

Earnings Management and Asymmetric Information: Evidence from Vietnamese Market

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Abstract. This paper examines the relationship between earnings manipulation and market transparency. We argue that earnings management generates information gaps in the stock market, reducing overall transparency. Using data from 337 non-financial firms listed on Vietnam's Hochiminh City Stock Exchange (HOSE) for the period 2019-2023, the study explains the effects of earnings manipulation on the information flow. With the application of statistical models including Pooled OLS, Random Effects, and Fixed Effects, the research tests its hypotheses and improves the accuracy of its analysis. The findings present a clear relation between earnings revisions and increased information gaps, where reduced synchronicity demonstrates less transparency and a poorer information environment. The results possess practical applications to managers who have an interest in reducing information gaps and improving corporate transparency.

Keywords. Earnings management; Asymmetric information; Foreign ownership; Earnings quality

1. Introduction

The concept of stock price co-movement is highly relevant in finance literature since it reflects how stock prices move alongside overall market movement. The metric is typically embroiled in debates regarding the quality of information in markets, implying heterogeneous market efficiencies across environments. Stock synchronicity is an extremely useful measure of the quality and character of market information, and it varies significantly between emerging and developed markets. Traditional perspectives deduce that higher stock price informativeness entails lower synchronicity which is a reflection of more firm-specific information in stock prices, primarily in developed or efficient markets (Fernandes & Ferreira, 2009; Morck et al., 2000). However, recent studies challenge this perspective in that they argue that in less developed or developing economies, reduced return synchronicity can imply reduce informativeness, lack of firm-specific information, and lower quality of the information environment (Brockman et al., 2024; Chan and Hameed, 2006; Dasgupta et al., 2010, Lei et al., 2024). Earnings management is valuable to stakeholders like investors, lenders, and shareholders in decision-making. It is either accomplished through changing accruals (impacting reported profits but not the cash flow) or real changes that influence the actual cash flow. The approach to managing earnings signals internal controls, ethics, and whether management's goals align with shareholder interests. Aggressive manipulation of earnings typically leads to low earnings quality and weak corporate governance (Dechow et al., 2010).

Earnings management also affects the stock market. It has been found to affect the quality of a firm's information environment, where high levels of manipulation reflect low earnings quality and negative market perceptions (Abab et al., 2018). It results in information asymmetry, with investors being divided into informed and uninformed groups, and therefore, reducing market efficiency (Bhattacharya et al., 2013a). Low earnings quality undermines governance, reduces market liquidity, and renders stock prices less informative.

This study examines earnings manipulation's influence on Vietnam's stock market with a particular focus on the association between accrual-based manipulation and information asymmetry.

In the Vietnamese setting, issues like poor disclosure and lax regulations often generate uneven information access, which allows managers to employ financial statement manipulation to present a better image of the firm. This misrepresents financial reality, erodes investors' faith, and harms market integrity. These issues must be addressed to enhance transparency and toward creating a more robust capital market as Vietnam joins the global economy. We are driven by fundamental drivers. Agency conflicts, introduced by imperfect information, add to asymmetry between investors and managers. Analytical models demonstrate how information asymmetry and earnings management complement each other (Dye, 1988). Too much manipulation of earnings may discourage investors, reducing market liquidity and capital inflows, which are critical for Vietnamese companies in the frontier market. Earnings manipulation can also hurt the economy by leading to inefficient allocation of capital and misestimation of company performance, affecting overall growth.

While earnings manipulation determinants in Vietnam have been examined in prior research, its impact on the stock market remains largely understudied. The Vietnamese frontier market, with its weak legal environment and low information disclosure, provides a unique setting to examine the impact of earnings manipulation on market asymmetry and stock prices.

Our research adds value in the following manner: First, it is one of the first research studies to examine the effects of earnings management on market efficiency in Vietnam. By examining accrual-based earnings manipulation, it sheds light on how the practice affects the information environment of the stock market, especially in less-studied frontier markets. Second, the study provides practical guidance to investors, highlighting the risks of earnings manipulation and its effects on stock prices and market liquidity. Last but not least, our findings suggest that increased earnings manipulation leads to greater information asymmetry in the market. This points to the importance of more regulation and better corporate governance to reduce earnings manipulation and improve transparency in the market.

