto, 2018). According to Zang (2012) and Roychowdhury (2006), ownership structure tends to impose greater constraints and scrutiny over REM compared to AEM. Therefore, when institutional ownership is high, firms are more likely to employ the AEM strategy over REM.

Previous studies have two main gaps. First, the trade-off between REM and AEM has not been thoroughly understood, as most studies

focused on specific firm characteristics without considering a comprehensive set of internal control variables. Second, there is a lack of comprehensive research on the trade-off between AEM and REM around listing events. This leads to the following hypothesis:

H_2: *Other things being equal, the relative degree of AEM versus REM is associated with the firm's characteristics.*

2.3 The Role of External Factors in Constraining AEM and REM

2.3.1 The Role of Audit Quality in Constraining AEM and REM

According to agency theory, external auditors act as monitoring devices to help shareholders obtain reliable data and minimize information asymmetry in a company's reporting. This, in turn, reduces conflicts between stockholders and managers. Additionally, signaling theory suggests that hiring a reputable auditor serves as a positive signal to potential investors about a company's true value when issuing stocks to the market.

Audit Quality and AEM

Many studies have found a negative association between auditor size, as measured by Big N, and AEM in various contexts, including the United States (Francis and Yu, 2009) and European countries (Alhadab and Clacher, 2018). However, some scholars, such as Duong (2023); Habbash and Alghamdi (2017), have found that the presence of Big N does not mitigate AEM. Furthermore, there has been a growing scholarly emphasis on auditor tenure (Carlin et al., 2015). Previous studies argue that auditor tenure is a characteristic of audit quality. The authors suggest that the length of time the audit firm has been engaged with the client may potentially influence the quality of the audit. However, the findings of studies in this area have led to mixed conclusions.

Audit Quality and REM

Notable studies by Chi et al. (2011) and Cohen and Zarowin (2010) revealed that a higher level of REM is significantly associated with audit quality. Similarly, Choi et al. (2018) concluded that Big 4 auditors constrain not only AEM but also REM. Interestingly, Alhadab and Clacher (2018) found that audit quality does not constrain all forms of EM in the IPO year.

While ample evidence exists of the association between audit quality and AEM, fewer studies have explored how audit quality affects REM. Moreover, according to Zang (2012), audit quality can impact the trade-off between AEM and REM. Therefore, further research is needed to understand the role of audit quality in constraining both types of EM. Consequently, the third hypothesis will be examined accordingly:

H_3: *Other things being equal, the relative degree of AEM versus REM is associated with audit quality.*

2.3.2 The Role of Institutional Environments in Constraining AEM and REM

Stakeholder theory suggests companies can succeed by effectively managing their relationships with key stakeholders. The characteristics of stakeholders are influenced by the diverse institutional environments across different countries. Scholars have made numerous efforts to develop alternative measures to understand these institutions, such as examining legal environment changes, corruption control levels, and political connections.

With a study conducted in 30 countries, Braam et al. (2015) concluded that firms with political connections have a higher probability of substituting AEM for REM compared to firms without political affiliations. The authors also concluded that political connections significantly influence REM and AEM decisions. Recently, Chen et al. (2020) indicated that firms in provinces with lower GDP growth rates than the national or neighboring provinces are more likely to participate in REM. Based on the concept of power distance, Halabi et al. (2019) documented a positive relationship between power distance, religiosity, and REM. The study also supported the idea that REM is seen as more ethical and justifiable than engaging in AEM.

Institutional environments are often evaluated based on the levels of corruption. According to Kimbro (2002), countries with better legislation, a more efficient legal system, a higher concentration of accountants, and high-quality financial statement standards tend to have lower levels of corruption. Moreover, González and García-Meca (2014) found that AEM is expected to be higher in countries with higher levels of corruption. Additionally, Lourenço et al. (2020) suggested that the perception of corruption is associated with greater motivations for firms in emerging economies to manipulate earnings, although this effect is not observed in developed countries. In the context of mergers and acquisitions from the European area, Christopoulos et al. (2023) provided compelling evidence to show a positive correlation between corruption and AEM but a negative correlation between corruption and REM.

Briefly, the review of the EM literature indicates that although the impact of institutional environments on EM at the cross-country level is widely documented, there is limited understanding of the association between EM and institutional environments at the local level. From the aforementioned works, it is worth noting that there are few studies investigating the impact of institutional environments on both types of EM within a growing economy, particularly at the provincial level. To contribute to the literature, our study aimed to assess the institutional environments measured by the corruption index at the provincial level, which has not been done in previous studies.

