

ECONOMIC SHOCKS AND THE EARNINGS MANAGEMENT-PERFORMANCE NEXUS: EVIDENCE FROM VIETNAM

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ABSTRACT

While the relationship between earnings management (EM) and firm performance (FP) has been widely examined, limited attention has been paid to how macroeconomic shocks condition this relationship, particularly in emerging markets. This study investigates the moderating effect of the COVID-19 pandemic on the EM-FP relationship among Vietnamese listed firms. Unlike prior studies that treat COVID-19 merely as an independent or control variable, this research is the first in Vietnam to explicitly model COVID-19 as a moderating variable and to employ the dynamic System GMM estimator to address endogeneity and capture adjustment dynamics. Using panel data from 80 non-financial firms (560 observations) during 2018-2024, the findings reveal that both EM and the COVID-19 pandemic exert a negative impact on FP. More importantly, the negative and significant interaction coefficient indicates that the pandemic acts as a “negative catalyst,” amplifying the adverse effect of EM on FP. These results provide new evidence on the context-dependent nature of managerial behavior and highlight the heightened vulnerability of FP under macroeconomic uncertainty.

Keywords: Earnings management, firm performance, COVID-19 pandemic, economic uncertainty, Vietnamese firms, System GMM.

1. INTRODUCTION

The link between EM and FP remains a central theme in corporate governance research. EM represents a strategic trade-off: managers manipulate reported earnings to meet performance expectations but at the cost of reducing accounting credibility. Agency theory suggests that managerial incentives arising from the separation of ownership and control motivate such behavior, potentially increasing agency costs and diminishing firm value [1]–[3].

Empirical evidence on the EM-FP relationship is mixed, particularly in emerging markets [4]. A key limitation of prior studies is that they frequently examine these relationships under stable conditions, thereby implicitly assuming that the EM-FP relationship is constant across different macroeconomic environments, overlooking how macroeconomic disruptions may reshape managerial behavior. The COVID-19 pandemic imposed unprecedented uncertainty, disrupted supply chains, weakened cash flows, and heightened managerial pressure to sustain financial stability [5], [6]. In response, many managers intensified accrual-based EM (AEM) to conceal performance deterioration or preserve favorable market signals [7], [8].

When EM is analyzed jointly with major shocks such as COVID-19, its effects on FP are no longer constant but depend on economic conditions. Prior evidence suggests that the marginal impact of EM may vary between normal periods and crisis periods, highlighting firms’ vulnerability to macro shocks [9]. Thus, COVID-19 may not only reduce FP directly

but also function as a conditional mechanism that alters the strength and direction of the EM-FP relationship, potentially intensifying the adverse consequences of EM during periods of heightened uncertainty.

This research gap is particularly pronounced in Vietnam. Existing domestic studies typically (i) examine EM or COVID-19 separately; (ii) treat COVID-19 as an independent or control variable; or (iii) compare pre- and post-pandemic outcomes. However, existing studies have not conceptualized or empirically tested COVID-19 as a moderating mechanism that fundamentally reshapes the EM-FP relationship, but instead treat it as a control variable or a temporal comparison factor. Moreover, most Vietnamese studies employ static regression methods that are not suitable for capturing dynamic interaction effects and addressing endogeneity in the EM-FP relationship, thereby limiting the reliability of inference. In Vietnam's transitional economy, characterized by concentrated ownership, limited transparency and reliance on accounting earnings as market signals - these limitations become especially critical [10]-[12]. During COVID-19, firms simultaneously faced resource constraints and heightened pressure to maintain stable financial signals to secure external funding, potentially intensifying EM and further weakening FP [13]-[15].

Against this backdrop, this study addresses three research questions: (1) Does EM impair the FP of Vietnamese listed firms? (2) To what extent does COVID-19 moderate the EM-FP relationship, and how does it alter its direction and magnitude? And (3) Does the pandemic act as a "negative catalyst" that strengthens the detrimental effect of EM on FP?