These findings are particularly valuable to policymakers and regulators who are working towards building trust in Vietnam's capital markets.

2. Literature Review

2.1. Earnings Management

Earnings management is a central field of accounting and finance, which has attracted significant interest as a result of its effects on financial reporting and corporate governance. Researchers have examined various aspects of earnings management, including its motives, methods, and consequences.

Healy and Wahlen (1999) made a notable distinction between earnings management for opportunistic reasons and legitimate actions for income smoothing. Opportunistic earnings management involves managing earnings to benefit the firm or individual, such as achieving earnings thresholds or boosting executive bonuses. Income smoothing, on the other hand, though contentious, is sometimes considered a proper response by managers to reduce the perceived variability of earnings, lowering capital costs and boosting investor confidence.

Roychowdhury (2006) took into account the effect of earnings management on market participants and determined how earnings management influences investors' perception and stock prices. Earnings management may mislead investors' perception of a company's financial position, leading to stock mispricing and value-decreasing investment decisions. Such fraud can damage financial market credibility and reduce investor confidence.

Dechow et al. (2010) contributed further by studying the way that corporate governance mechanisms can be limiting or enablers of earnings management. Effective corporate governance, with effective board monitoring, independent audit committees, and strong internal controls, can help limit earnings manipulation. Poor governance structures, on the other hand, can enable managers to manipulate earnings more easily, which could lead to huge financial misreporting and corporate scandals..

2.2. Theoretical frameworks on the relationship between Earnings management and Asymmetric Information

The linkage between earnings management and information asymmetry is founded on a variety of well-established theoretical models, such as Agency Theory, Signaling Theory, Market Microstructure Theory, and the Economics of Information Asymmetry. These models provide an explanation of why and how earnings are manipulated by managers, its influence on the information environment, as well as its overall impact on market participants.

Agency Theory

Agency theory is an underlying paradigm of thinking about earnings management, oriented around conflicts between managers (agents) and owners (principals) or shareholders. Since managers know a firm's position better, managers can use their superior information for earnings management that benefits themselves at the cost of shareholders, say, by attaining performance metrics or getting performance bonuses, commonly at the latter's expense. This opportunistic behavior heightens information asymmetry as it becomes harder for investors to separate firms with good fundamentals and firms that engage in financial misstatement (Healy & Wahlen, 1999). The problem is even exacerbated in poorly governed firms, which provide managers with more latitude to distort financial reports (Dechow et al., 2010).

Further empirical evidence suggests that firms with high information asymmetry are more likely to engage in earnings management. Leuz et al. (2003) find that firms in weak investor protection environments engage in more aggressive earnings management, raising information asymmetry and lowering market efficiency. Fan and Wong (2002) also find evidence that earnings opacity is very

common in emerging markets with comparatively underdeveloped governing institutions to validate the relationship between asymmetric information and earnings management.

The Economics of Information Asymmetry

Akerlof (1970) theory of information asymmetry explains how the unbalance of information availability among agents within a market leads to inefficiencies. It is felt by financial markets when managers (insiders in a firm) have better information than outsiders (investors). Earnings management leads to adverse selection, and therefore investors cannot distinguish between good-quality firms and earnings manipulators. Stiglitz (2000) also discusses the issue of moral hazard, where managers, being cushioned from immediate assessment because the reporting process is not transparent, can over play or over expose their hand with no immediate cost to themselves.

Empirical evidence supports these theory assertions. Dechow and Dichev (2002) present evidence that firms with greater earnings management activity are associated with greater information asymmetry and lesser earnings quality. Francis et al. (2005) also present evidence that firms with poorer accruals quality are associated with greater costs of capital since they exhibit greater investor uncertainty, providing evidence of the market implications of asymmetric financial reporting.