H_4: *Other things being equal, the relative degree of AEM versus REM is associated with institutional environments.*

Finally, Zang (2012) and Gao et al. (2017) supposed that at the end of an accounting period, firms can still manipulate discretionary accruals by adopting accounting methods or estimates. However, REM involves actual changes in business activities that occur within the financial year. The extent of AEM depends on the unexpected degree of REM undertaken during the year. Companies can observe the impact of REM on earnings at the end of the fiscal year and then offset an unexpected impact by using AEM. Therefore, AEM is undertaken after unexpected REM. Our predictions are as follows:

H_5: *Firms adjust the amount of AEM after realizing REM. The degree of AEM is inversely related to the unexpected degree of REM.*

3 METHODOLOGY AND DATA

3.1 Data Collection

This study's sample includes all firms listed on HOSE between 2009 and 2019. It examines the trade-off between REM and AEM during listing events over four years (the year before listing, the listing year, and the two subsequent years).

The data for estimating EM, firm characteristics, and audit quality was obtained from all firms listed on HOSE's annual reports and financial statements. The data was sourced from two open-source databases: HOSE and FIINGROUP Vietnam. Financial statements from the preceding two years were collected to estimate REM and AEM in the year before listing. Banks and financial institutions were excluded due to their different reporting criteria. After removing those firms, the final dataset consists of 888 observations for 222 firm-years in eight sectors: industrials, energy, consumer staples, consumer discretionarymaterials, real estate, utilities, and health care.

Moreover, data on the corruption index were collected from the annual Provincial Competitiveness Index (PCI) report issued by the Vietnam Chamber of Commerce and Industry (VCCI portal `https://pcivietnam.vn/en/publications`).

3.2 Measuring the Variables

3.2.1 EM Measurement

Real Activities Manipulation (REM)

REM involves making a range of operational decisions throughout the year. Based on a study conducted by Roychowdhury (2006), this research examines three types of REM, including expediting sales timing, managing production costs, and controlling discretionary expenses.

The first type, which accelerates sales timing, is estimated by the abnormal level of cash flow from operations. We rely on the study of Roychowdhury (2006) and Cohen and Zarowin (2010) to show that normal CFO levels can be represented as a linear equation involving sales and the change in sales, as follows:

$$\frac{\text{CFO}_{it}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{\text{REV}_{it}}{A_{i,t-1}} + \alpha_3 \frac{\Delta\text{REV}_{it}}{A_{i,t-1}} + \epsilon_{it}, \quad (1)$$

where CFO_{it} is net cash flows from operating activities of firm i in year t; REV_{it} is sales of firm i in year t; ΔREV_{it} is the disparity in sales between year $t-1$ and year t of firm i; $A_{i,t-1}$ is total assets of firm i in year $t-1$; α_0 is a constant; α_1, α_2, α_3 are the coefficients of regression; ϵ_{it} is the error term.

The abnormal CFO is estimated as the difference between the actual CFO and the normal level of CFO calculated using the estimated coefficient from Eq. 1.

The second type, discretionary expenses, can be represented as a linear equation involving sales, as shown in the following equation:

$$\frac{\text{DISX}_{it}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{\text{REV}_{i,t-1}}{A_{i,t-1}} + \epsilon_{it}, \quad (2)$$

where DISX_{it} is the discretionary expenditures (comprising advertising and administrative expenses) of firm i in year t. The abnormal discretionary expenses (DISX) are calculated as the disparity between the actual values and the predicted normal levels derived from Eq. 2.

The third type, production costs, is measured as the total cost of goods sold and inventory changes, as calculated using the following Eq. 3:

$$\frac{\text{PROD}_{it}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{\text{REV}_{it}}{A_{i,t-1}} + \alpha_3 \frac{\Delta\text{REV}_{it}}{A_{i,t-1}} + \alpha_4 \frac{\Delta\text{REV}_{i,t-1}}{A_{i,t-1}} + \epsilon_{it}, \quad (3)$$

where PROD_{it} is the total cost of goods sold and the inventory changes from $t-1$ to t of firm i. The abnormal production costs (PROD) are estimated as the difference between the actual values and the normal levels predicted from Eq. 3; $\Delta\text{REV}_{i,t-1}$ is the disparity in sales between year $t-2$ and year $t-1$ of firm i.

To fully capture the impact of REM, we create comprehensive REM metrics by combining three proxy variables. In accordance with Gao et al. (2017) and Li (2019), we multiply abnormal discretionary expenses and cash by -1 and then sum these values.

Accruals Earnings Management (AEM)

Total accruals are divided into long and current accruals. Changes in the balances of current liability accounts and current asset accounts reflect current accruals, which are the most manipulated in EM. Moreover, in Vietnam context and around listing events, by using four models with total accruals-based and current accruals-based to measure EM, Nguyen and Duong (2021) concluded that when Vietnamese firms prepare for listing events, they tend to focus on boosting their prior-year earnings. They do this by using current accruals rather than total accrual models. In line with prior research in the literature review, this study employs discretionary current accruals (DCA) to measure EM (Nguyen and Duong, 2021; Duong, 2023; Teoh et al., 1998), which are examined using the equation below:

Current Accruals Model

$$\frac{\mathrm{CA}_{it}}{A_{i,\frac{t-1+t}{2}}} = \alpha_0 + \alpha_1 \frac{1}{A_{i,\frac{t-1+t}{2}}} + \\ + \alpha_2 \frac{\Delta\mathrm{REV}_{it}}{A_{i,\frac{t-1+t}{2}}} + \epsilon_{it}, \tag{4}$$

$$\mathrm{NDCA}_{it} = \alpha_0 + \alpha_1 \frac{1}{A_{i,\frac{t-1+t}{2}}} + \\ + \alpha_2 \frac{\Delta\mathrm{REV}_{it} - \Delta\mathrm{TR}_{it}}{A_{i,\frac{t-1+t}{2}}}, \tag{5}$$

$$\mathrm{DCA}_{it} = \frac{\mathrm{CA}_{it}}{A_{i,\frac{t-1+t}{2}}} - \mathrm{NDCA}_{it}, \tag{6}$$

Current Accruals Measurement

$$\mathrm{CA}_{it} = \Delta\mathrm{CAsset}_{it} - \Delta\mathrm{Cash}_{it} - \\ - \Delta\mathrm{CL}_{it} + \Delta\mathrm{STD}_{it}, \tag{7}$$

where:

- CA_{it} is the current accruals of firm i in year t;
- NDCA_{it} is the nondiscretionary current accruals of firm i in year t;
- DCA_{it} is the discretionary current accruals of firm i in year t;
- $\Delta\mathrm{CAsset}_{it}$ is the change in current assets of firm i between year $t-1$ and year t;
- $\Delta\mathrm{Cash}_{it}$ is the change in cash and cash equivalent of firm i between year $t-1$ and year t;
- $\Delta\mathrm{CL}_{it}$ is the change in current liabilities of firm i between year $t-1$ and year t;
- $\Delta\mathrm{STD}_{it}$ is the change in debt included in current liabilities of firm i between year $t-1$ and year t;
- $\Delta\mathrm{TR}_{it}$ is the change in trade receivables of firm i between year $t-1$ and year t;
- $A_{i,\frac{t-1+t}{2}}$ is the average of beginning and end of year total asset of firm i in year t.

3.2.2 Independent Variable

In line with previous studies, this study focuses on the primary indicators of firm financial characteristics, including state-owned, firm size, financial leverage, liquidity, age, net operating assets, operating cycle, and Z-score as a measure of financial health.

State ($\mathrm{State}_{i,t}$) is a dummy variable equal to 1 if firm i in year t has any state ownership, and 0 otherwise (Ding et al., 2007; Gaio and Pinto, 2018; Wang and Yung, 2011).

Firm size ($\mathrm{Size}_{i,t}$) is represented by the log of total assets of firm i in year t (Ashiq et al., 2022; Bassiouny, 2016; Zang, 2012).

Firm leverage ($\mathrm{Lev}_{i,t}$) is the amount of debt in the firm's capital structure, while firm liquidity ($\mathrm{Liq}_{i,t}$) is the value of current assets divided by current liabilities of firm i in year t (Awuye and Aubert, 2022).

Firm age ($\mathrm{Age}_{i,t}$) is firm age of firm i in year t (Jang and Kim, 2017; Rakshit and Paul, 2020).

NOA ($\mathrm{NOA}_{i,t-1}$) is the net operating assets of firm i in year $t-1$, calculated as the sum of shareholders' equity (excluding cash and marketable securities) and total debt, divided by lagged sales.

Cash flow from operation ($\mathrm{CFO}_{i,t}$) is net cash flows from operations scaled by total assets of firm i in year t.

Firm's operating cycle ($\mathrm{Operating}_{i,t-1}$) is calculated as the total of days receivable and days inventory minus the days payable at the beginning of the year (Gao et al., 2017; Owusu et al., 2022; Zang, 2012).

Firm financial health ($\mathrm{Zscore}_{i,t-1}$) is measured using a modified version of Altman's Z-score for firm i in year t (Altman, 2000; Luu, 2023; Rusmin et al., 2024; Zang, 2012).

Big 4 ($\mathrm{Big4}_{i,t}$) is assigned a value of 1 if the auditor is from the Big 4 and 0 otherwise. Auditor tenure ($\mathrm{Tenure}_{i,t}$) is the number of consecutive years the auditing firm has been engaged with firm i in year t (Duong, 2023; Zang, 2012).

The corruption index ($\mathrm{Corrup}_{i,t}$) measures the amount of bribes paid by firms to provincial officials. It is derived from surveys conducted across all 63 provinces by the Vietnam Chamber of Commerce and Industry (VCCI) in collaboration with the United States Agency for International Development (USAID). Firms operating in different provinces are considered, and the indicator is normalized to a ten-point scale, with the highest-performing provinces receiving a score of 10 and the lowest-performing ones receiving a score of 1.