This study makes three key contributions to the literature. *First*, it advances existing theories by proposing a context-dependent view of the EM-FP relationship. Specifically, the COVID-19 pandemic is conceptualized as a "negative catalyst" that amplifies agency conflicts, weakens signaling credibility and intensifies resource constraints, thereby altering the economic consequences of earnings management. *Second*, the study provides novel empirical evidence from Vietnam by explicitly modeling COVID-19 as a moderating mechanism, rather than merely comparing pre- and post-crisis periods. This approach shifts the literature from a descriptive perspective to a conditional relationship framework, highlighting how macroeconomic shocks reshape the EM-FP nexus in emerging markets. *Third*, methodologically, the study employs a dynamic System GMM estimator to address endogeneity, reverse causality and persistence in firm performance, offering more reliable estimates of interaction effects compared to conventional static models.

The remainder of the paper is structured as follows. Section 2 reviews the theoretical foundations and related literature. Section 3 outlines the research model, hypotheses and methodology. Section 4 presents the empirical results and discussion. Section 5 concludes with key implications.

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Theoretical background

This study draws on three core theoretical perspectives: agency theory, signaling theory and resource dependence theory, to explain how EM, the COVID-19 pandemic and FP interact. Together, these theories clarify managerial behavior under information asymmetry and illuminate how macroeconomic shocks reshape economic relationships.

2.1.1. Agency theory

Agency theory, developed by Meckling and Jensen (1976), posits that the separation of ownership and control inevitably generates conflicts of interest between shareholders and managers. Under information asymmetry, managers possess superior knowledge of the

firm's internal conditions and may make decisions that diverge from value-maximizing objectives [2].

Within this setting, EM becomes a tool that allows managers to adjust accounting figures to meet short-term goals. While such adjustments may create more favorable reported outcomes in the short run, they undermine financial transparency and increase agency costs, which over time can weaken firms' actual FP. Evidence from emerging markets indicates that when monitoring mechanisms are incomplete, opportunistic accrual-based EM becomes more prevalent and is associated with deteriorating FP and firm value [3], [16], [17]. Notably, in periods of economic instability, heightened performance pressure may intensify agency conflicts and further escalate EM.

2.1.2. Signaling theory

Signaling theory developed by Spence (1973) explains how firms convey information to the market when information asymmetry is present. In practice, financial metrics, particularly earnings, serve as key signals of a firm's prospects and risk profile [11].

Because managers hold more information than outside investors, financial reports become a primary channel for transmitting these signals. In some cases, managers may adjust earnings to issue more favorable signals regarding firm health, especially when facing market expectations or reputational pressures. Recent studies show that in volatile economic environments, the use of EM as a signaling device tends to increase [12], [15]. However, when such signals fail to reflect underlying fundamentals, markets may respond negatively once discrepancies are revealed, ultimately damaging firms' credibility and long-term FP [18], [19].

2.1.3. Resource dependence theory

Resource dependence theory Pfeffer and Salancik (2003) emphasizes that firms do not operate autonomously; instead, they rely on external resources such as capital, technology, labor, and strategic partnerships. Access to and control over these resources directly influence a firm's operational stability and performance [10].

In normal conditions, firms may mitigate dependence risks by diversifying resource channels and forming cooperative relationships. However, macroeconomic shocks such as the COVID-19 pandemic can severely disrupt supply chains and financial inflows, thereby amplifying resource constraints. Recent evidence shows that during crises, resource shortages not only impair FP directly but also pressure firms to adjust financial behavior to maintain access to capital and other external support [7], [20], [21]. Consequently, firms that rely heavily on external resources or lack adaptive capacity tend to be more vulnerable to the adverse impacts of economic shocks.

2.2. Literature review

In recent years, the relationship among EM, economic uncertainty and FP has emerged as a central topic in finance and accounting research. The COVID-19 pandemic, in particular, represents a major macroeconomic shock that reshaped the business environment, influencing both earnings manipulation behaviors and firms' profitability. The existing literature can be organized into four main strands: (i) the effect of EM on FP, (ii) the impact of COVID-19 on FP, (iii) the moderating role of economic uncertainty, and (iv) the relevance of firm-specific characteristics.

2.2.1. Earnings management and firm performance

From an agency-theoretic perspective, the separation of ownership and control creates incentives for managers to engage in EM to advance personal interests. AEM is often used as a mechanism to adjust reported earnings through subjective accounting estimates [1], [2].