Signaling Theory

Signaling theory describes how companies attempt to communicate their profitability to investors via the assistance of accounting reports. In the best of times, healthy companies signal their credibility by reporting honestly. However, earnings management spoils these signals by allowing managers to manipulate accounting results, leaving an illusory impression of profitability (Bhattacharya et al., 2013b). This reduces the level of reports' quality and enhances information asymmetry since non-informed investors are not able to estimate the actual value of a firm accurately.

Graham, Harvey, and Rajgopal (2005) provide survey evidence that CFOs would like to manage earnings in order to meet market expectations, again tending to reinforce the conclusion that firms use earnings management as a signaling device. They find that managers are more focused on short-term earnings performance rather than long-term value creation, with even greater information asymmetry generated along the way.

Market Microstructure Theory

Kyle's (1985) market microstructure model explains how information asymmetry affects stock prices and trading activity. Informed traders, who have better information about a firm's true earnings, can take advantage of such inefficiency over less informed investors. Earnings manipulation is at the heart of this activity since it hides a firm's true performance, so it is more probable that there would be mispricing. Easley and O'Hara (2004) proceed to hold that accruals of earnings generate price risk and therefore induce uninformed investors to pay a premium, increasing the cost of capital for a firm.

These effects are supported by empirical estimates. Glosten and Milgrom (1985) illustrate that increased information asymmetry translates into higher bid-ask spreads, reducing market liquidity. Lang and Lundholm (1996) also find that the firms with histories of prior widespread earnings management have higher volatility of stock price capturing the uncertainty caused by opaque financial announcements.

Corporate Governance and Information Transparency

The corporate governance function in avoiding earnings management is another critical component of this theoretical case. Effective governance mechanisms—such as independent audit committees, regulatory oversight, and mandatory disclosures—constrain managerial discretion in earnings manipulation, thereby reducing information asymmetry (Dechow et al., 2010; Brown & Hillegeist, 2007). Weak governance mechanisms, conversely, enable greater earnings manipulation, leading to greater financial opacity.

Empirical evidence indicates that firms with effective governance structures, say independent directors or Big 4 auditors, experience fewer earnings manipulation incidents (Becker et al., 1998). Furthermore, outside regulation policies like the Sarbanes-Oxley Act (SOX) have been related to improved quality of financial reports as well as reduced information asymmetry (Cohen et al., 2008).

2.3. Empirical works on the relationship between Earnings management and Asymmetric Information

Literature tends to link earnings management with informational asymmetries in the context of microstructure theory. Empirical evidence by Abad et al. (2018) indicates that some market participants receive favorably positioned information during stock market transactions, and this leads to a distinction between informed and uninformed investors. Informed investors, possessing private information, may benefit from their informational advantage in two major ways: first, by using inside information, and second, by exploiting their ability to process well public information, uncovering the actual performance and value of companies that may be concealed by spurious information (Cerqueira & Pereira, 2015; Kim & Verrecchia, 1994). The deterioration of the information environment also further exacerbates the difference between informed and uninformed investors. Brown and Hillegeist (2007) assert that firms providing high-quality disclosures can mitigate information asymmetry by constraining private information-based trading, thereby minimizing the prevalence of informed trading.

The expectation of a positive relationship between earnings management and information asymmetry is logical. Earnings management is a special characteristic of financial reporting, while information asymmetry is an imperfection in an inefficient market (Healy & Palepu, 2001). Therefore, the influence of these two factors on one another is predicted because of the inherent effect of these two variables on market functioning. Earnings management techniques often make financial reporting opaque, as it becomes even harder for outsiders to determine accurate firm value through it, consequently increasing information asymmetry (Leuz et al., 2003).

Evident support for the connection between the two variables exists with most existing literature. Bhattacharya et al. (2013a, b) study the impact of earnings quality on asymmetric information and find a statistically significant positive relationship between both discretionary accruals (earnings management) and non-discretionary accruals (inherent earnings quality). Their evidence shows that lower earnings quality increases information asymmetry and increases the risk of adverse selection in earnings disclosure. Similarly, studies by Easley and O'Hara (2004) also show that earnings accruals contribute to price-risk, giving informed traders an informational advantage. This information imbalance forces uninformed investors to demand more return as a compensation for their information disadvantage, thus increasing the cost of capital (Houqe et al., 2017; Trueman & Titman, 1988).