3.3 Model Specification

This study used three models by running Panel Data Regression using Stata 17. To determine the appropriate estimation approach for panel data, we begin by conducting the Breusch-Pagan Lagrangian Multiplier (LM) test (Breusch and Pagan, 1980). A significant result suggests that a panel regression model is preferred over pooled OLS. We then estimate both fixed effects (FE) and random effects (RE) models. To choose between them, the Hausman test is applied (Hausman, 1978). If the null hypothesis is rejected, it indicates that the random effects model may yield inconsistent estimates due to correlation between individual effects and the regressors. In such cases, the fixed effects model is deemed more appropriate.

Model 1:
REM and AEM Around Corporate Events

In the first hypothesis, the investigation begins with the application the parametric t-test to evaluate whether the means REM and AEM significantly deviate from zero. Moreover, Gao et al. (2017); Li (2019) indicate that firms are inclined to manipulate earnings to meet key financial benchmarks, especially around corporate events. Zang (2012) contributes to this discussion by identifying critical earnings benchmarks that firms strive to meet, including the preceding year's earnings, the analyst consensus forecast (plan) earnings, and a specific threshold of zero earnings. Zero earnings are defined as earnings before extraordinary items divided by lagged assets, with a value range between 0 and 0.005 (Roychowdhury, 2006). Consequently, this study classifies as suspects of Earnings Management (EM) those firms whose earnings closely meet these benchmarks.

Continuing to the second stage, a model of suspected firms has been utilized to determine whether companies use AEM or REM to inflate their earnings. For this purpose, the following logit model is adopted to explain EM suspect firms.

$$\begin{aligned}\text{logit}\,(\text{suspect}_{i,t}) = \quad & (8)\\ \text{logit}\,(&\beta_0 + \beta_1\,\text{AEM}_{i,t} + \\ &+ \beta_2\,\text{REM}_{i,t} + \beta_3\,\text{Zscore}_{i,t-1} + \\ &+ \beta_4\,\text{State}_{i,t} + \beta_5\,\text{Big4}_{i,t} + \\ &+ \beta_6\,\text{Tenure}_{i,t} + \beta_7\,\text{NOA}_{i,t-1} + \\ &+ \beta_8\,\text{Operating}_{i,t-1} + \beta_9\,\text{CFO}_{i,t} + \\ &+ \beta_{10}\,\text{Age}_{i,t} + \beta_{11}\,\text{Size}_{i,t} + \\ &+ \beta_{12}\,\text{Lev}_{i,t} + \beta_{13}\,\text{Liq}_{i,t} + \\ &+ \beta_{14}\,\text{Corrupt}_{i,t}),\end{aligned}$$

where Logit $(\text{suspect}_{i,t})$ refers to the likelihood that firm i in year t is suspected of meeting earnings benchmarks. It equals one (1) if the firm meets the earnings benchmark and zero (0) otherwise. Suspect 1 refers to firms that just beat the consensus forecast (planned earnings), Suspect 2 refers to firms that just beat the previous year's earnings, and Suspect 3 refers to firms that just beat zero earnings. Suspect all earnings benchmarks is an indicator variable that equals one (1) if the firm-year just meets one of the earnings benchmarks and zero (0) if it misses all benchmarks. $\text{AEM}_{i,t}$ is accruals discretionary of firm i in year t, the proxy for accrual-based EM. $\text{REM}_{i,t}$ is aggregated the real activities manipulation of firm i in year t, measured into one proxy, taking their sum.

Model 2 and Model 3:
A Trade-Off between REM and AEM

$$\begin{aligned}\text{REM}_{i,t} = \gamma_0 &+ \gamma_1\,\text{Zscore}_{i,t-1} + \quad (9)\\ &+ \gamma_2\,\text{State}_{i,t} + \gamma_3\,\text{Big4}_{i,t} + \\ &+ \gamma_4\,\text{Tenure}_{i,t} + \\ &+ \gamma_5\,\text{NOA}_{i,t-1} + \\ &+ \gamma_6\,\text{Operating}_{i,t-1} + \\ &+ \gamma_7\,\text{CFO}_{i,t} + \gamma_8\,\text{Age}_{i,t} + \\ &+ \gamma_9\,\text{Size}_{i,t} + \gamma_{10}\,\text{Lev}_{i,t} + \\ &+ \gamma_{11}\,\text{Liq}_{i,t} + \gamma_{12}\,\text{Corrup}_{i,t} + \\ &+ \text{Year}_i + \epsilon_{it}\end{aligned}$$

$$\begin{aligned} \text{AEM}_{i,t} = {} & \delta_0 + \delta_1\, \text{Zscore}_{i,t-1} + \\ & + \delta_2\, \text{State}_{i,t} + \delta_3\, \text{Big4}_{i,t} + \\ & + \delta_4\, \text{Tenure}_{i,t} + \\ & + \delta_5\, \text{NOA}_{i,t-1} + \\ & + \delta_6\, \text{Operating}_{i,t-1} + \\ & + \delta_7\, \text{CFO}_{i,t} + \delta_8\, \text{Age}_{i,t} + \\ & + \delta_9\, \text{Size}_{i,t} + \delta_{10}\, \text{Lev}_{i,t} + \\ & + \delta_{11}\, \text{Liq}_{i,t} + \delta_{12}\, \text{Corrup}_{i,t} + \\ & + \text{Year}_i + \\ & + \text{UnexpectedREM}_{i,t} + \epsilon_{it}, \end{aligned} \tag{10}$$

where Year_i listing year dummy variables to control the year effect. $\text{UnexpectedREM}_{i,t}$ is the level of AEM is affected by an unexpected level of REM (Gao et al., 2017; Zang, 2012). Therefore, the unexpected REM has been incorporated into Eq. 10, estimated as the residual from Eq. 9.