Recent empirical studies largely document a negative association between EM and FP. Abnormal accrual adjustments weaken earnings quality and harm long-term FP [7]. EM not only reduces FP but can also erode the value created by ESG activities [16]. In emerging markets, firms are more likely to manipulate earnings when facing market expectations, especially large firms or firms with volatile performance [22].

Evidence from Vietnam reinforces this conclusion. EM has a significantly adverse effect on future ROA and ROE, particularly in consumer sectors [23]. Importantly, although EM impairs FP, strong corporate governance can mitigate this negative effect [24]. These findings suggest that EM used to achieve short-term targets typically comes at the cost of long-term performance.

2.2.2. The COVID-19 pandemic and firm performance

COVID-19 is widely recognized as a severe economic shock that disrupted production and constrained firms' access to resources. From a resource dependence perspective, supply-chain disruptions and liquidity shortages substantially weakened FP.

Empirical evidence shows that COVID-19 had a clearly negative impact on corporate performance. Non-financial firms in Vietnam experienced an average FP decline of roughly 129 basis points during the pandemic [20]. Similar findings are reported for the MENA region, where COVID-19 not only reduced profitability but also increased overall financial risk [25]. Rising operational costs and declining market demand further eroded firms' financial foundations during this period.

2.2.3. The moderating role of covid-19 in the EM-FP relationship

A growing body of research examines economic uncertainty as a moderating factor in the EM-FP linkage. During downturns, firms are more likely to increase EM to obscure weak operating results, thereby reducing the reliability of financial information [8].

Recent studies show that economic uncertainty increases the likelihood of EM and alters its effect on FP. Economic policy uncertainty stimulates both AEM and real EM (REM), increasing firms' financial fragility [26]. Under COVID-19, the pressure to maintain a positive financial image prompted firms to intensify earnings manipulation [13], [14].

The interaction term $EM \times COVID$ captures the amplified adverse effect of crises. When EM rises during periods of instability, its negative impact on FP becomes more severe due to distorted financial signals and unfavorable market reactions [5]. This implies that COVID-19 not only directly affects FP but also exacerbates the detrimental effect of EM.

2.2.4. Firm-specific factors and firm performance

In addition to EM and macroeconomic shocks, FP is influenced by internal firm characteristics. Larger and older firms (SIZE, AGE) generally exhibit stronger resilience due to better resource access and accumulated experience [27]. In contrast, high financial leverage (LEV) increases vulnerability during periods of uncertainty, especially when the cost of capital rises [28]. Meanwhile, growth opportunities (GROW) signal expansion potential but also require effective management to avoid eroding profitability [29].

3. METHODOLOGY

3.1. Research model

This study employs panel data to capture both time-series dynamics and cross-sectional heterogeneity, thereby improving the reliability of estimations compared with using standalone cross-sectional or time-series data [30]. Building on prior studies, the model is

specified in a dynamic form to account for the persistence of FP and to mitigate potential endogeneity concerns.

The empirical model is formulated as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 ROA_{i,t-1} + \beta_2 AEM_{i,t} + \beta_3 COVID_{i,t} + \beta_4 EM_CO_{i,t} + \beta_5 LTTS_{i,t} + \beta_6 LEV_{i,t} + \beta_7 AGE_{i,t} + \beta_8 GROW_{i,t} + \varepsilon_{i,t} \quad (1)$$

In this specification, $ROA_{i,t-1}$ captures the dynamic nature of FP; $AEM_{i,t}$ is the main independent variable representing earnings management; $COVID_{i,t}$ is a dummy variable indicating the macroeconomic shock; and $EM_CO_{i,t}$ is an interaction term used to examine the moderating effect of the pandemic. The control variables include firm size (LTTS), financial leverage (LEV), firm age (AGE) and growth rate (GROW), which help reduce omitted-variable bias and account for internal characteristics that may affect FP. The definitions and measurement approaches for all variables are presented in Table 1.

The accrual-based earnings management variable (AEM) is estimated using the Modified Jones Model proposed by Dechow et al. (1995). The estimation procedure consists of three steps.

Step 1: Total accruals (TA) are calculated as:

$$TA_{i,t} = NI_{i,t} - CFO_{i,t} \quad (2)$$

where $NI_{i,t}$ is net income and $CFO_{i,t}$ is operating cash flow of firm i in year t .