Further, empirical studies show that earnings management not only affects stock market efficiency but also investor behavior. Dechow et al. (2010) establish that earnings manipulation firms have lower earnings response coefficients, implying worse market reactions due to higher uncertainty. Similarly, Francis et al. (2005) establish that firms with lower earnings quality have higher equity financing costs due to higher asymmetric information. Furthermore, Cohen et al. (2008) also note that earnings management is particularly prevalent in firms with weak corporate governance systems, thus making it more challenging for uninformed investors.

Empirical evidence from emerging economies also supports this relationship. Latif et al. (2017) analyze South Asian economies' information and conclude that earnings manipulation significantly increases information asymmetry, particularly in environments with poor investor protection. Similarly, Kothari et al. (2016) point out that firms in developing economies with weaker legal frameworks are more inclined to engage in more earnings management, increasing the risk of adverse selection.

Although a great deal of research is carried out regarding the influence of earnings manipulation on information asymmetry, studies pinpointing this relation in the Vietnamese market are quite limited. While some studies supply indirect evidence about the association between earnings management and information asymmetry, direct evidence is limited. For example, Hong and Linh (2020) explore the effect of earnings manipulation on cash holdings and note that discretionary expenses offer the potential for managers to conceal underlying firm performance and hence increase asymmetric information. Similarly, Khuong et al. (2020) study the effect of earnings manipulation on stock preferences by investors and paradoxically find that investors favor stocks in firms that exhibit greater numbers of earnings manipulation. This finding, as intuitive as it is, stems from the information asymmetry problem, claim the authors. From this literature, we make the following hypothesis on the relationship between earnings manipulation and asymmetric information:

Hypothesis 1 (H1): *Earnings management positively impacts information asymmetry.*

3. Methodology and Data Collection

Research Model

For the sake of examining the influence of earnings management on information asymmetry, we developed a model where earnings manipulation is the independent variable and information asymmetry is the dependent variable. We have also included control variables from the literature, such as studies conducted by Trueman & Titman (1988) and Vo (2017), to pick up factors likely to influence asymmetric information (as shown in Eq. (1)).

$$ASM_{i,t} = \alpha_0 + \alpha_1 EMA_{i,t} + \alpha_2 CONTROLS_{i,t} + \alpha_3 INDUSTRY_{i,t} + \alpha_4 YEAR_{i,t} + \mu_{i,t} \quad (1)$$

Where:

- *i*: Represents the firm with in the given context.
- *t*: Denotes the specific year under examination.
- *ASM* (Information Asymmetry): Computed using equations (4) and (5), it is an indicator representing the level of information asymmetry that prevails within the firm or market.
- *EMA* (Earnings Management): Dechow et al. (1995) developed it, which is calculated through equations (1), (2), and (3) and symbolizes the magnitude of earnings management or discretionary accruals made by the firm.
- *CONTROLS*: Denotes a set of control variables, including: *FON* (Foreign Ownership): Denotes the proportion of foreign investor-held shares in the firm; *SIZE*: Calculated as the natural logarithm of the market value of total assets of the firm, reflecting the firm's size in the market situation; *MON* (Managerial Ownership): Denotes the proportion of company directors, members of their families, reflecting the extent of ownership by internal managers; *AGE*: Represents the number of years since the establishment of the firm or the age of its operations; *LEV* (Leverage): Reflects the total debt to equity ratio, representing the financial leverage or indebtedness of the firm.