For Models 2 and 3, following panel model selection, the Modified Wald test is employed to detect heteroskedasticity, and robust standard errors are applied where necessary. Given the firm-specific nature of EM and the panel structure (222 firms over four years), clustering by firm accounts for within-firm correlation and unobserved heterogeneity. The final models incorporate all diagnostic tests and use cluster-adjusted standard errors. Additionally, the existence of outliers, which are data points that differ significantly from others, can lead to important changes in substantive conclusions regarding relationships among variables (Aguinis et al., 2013). To identify influential observations on all regression coefficients as a whole, Cook's Distance must be predicted from models to explore sensitivity to exclude outliers. Accordingly, to reduce the impact of extreme values (outliers), specific observations were eliminated from the dataset.

4 RESULTS

Tab. 1: Descriptive Statistics

Variables	Mean	Median	Std Dev	25%	75%
REM	0.1082	0.1000	0.5217	−0.1047	0.3043
AEM	0.0262	0.0128	0.1969	−0.0764	0.1170
Zscore	2.4016	1.9080	1.7804	1.0978	2.9926
State	0.3930	0.0000			
Big4	0.2207	0.0000			
Tenure	3.0440	3.0000	1.8357	1.0000	4.0000
NOA	0.6625	0.6763	0.2001	0.5120	0.8232
Operating	369.0000	197.6630	500.0000	108.6810	336.0483
CFO	1.36e+11	3.43e+10	4.10e+11	−2.28e+10	1.65e+11
Age	16.7173	13.0000	11.1017	8.0000	24.0000
Size	9.0640	8.9851	0.5413	8.6640	9.3644
Lev	1.4084	1.1669	1.1032	0.5279	2.0205
Liq	2.0852	1.5129	1.4992	1.1444	2.3563
Corrup	5.9649	5.9400	0.9842	5.1600	6.6700
Suspect 1	0.5259	1.0000			
Suspect 2	0.3671	0.0000			
Suspect 3	0.8063	1.0000			
Suspect all earnings benchmarks	0.8569	1.0000			

Tab. 2: Pearson Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) REM	1											
(2) AEM	−0.27***	1										
(3) Zscore	0.23***	0.01	1									
(4) Tenure	0.03	−0.08**	−0.06*	1								
(5) NOA	0.02	−0.10***	0.19***	0.02	1							
(6) Operating	−0.20***	0.03	−0.32***	0.05	−0.13***	1						
(7) CFO	0.22***	−0.18***	−0.08**	0.20***	−0.01	−0.14***	1					
(8) Age	0.08**	−0.06*	0.02	0.03	−0.21***	−0.18***	0.09***	1				
(9) Size	−0.09**	0.04	−0.39***	0.23***	−0.20***	0.13***	0.50***	0.04	1			
(10) Lev	−0.21***	0.04	−0.42***	−0.03	−0.27***	0.11***	−0.02	0.10***	0.34***	1		
(11) Liq	0.04	0.09***	0.50***	0.03	0.13***	0.10***	−0.10***	−0.13***	−0.31***	−0.50***	1	
(12) Corrup	−0.07*	−0.07**	0.03	0.03	0.10***	0.08**	−0.11***	−0.06*	−0.15***	0.05	−0.01	1

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Tab. 3: Results for Testing H_1 (Discretionary Accruals and Real Earnings Management)

	Mean	Q1	Median	Q3	Std
AEM	0.0262***	−0.0764	0.0128	0.1170	0.1969
REM	0.1082***	−0.1047	0.1000	0.3044	0.5218

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.1 Descriptive Statistics

Tab. 1 presents the descriptive Statistics of all variables. According to Altman (2000) in the revised model, a score below 1.23 indicates high financial distress. The sample has a Z-score of 2.4016 at the 50th percentile, which exceeds the 1.23 cutoff for financial distress, suggesting that most firms in the sample exhibit strong financial health.