Step 2: Estimation of normal accruals using the following regression model:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (3)$$

where $A_{i,t-1}$ denotes lagged total assets used as a deflator to mitigate heteroskedasticity; $\Delta REV_{i,t}$ is the change in revenue; $\Delta REC_{i,t}$ is the change in receivables; and $PPE_{i,t}$ represents property, plant and equipment. The adjustment (ΔREC) is a key modification that reduces potential manipulation through credit sales.

Step 3: Discretionary accruals (AEM) are obtained as the residuals from the above regression:

$$AEM_{i,t} = \varepsilon_{i,t} \quad (4)$$

The absolute value of AEM is used to capture the magnitude of earnings management, with larger values indicating a higher level of managerial discretion.

Table 1. Definitions and measurement of variables

Variable type	Variable name	Code	Measurement	Expected sign	References
Dependent	Firm Performance	ROA	Net income / Average total assets		Healy (1985); Dechow et al. (1995)
Independent	Accrual-based Earnings Management	AEM	Abnormal accruals estimated using the Modified Jones Model (1995)	-	Dechow et al. (1995)
Moderator	COVID-19 Pandemic	COVID	Dummy variable: 1 for years 2020-2021, 0 otherwise	-	Yan et al. (2022)

Interaction	Interaction term	EM_CO	Product of AEM and COVID	-	Šušak (2020)
Control variables	Firm size	LTTS	Natural logarithm of total assets	+	Healy (1985); Dechow et al. (1995)
	Financial leverage	LEV	Total debt / Total assets	-	Modigliani & Miller (1958)
	Firm age	AGE	Number of years since establishment or equitization	+	Anthony & Ramesh (1992)
	Growth	GROW	$(\text{Revenue}_t - \text{Revenue}_{t-1}) / \text{Revenue}_{t-1}$	+	Smith Jr & Watts (1992)

Source: Compiled and proposed by the author.

3.2. Research hypotheses

Drawing on theoretical foundations and prior empirical evidence, this study develops three core hypotheses.

H₁: Earnings management exerts a negative effect on firm performance.

Under agency theory, information asymmetry between managers and shareholders creates incentives for managers to manipulate earnings for private benefit [2]. While earnings management may improve reported performance in the short run, it undermines the transparency of financial information and increases agency costs [1]. Distorted information can lead to misallocation of resources and erode investor confidence, ultimately impairing long-term firm performance [7], [36].

H₂: The COVID-19 pandemic negatively affects firm performance.

According to resource dependence theory, firms rely heavily on access to external resources [10]. The COVID-19 pandemic disrupted supply chains, reduced market demand and increased operating costs, weakening firms' financial foundations [20]. Under heightened uncertainty, resource shortages and rising operational risks substantially diminished firms' profitability [8], [37].

H₃: The COVID-19 pandemic amplifies the negative effect of earnings management on firm performance.

This relationship can be explained by combining signaling theory and resource dependence theory. During crises, earnings figures serve as critical signals to investors and stakeholders [12]. To maintain a favorable financial image, managers may intensify earnings manipulation to send positive signals. However, in highly uncertain environments, distorted information is more easily detected and triggers stronger adverse market reactions, thereby weakening FP [19]. At the same time, resource pressures during the pandemic may further encourage earnings manipulation, magnifying its detrimental impact relative to normal periods [5], [6].

3.3. Estimation strategy

The study employs panel data from 80 non-financial firms listed on the Vietnamese stock market during the period 2018-2024, resulting in 560 firm-year observations. The sample focuses on large and representative firms (annual revenue exceeding 60.5 billion VND) across seven key sectors: real estate, healthcare, industrials, utilities, telecommunications, materials and consumer staples, thereby enhancing the generalizability of the findings to the non-financial segment of the Vietnamese economy. All firms are required to have continuous

audited financial statements over the sample period to ensure data consistency and to meet the requirements of dynamic panel estimation.

The selection of the 2018-2024 period is methodologically motivated. This timeframe captures three distinct economic phases: pre-pandemic stability (2018-2019), the COVID-19 shock period (2020-2021), and the post-pandemic recovery phase (2022-2024). Such a structure allows the study to explicitly examine the pandemic as a “negative catalyst” and to compare firm behavior across different macroeconomic conditions. Moreover, a sufficiently long time dimension (T) is essential for the System GMM estimator, as it enables the construction of valid internal instruments from deeper lags, thereby improving estimation efficiency and robustness.