Earnings management measurement

Using the approach outlined by Dechow et al. (1995), we measure earnings management through discretionary accruals. In this method, total accrual includes both discretionary and non-discretionary accruals. To calculate discretionary accruals, which are also a measure of earnings management, we follow a three-step process described below:

Step 1: Calculate coefficients a_1 , a_2 , and a_3 based on Eq. (2):

$$\frac{TC_t}{AA_{t-1}} = a_1 \frac{1}{AA_{t-1}} + a_2 \left(\frac{\Delta Sale_t - \Delta AC_t}{AA_{t-1}} \right) + a_3 \frac{FA_t}{AA_{t-1}} + \varepsilon_t \quad (2)$$

Step 2: Calculate non-discretionary accruals based on Eq. (3):

$$ND_t = \alpha + \alpha_1 \frac{1}{AA_{t-1}} + \alpha_2 \left(\frac{\Delta Sale_t - \Delta AC_t}{AA_{t-1}} \right) + \alpha_3 \frac{PP_t}{AA_{t-1}} \quad (3)$$

Step 3: Earnings management is defined according to Eq. (4):

$$EMA = \frac{TC_t}{AA_{t-1}} - ND_t \quad (4)$$

Where:

t : is the year in question.

- EM (Earnings Management/Discretionary Accruals): Is the discretionary accruals that indicate the extent of earnings management practiced by the firm.

- TC (Total Accruals): Is calculated as the difference between net income and operating cash flow, and is the total accruals for the year.

- ND (Non-Discretionary Accruals): Is the portion of total accruals that is not within managerial discretion.

- AA (Total Assets): Shows the overall amount of assets which the firm owns.

- Sale (Change in Sales): Shows the overall changes in sales or revenue over a specific period.

- AC (Change in Accounts Receivables): Shows the net changes in accounts receivables.

- PP (Total Fixed Assets): Shows the overall amount of fixed assets owned by the firm over the specified period.

Asymmetric information measurement

Building on the methodologies of Dierkens (1991) and Kong and Fu (2005), we estimate the market model for each company on an annual basis. The standard deviation of the residuals—the difference between actual returns and the expected returns predicted by the market model—is calculated and employed as a proxy for information asymmetry. The subsequent formula is given as follows:

$$ASM = STDEV (AR - ER) \quad (5)$$

Where ASM is the information asymmetry; AR is actual daily return of the stock, ER is daily expected return of the stock.

ER is daily expected return of the stock and is estimated from the following market model:

$$AR_{i,j,t} = b_{i,0} + b_{i,1} MR_t + \varepsilon_{i,t} \quad (6)$$

Where $AR_{i,j,t}$ is the company i 's stock return in industry j at day t ; $MR_{m,t}$ is the market index's return at day t

Data Collection

This study utilizes firm-level data from the Hochiminh City Stock Exchange (HOSE), focusing exclusively on non-financial companies. Financial institutions such as banks, insurance, and securities firms were excluded due to their distinct regulatory environments. The final sample consists of 337 non-financial firms that were continuously listed on HOSE between 2019 and 2023, resulting in a balanced panel of 1,603 firm-year observations. Firms with incomplete or missing financial or trading data were also excluded to maintain the robustness of the dataset.

Accounting and ownership variables, including total assets, net income, foreign and managerial ownership, firm age, and leverage, were obtained from TaiViet Corporation (Vietstock) and verified with company annual reports and HOSE disclosures. Daily stock return and market index data used for calculating information asymmetry were also sourced from Vietstock, using the VN-Index as a proxy for market returns.

4. Results and Discussion

Descriptive statistics

Table 1 provides elaborate descriptive statistics for all the variables used in our research, including explanatory variables, control variables, and dependent variables. One of our results relates to the pattern of the earnings management (EMA) variable, which occupies a wide value range. The EMA ranges from a low of -1.953 to a high of 2.007 with a mean of 0.104 and a median of 0.004. These statistics indicate an intriguing trend: there is a skew towards positive discretionary accruals in most of our observations, indicating a directional trend of earnings management.

Table 1. Statistic Description

	EMA	ASM	FON	MON	LEV	SIZE	AGE
Max	2.007	7.021	76.073	75.004	1.018	44.092	99.000
Min	-1.953	0.000	0.000	0.000	0.005	12.123	10.000
Mean	0.104	1.335	14.086	16.993	0.402	23.058	24.071
SD	0.427	0.924	12.356	11.598	0.252	6.173	143.725
Median	0.0049	0.638	11.905	14.007	0.466	12.509	17.109

Table 2 presents the correlations between each pair of independent variables analyzed in the study. A thorough review indicates that there are no significant issues of collinearity among these variables.