Regarding state ownership, the average state ownership in our sample is 39.3 percent. In terms of auditor quality, the mean value for firms audited by one of the Big Four is 0.2207, indicating that a Big Four firm audited 22.07% of the sample firms. Additionally, the average auditor tenure suggests that sample firms have maintained a partnership with their auditors for over three years. The mean of Net Operating Assets (NOA) is 0.6625, and at the 25th percentile, NOA is 0.5120, indicating that firms have net operating assets exceeding half of their total assets. Similarly, firms have an average operating cycle of 369 days, an average age of 16.7 years, a leverage ratio of 1.4, and a corruption index of 5.96.

Tab. 2 presents the Pearson correlation coefficients among the variables analyzed in the main tests. The table indicates a significant negative correlation between REM and AEM. Overall, the correlation matrix does not indicate any significant issues with multicollinearity.

4.2 Empirical Results

4.2.1 REM and AEM Around Listing

Tab. 3 presents the descriptive statistics for the EM variables. As shown in Tab. 3, the means, medians, and third quartiles (Q3) for both AEM and REM are positive. This study uses two-tailed t-test to determine whether the means of AEM and REM differ significantly from zero (0). The results in Tab. 3 demonstrate that the means of AEM and REM are statistically significantly different from zero at the 1% level.

Tab. 4 illustrates the estimation results for the conditional fixed-effects logistic regression of suspect firms. Only in the Suspect 3 model (zero earnings benchmark) do both AEM and REM show a positive relationship which is significant at the 10% level. In contrast, in the models of suspects just beating plan earnings, beating last year's earnings, and beating all earnings benchmarks, the coefficients for suspects are significant and positive for either REM or AEM, but not both. These findings

Tab. 4: Estimation Results for the Conditional Fixed-Effect Logit Model of Suspect Firms

Variables	Suspect 1 (forecast consensus)	Suspect 2 (last-year earnings)	Suspect 3 (zero earnings)	Suspect all earnings benchmarks
AEM	0.6394**	0.3485	0.8374**	0.7443**
	(0.2820)	(0.3975)	(0.3733)	(0.3159)
REM	0.1179	0.4146**	0.3745**	−0.0042
	(0.1782)	(0.2025)	(0.1639)	(0.1691)
Zscore	0.1173*	−0.4626***	0.0309	0.0204
	(0.0669)	(0.1133)	(0.0395)	(0.0448)
State	0.2838**	−0.0194	0.0316	0.0351
	(0.1447)	(0.1755)	(0.0942)	(0.0618)
Big4	0.1149	0.0187	0.1673	−0.0665
	(0.1650)	(0.1934)	(0.1518)	(0.1037)
Tenure	0.0170	−0.0199	0.0131	0.0316
	(0.0465)	(0.0575)	(0.0386)	(0.0323)
NOA	−1.6096***	0.1897	−2.4886***	−0.7713*
	(0.6114)	(0.6941)	(0.8037)	(0.4502)
Operating cycle	−0.0001	0.0015***	0.0002	0.0001
	(0.0002)	(0.0003)	(0.0001)	(0.0001)
CFO	3.39e−13**	0.0000***	0.0000***	0.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Age	−0.0913*	−0.3376***	−0.3076***	−0.1108***
	(0.0515)	(0.0638)	(0.0543)	(0.0286)
Size	−3.4005***	−1.4461**	−0.7402	−0.7002***
	(0.5634)	(0.5879)	(0.5313)	(0.2545)
Lev	0.2675**	−0.1202	−0.3394***	−0.0657
	(0.1223)	(0.1377)	(0.1252)	(0.0672)
Liq	0.1847**	0.2576***	0.0693	0.0645
	(0.0836)	(0.0975)	(0.0614)	(0.0529)
Corrup	−0.1207	−0.4527***	0.1399*	−0.1090*
	(0.0882)	(0.1247)	(0.0826)	(0.0581)
Prob	0.0000	0.0000	(0.0000)	(0.0000)
N	614	728	302	238

Notes: Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

which are consistent with prior research support the prediction that firms have a stronger incentive to manipulate their earnings upward by using different types of earnings management, particularly around the time of listing and when beating their earnings targets. In conclusion, H_1 is supported, and the results provide evidence of EM behavior among Vietnamese firms during the study period. Interestingly, the results from the four models indicate that firms tend to use one type of EM rather than both. The choice between these two types of EM will be addressed in the next section of the study.

4.2.2 REM and AEM Trade-Off

Firm Characteristics in Constraining AEM and REM

Hypothesis H_2 predicts that the relative use of AEM versus REM is influenced by a firm's characteristics. In the REM model, the coefficients for size and liquidity are negative and statistically significant. In contrast, the AEM model shows positive coefficients for these two factors, which are significant at the 1% and 5% levels. The negative coefficient for size in the REM model indicates that firms with larger assets have less flexibility for REM, leading

them to rely more on AEM. Likewise, liquidity also shows negative coefficients, supporting that higher financial liquidity makes REM costlier. As a result, firms may prefer AEM to reduce the risk of being detected by current and potential creditors.