Table 2. Correlation matrix

	EMA	FON	MON	LEV	SIZE	AGE
EMA	1					
FON	-.193***	1				
MON	.220*	-.127**	1			
LEV	-.054	-.230**	.212***	1		
SIZE	-.124*	.269***	.208	.214**	1	
AGE	-.013	.066*	-.013	-.198**	.204***	1

Note: *, **, and *** indicate $p < 0.1$, 0.05 , and 0.01 , respectively.

Results for main model

We aimed at presenting a thorough methodology towards the choice of the model. In our base model (Eq. 1), we used Pooled OLS, Fixed Effects (FEs), and Random Effects (REs) models to sufficiently test potential methodologies. In selecting the most appropriate regression method, we utilized F tests and Hausman tests, and detailed results appear in Table 3.

The F test produced a value of 111.83 with a p-value of 0.000, indicating that the Fixed Effects model is more appropriate than Pooled OLS for both models. This suggests that FEs better fit our dataset. Next, the Hausman test was key in deciding between the Fixed Effects and Random Effects models. The test produced a Chi-square statistic of 432.09 and a p-value of 0.000. Based on this, we rejected the null hypothesis (H0) and accepted the alternative hypothesis (H1), as it was true that the Fixed Effects model best suited our study.

We also tested for potential heteroscedasticity and autocorrelation problems. Table 3 shows p-values of 0.000 for heteroscedasticity, which means its presence in both models. But there was no autocorrelation. To address heteroscedasticity, we employed a robust test specific to the Fixed Effects model. This strict analysis confirms our careful approach to selecting the most appropriate regression method and solving data-related issues.

Table 3. Model Check

Model	Result
R square	0.1349 (FEs) 0.1388 (REs)
F test	F-test = 111.83*** (Prob. > P = 0.000)
Hausman Check	Chi-square = 432.09*** (Prob. = 0.000)
Heteroskedasticity	3.11***
Autocorrelation	23.06E+06

Table 4 represents the result of Fixed Effects and Robust Fixed Effects models. The evidence from ASM model did reveal a pattern of effect of earnings management on information asymmetry (ASM). Statistically significant and positive correlation are found in the two models. Statistically significant impact by earnings management on information asymmetry, in positive direction, confirming hypothesis H1 as well as theoretical positive association between earnings management and information asymmetry.

Statistical significance of 5% has higher confidence that there exists a relationship between earnings manipulation and higher asymmetric information. When companies manipulate earnings, they are artificially changing their books to present a better picture of the company's performance, creating a misleading view of the company's financial position. It is difficult for external investors to be aware of the actual position of the company, and thus more information asymmetry. These findings are supported by previous work by Bhattacharya et al. (2013a,b) and Easley and O'Hara (2004), who also confirmed further that earnings management activities bring about additional information imbalances. These research findings note that whenever companies engage in aggressive earnings management, they suppress important financial information, thereby resulting in a less transparent and riskier market situation. This extended information asymmetry can lead to inefficient investment decisions, ultimately affecting market efficiency and investor confidence.

Table 4. Regression Results

	ASM Model	
	FEs	Robust FEs
_Constant	1.4323**	1.0183***
EMA	0.9017** (0.4840)	0.9017** (0.1827)
FON	-0.3706*** (0.0506)	-0.3706*** (0.0319)
MON	0.7537** (0.0199)	0.7537** (0.0199)
LEV	-0.6130 (0.1173)	-0.6130 (0.1424)
SIZE	-0.0015** (0.0294)	-0.0015** (0.0300)
AGE	-0.0189* (0.1002)	-0.0189* (0.0992)
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes

Note: *, **, and *** indicate $p < 0.1$, 0.05, and 0.01, respectively.

Previous literature has established that foreign ownership (FON) is an effective way of improving the quality of corporate disclosure and hence reducing information asymmetry among market

participants, especially when it comes to outsiders and insiders. In line with this line of argument, our results prove that there is a negative relationship between foreign ownership and information asymmetry as evidenced by both the Fixed Effects and Robust Fixed Effects specifications. This means that it is feasible to utilize foreign ownership to reduce information asymmetry in the market, supporting previous studies. Foreign ownership and information asymmetry studies mostly adhere to the perception that greater foreign ownership reduces such asymmetries. Researchers have indicated a positive correlation between foreign ownership and better information disclosure, as foreign investors demand better transparency and stronger corporate governance. This increased transparency leads to more accurate and complete information being disclosed, reducing the information asymmetry between outsiders and insiders. In addition, studies highlight foreign ownership's role in increased market efficiency and liquidity, and the potential decline in companies' cost of capital. However, although foreign ownership as a whole reduces information asymmetry, such conditional variables as the environment and the characteristics of foreign investors, such as their source and size, continue to influence this relationship, suggesting that there is a need for research.

The ASM model provides significant perspective on the differential influences of the different variables on information asymmetry. Size of the firm (SIZE) and age of the firm (AGE) both have significant negative influences on information asymmetry. It indicates that larger firms and older firms have more transparent and more informative news, and hence they minimize information asymmetry in the market to a great extent.

The significant negative impact of firm size on information asymmetry reflects that firms become more engaged in advanced reporting and communication practices with larger firm size. Larger firms have more resources and are strictly regulated, compelling them to provide detailed financial reports and other releases. This transparency reduces the difference in information between management and external investors and allows investors to make efficient investment decisions.

Similarly, the negative and robust impact of company age on information asymmetry is an indication of the role of mature companies towards transparency in the market. Mature companies have longer time frames through which they can build reputation and trust with the public and investors. Their longevity creates more history that contains information that allows investors to evaluate their performance more reliably. Therefore, stable firms minimize information asymmetry because they provide high-quality and full information regularly, making the market more efficient and equitable.

On the other hand, managerial ownership (MON) follows an opposing trend, bearing a significant positive relationship with information asymmetry. This shows that as there is higher percentage ownership of company stocks by managers, the level of information imbalance in the market increases. When managers own a high proportion of a firm's shares, they have more access to internal information that they can use to enrich themselves at the cost of outside investors. This can impede efforts at reducing information asymmetry because high-owning managers will have less motivation to share information that will level the playing field. This can lead to less efficient markets where outside investors are put at a disadvantage by the unequal distribution of information.

Surprisingly, our results show that firm leverage (LEV) does not have any significant influence on information asymmetry, indicating that other forces can be more significant in influencing information flows in financial markets.

Robust test

To examine the effect of COVID-19 on informational asymmetry relationship and earnings management, we add a dummy variable named COVID to represent the pandemic itself and its effect on earnings management in our model.

We must incorporate a COVID-19 dummy variable and interaction terms into regression models such that we can learn and determine the direct effects of the pandemic on economic and financial data. The pandemic of COVID-19 brought unprecedented changes into international markets, which were

shattered and more unstable. Adding a dummy variable for COVID-19 will allow us to isolate and quantify how the pandemic reconfigured the relationship between the variables we are interested in. This allows us to properly estimate the actual effect of the pandemic, separating it from trends or determinants before or after the crisis. It also contributes to the model's predictive power by providing a clearer picture of how every one of the various economic indicators responded to the pandemic as well as to the measures taken by the authorities subsequently. Ultimately, the incorporation of a COVID-19 variable in regression analysis ensures thorough analysis, making valuable observations regarding short-run impacts as well as longer-term implications for economic recovery and resilience.