Tab. 5: The Real and Accrual-Based EM

Variables	**REM Equation (Model 2)**	**AEM Equation (Model 3)**
Zscore	0.0064	0.0165**
	(0.0147)	(0.0067)
State	0.0575***	−0.0151
	(0.0211)	(0.0138)
Big4	0.0232	−0.0294*
	(0.0286)	(0.0175)
Tenure	−0.0023	−0.0018
	(0.0080)	(0.0051)
NOA	0.1684*	−0.3787***
	(0.1010)	(0.0661)
Operating	3.17e−06	0.0000
	(0.0000)	(0.0000)
CFO	2.74e−13***	−1.39e−13***
	(0.0000)	(0.0000)
Age	0.0004	−0.0157
	(0.0235)	(0.0113)
Size	−0.3439***	0.1448**
	(0.1108)	(0.0580)
Lev	−0.0175	−0.0018
	(0.0221)	(0.0170)
Liq	−0.0229*	0.0275***
	(0.0133)	(0.0088)
Corrup	−0.0512***	0.0014
	(0.0165)	(0.0093)
Year dummies	controlled	controlled
Unexpected REM		−0.0354***
		(0.0117)
_cons	3.3632***	−0.8221
	(1.0756)	(0.5568)
N	849	841
adj. R^2	0.1600	0.1960
Breusch and Pagan Lagrangian test (Prob > chibar2)	0.0000	0.0024
Hausman test (Prob > chi2)	0.0006	0.0220

Notes: All values in the above table are reported after excluding outliers; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Conversely, the CFO and NOA exhibit positive coefficients in the REM model and negative coefficients in the AEM model. This indicates that when AEM becomes more costly due to higher cash flows or greater net operating assets, firms are more likely to resort to real manipulation. Moreover, state-ownership firms are more likely to manipulate earnings through REM rather than AEM.

In summary, the partial of hypothesis H_2 is accepted, indicating that the trade-off between REM and AEM is influenced by certain firm characteristics, such as net operating assets (NOA), cash flow from operations (CFO), size, and liquidity (liq).

Audit Quality and Institutional Environments in Constraining AEM and REM

The results do not provide sufficient evidence to support the assertion that REM increases with the involvement of Big 4 auditors or with longer auditor tenure. In contrast, the findings indicate that AEM is negatively associated with Big 4 auditors at the 10% significance level.

Tab. 5 demonstrates that while the institutional environment shows insignificant results in the AEM equation, it significantly impacts the REM model. The findings reveal a relationship between institutional environments and earnings management, indicating that REM is constrained by the level of corruption indicated by the corruption index.

Unexpected Degree of REM and AEM

Hypothesis H_5 predicts that the level of AEM is engaged after REM is realized. It can be inferred that if the REM turns out unexpectedly low during the year, managers may increase the use of accruals through various accounting methods. As a result, there is a negative correlation between AEM and unexpected REM. The coefficients from this study reveal a negative and statistically significant relationship between the level of AEM and the amount of unexpected REM at the 1% level. These findings suggest that firms adjust their level of AEM following the realization of REM during the period.

5 DISCUSSION

5.1 EM Around Listing Events

While previous studies have been conducted around SEO and IPO events in developed countries—where the lag between IPO and listing is typically measured in days—this study is conducted in Vietnam, a stock market where the time between IPO and listing can be significantly longer, often extending to several years. The findings are consistent with those of (Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Li, 2019; Zang, 2012), showing that, in addition to AEM, firms also employ REM as a tool for EM around listing events to achieve certain profit benchmarks to meet listing conditions and create excessively optimistic investor expectations.

5.2 REM and AEM Trade-Off

In line with studies conducted in developed country markets and consistent with agency theory and positive accounting theory, this study, conducted in the Vietnamese market—with its distinct listing regulations, government-influenced accounting standards, and taxation policies—shows that the tendency of Vietnamese firms to make trade-off decisions is influenced by costs and varies across different contexts.

Firm Characteristics in Constraining AEM and REM

Around listing events, firms with higher liquidity and larger total assets tend to employ more AEM and less REM. This implies that firms with extensive assets have greater flexibility and a higher degree of subjective judgment regarding their estimates, allowing them to enhance accrual earnings. The outcomes from testing H_2 show that firms with higher levels of current financial liquidity are more likely to use AEM to minimize the risk of detection by current and potential creditors, supporting conclusions drawn by Rakshit and Paul (2020) and Pappas (2015). Additionally, liquidity ratios represent a company's financial status, incorporating current assets and liabilities. AEM involves manipulating financial reports through current accruals, such as accounts receivable, accounts payable, inventory, accrued liabilities, or current expenses. Firms with higher liquidity ratios can effectively utilize short-term assets and liabilities, enabling easier adjustments to short-term accruals. In other words, companies with high liquidity levels tend to rely more on current accruals, thereby reducing the need for REM.