We set the COVID variable on the timeline of the Public Health Emergency of International Concern (PHEIC) for COVID-19. The highest alert level, PHEIC, was declared in January 2020 and continued until May 2023, the same month that the U.S. government stopped declaring the virus a public health emergency. The COVID variable is assigned the value 1 for the years 2020-2022, i.e., the years immediately affected by the pandemic, and a value of 0 for all other years, i.e., years not affected by COVID-19.

$$ASM_{i,t} = \alpha_0 + \alpha_1 EMA_{i,t} + \alpha_2 COVID_{i,t} + \alpha_3 EMA_{i,t} \times COVID + \alpha_4 CONTROLS_{i,t} + \alpha_5 INDUSTRY_{i,t} + \alpha_6 YEAR_{i,t} + \mu_{i,t} \quad (7)$$

Where:

- *i*: Indicates the firm in the context given.
- *t*: Indicating the specific year which is under examination.
- *ASM*: Information Asymmetry
- *EMA*: Earnings Management
- *COVID (COVID-19)*: Indicates the time under the spell of COVID-19. This variable takes the value 1 for years 2020 to 2022, and 0 for all other years.
- *CONTROLS*: Control variables, such as Foreign Ownership (FON), Firm Size (SIZE), Managerial Ownership (MON), Age (AGE), Leverage (LEV). *CONTROLS*: Control variables, including Foreign Ownership (FON), Firm Size (SIZE), Managerial Ownership (MON), Age (AGE), Leverage (LEV).

Table 5 presents the results of the robust check. The COVID-19 dummy variable, which accounts for the pandemic years (2020-2022), is positively and significantly equal to 0.4479 ($p < 0.05$). This sign suggests that asymmetry was greater during the COVID-19 pandemic compared to the pre-pandemic and post-pandemic years. This asymmetrical rise could be driven by the increased uncertainty and market volatility during the pandemic, which made it more challenging for investors to make sense of financial news.

The COVID-19 dummy and earnings management interaction term (EMA x COVID) is also significant and extremely high, with a coefficient of 0.9905 ($p < 0.01$). The interaction being significant implies that the impact of earnings management on information asymmetry was stronger in the period of COVID-19. That is, the increase in information asymmetry linked to earnings management was higher during the pandemic, ensuring that the pandemic worsened the informational obscurity resulting from earnings management practices.

Table 5. Regression Results for the Robust Test

	ASM Model	
	Fixed Effects	Robust Fixed Effects
_Constant	1.1733***	1.1733***
EMA	0.892** (0.0294)	0.892** (0.0175)

COVID	0.4479** (0.0280)	0.4479** (0.0365)
EMA x COVID	0.9905*** (0.0240)	0.9905*** (0.0207)
FON	-0.2914** (0.1002)	-0.2914** (0.1308)
MON	0.7420* (0.0199)	0.7420* (0.0406)
LEV	-0.6227 (0.1173)	-0.6227 (0.1954)
SIZE	-0.0015** (0.0294)	-0.0015** (0.0309)
AGE	-0.0188* (0.1002)	-0.0188* (0.1427)
Year Dummies	Included	Included
Industry Dummies	Included	Included
R-square	0.1409	0.1409
F test	F-test = 122.82 (Prob. > P = 0.0000)	
Hausman Check	Chi-square = 183.07 (Prob. = 0.0000)	
Heteroskedasticity	4.75***	
Autocorrelation	25.38E+06	

Note: *, **, and *** denote significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$, respectively.

5. Conclusion

This research analyzes the effect of accrual-based earnings management in the Vietnamese market, specifically how it influences information dissemination among participants in the market and the consistency of stock prices with the overall market. The existing body of literature emphasizes the need for high-quality disclosure of information by firms, especially earnings quality, to have an efficient capital market. Earnings management, whose negative image has been created due to its accounting conduct, is considered a signal that harms the image of the stock market. Based on this, our hypothesis assumed a positive relationship between earnings management and information asymmetry.

This supposition is corroborated by our results and consistent with previous studies suggesting that earnings manipulation through accrual-based approaches plays a pivotal role in shaping market dynamics, contributing to asymmetry of information. The present study consolidates the valuation that earnings management methods have a profound effect on market behavior, particularly in determining the trend of information flow on financial markets. It is reassuring that earnings manipulation-based methods are some of the most significant factors in determining market dynamics as well as information dissemination and interpretation by market players.

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