Conversely, the CFO and NOA exhibit positive coefficients in the REM model and negative coefficients in the AEM model. This indicates that when AEM becomes more costly due to higher cash flows or greater net operating assets, firms are more likely to resort to real manipulation. This finding contrasts with the result observed by Li (2019) but aligns with the result generated by Yoon and Miller (2002), suggesting that CFO may serve as an indicator of a firm's productivity and efficiency. Therefore, if firms have lower levels of CFO or NOA, management is more likely to engage in REM to enhance financial performance, and vice versa. Moreover, state-ownership firms are more likely to manipulate earnings through REM rather than AEM. This finding aligns with the research conducted by Tran and Dang (2021) in Vietnam and Wang and Yung (2011) in China, which suggests that state-owned enterprises manage earnings less through accruals than privately owned enterprises.

Audit Quality and Institutional Environments in Constraining AEM and REM

The findings regarding audit quality align with established agency theory and signaling theory, as well as empirical evidence, indicating that REM is more likely to remain undetected, while AEM is typically constrained by audits from Big Four accounting firms. This is consistent with the research of Zang (2012) in the US and Rusmin (2010) in Singapore and Owusu et al. (2022) in the UK, suggesting that auditor quality can mitigate AEM but not REM. This finding is consistent with the research of Al-

hadab and Clacher (2018), indicating that audit quality is insufficient to fully restrain all forms of EM. Consequently, it does not influence the trade-off between AEM and REM, as it affects only one type of earnings management, leading to the rejection of hypothesis H_3.

Regarding the impact of the institutional environment on EM, while most previous research primarily focuses on country-level effects, this study examines the institutional environment as measured by the corruption index, using province-level characteristics. The findings indicate that higher levels of corruption are linked to a lower incentive for managers to enhance real earnings. However, this relationship is not observed in the accrual earnings model. It can be inferred that a reduced level of informal charges—petty corruption paid by firms—can lead to decreased expenses, resulting in lower levels of real earnings activities. These results, which differ from those previously concluded by Braam et al. (2015), suggest that institutional environments do not influence the trade-off between REM and AEM, providing no support for hypothesis H_4. Instead, this study finds that the corruption index serves to mitigate REM. In economies with high levels of corruption, managers are more likely to engage in manipulating operating activities rather than focusing on accruals.

Finally, the findings show a direct substitutive relation between REM and AEM. The degree of the AEM is negatively correlated with the level of unexpected REM realized during the year. The finding is consistent with previous research conducted by Cohen et al. (2008), Cohen and Zarowin (2010), Zang (2012) and Gao et al. (2017), implying that managers adjust accruals after the fiscal year-end based on the results of prior REM during the period, supporting the view that these two strategies are executed sequentially.

5.3 Limitations and Future Research

Despite the overall strength of this study, its findings should be viewed within the context of the following limitations. Firstly, this study is based on a sample of listed firms in Vietnam, so its findings may not be applicable to other contexts. Moreover, this study is limited by the lack of data before listing, with a maximum timeframe of ten years, and the sample is restricted to newly listed firms on HOSE, affecting generalizability. Additionally, endogeneity is present in the earnings management (EM) analysis. Although alternative measures and robust methods were used, endogeneity may still impact results. Future research should extend the timeframe, incorporate dynamic endogeneity with lag periods, and include data from all listed firms in Vietnam to address these limitations and enhance validity. Caution is advised in interpreting the results due to these constraints.

6 CONCLUSIONS

In conclusion, this study provides empirical evidence on how firms engage in both types of EM and how they make trade-offs between AEM and REM based on firm characteristics, audit quality, and the institutional environment in relation to listing events over four years.

Our study contributes to the existing literature in the following ways. First, unlike prior studies that use a single measure of EM, this study extends the literature by treating REM and AEM as substitutes. Around the listing event, firms appear motivated to use either method to meet listing requirements and foster overly optimistic investor expectations. Second, while prior studies focus on firm characteristics and a single type of EM, this study examines their influence on both AEM and REM using a broad set of controls. The findings show that trade-off decisions between AEM and REM are shaped by firm size, liquidity, CFO, and net operating assets (NOA). Specifically, firms with greater liquidity and assets favor AEM, whereas those with higher CFO and NOA rely more on REM. Third, considering external factors like audit quality and institutional environment, limited trade-off between AEM and REM is

observed. Audit quality restricts only AEM, while the corruption index negatively affects REM. Finally, the study suggests that firms adjust their accrual level at year-end based on the level of REM realized throughout the year. These findings are consistent with the sequential nature of these two activities.

Implications

For Investors: Investors should be cautious of earnings manipulation (AEM and REM) around listing events, especially in new firms. Larger, more liquid companies tend to use accrual-based manipulation, while firms with lower CFO or NOA favor real earnings management. Careful financial analysis is essential, as Big 4-audited firms typically show less AEM.

For Auditors: Firms on the Ho Chi Minh Stock Exchange may use REM and AEM to meet listing profits. Auditors should understand these models and scrutinize short-term items like receivables and revenue, especially in state-owned firms with high CFO and NOA, which are more prone to REM.

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