The estimation follows a multi-step approach to ensure methodological rigor. Pooled OLS and Random Effects (REM) are first estimated to provide baseline evidence, although these approaches cannot adequately address heteroskedasticity, autocorrelation or cross-sectional dependence. To correct for these issues, the study applies the xtscs estimator (Driscoll-Kraay standard errors), which provides heteroskedasticity-consistent, autocorrelation-robust and cross-sectionally robust standard errors.

To tackle endogeneity and account for the dynamic nature of FP, the two-step System GMM estimator is employed as the main empirical model. The model incorporates lagged dependent variables of firm performance (ROA) up to two periods, i.e., $ROA_{i,t-1}$ and $ROA_{i,t-2}$, to capture persistence and dynamic adjustment behavior. Prior to estimation, the presence of endogeneity is inferred from the inclusion of lagged dependent variables and the potential simultaneity between earnings management and firm performance, which justifies the use of a dynamic panel approach. This method mitigates endogeneity arising from omitted variables, reverse causality and measurement error while using internal instruments to improve efficiency. The number of instruments is carefully controlled (11 instruments) to avoid instrument proliferation and ensure the reliability of the Hansen test. Model validity is assessed through the Arellano-Bond test for serial correlation and the Hansen test for instrument validity; reliable estimates require no second-order autocorrelation (AR(2)) and an acceptable instrument set.

The analysis also computes marginal effects based on System GMM results to examine the moderating role of COVID. For robustness, ROE is used as an alternative performance measure, and results are compared across estimation techniques.

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

Table 2 reports descriptive statistics for 560 firm-year observations during 2018-2024. The mean ROA is 0.118 with a standard deviation of 0.076, indicating moderate variation in FP. ROA ranges from -0.061 to 0.307, reflecting sizable differences in profitability across firms. The AEM variable has a mean close to zero and varies between -0.459 and 0.609, consistent with the nature of abnormal accruals, which typically center around zero. The COVID dummy has a mean of 0.286, showing that 28.6% of the observations fall within the pandemic period, allowing the analysis to capture changes under this macroeconomic shock.

Regarding control variables, firms in the sample have an average age of 16.36 years. The mean leverage ratio (LEV) is 0.468, while revenue growth (GROW) averages 0.111. Firm size (LTTS) has a mean of 28.656. The wide range in variables such as LTTS and LEV suggests notable heterogeneity in financial characteristics across firms. All ratio-based variables, including ROA, LEV, GROW and COVID, fall within reasonable ranges without extreme outliers that might distort the estimation results.

Table 2. Descriptive statistics

Variables	Obs	Mean	SD	Min	Max
ROA	560	0.118	0.076	-0.061	0.307
AEM	560	0.000	0.105	-0.459	0.609
COVID	560	0.286	0.452	0	1
LTTS	560	28.6561	1.425	25.264	33.183
AGE	560	16.36	4.46	2	32
LEV	560	0.468	0.216	0.031	0.965
GROW	560	0.111	0.296	-0.349	0.908

Source: Authors' calculations using Stata 17

4.2. Correlation matrix and multicollinearity

Table 3 presents the correlation matrix for the variables in the model. The results show that the correlation coefficients are generally low to moderate. ROA is negatively correlated with AEM (-0.437, $p < 0.01$) and with COVID (-0.122, $p < 0.05$), while it is positively correlated with AGE (0.169, $p < 0.01$). Among the independent variables, the highest correlation is 0.327 between LTTS and LEV. This level of correlation is relatively low and does not indicate any strong linear association between explanatory variables.

To assess the potential for multicollinearity, the study calculates the Variance Inflation Factor (VIF). The results show that VIF values range from 1.01 to 1.13, with an average of 1.07. These values are well below conventional thresholds, indicating that multicollinearity is not a concern in the model. Overall, the explanatory variables exhibit a reasonable degree of independence and are suitable for inclusion in subsequent regression analyses.

Table 3. Correlation matrix and multicollinearity diagnostics

Variables	ROA	AEM	COVID	LTTS	AGE	LEV	GROW	VIF
ROA	1.000							-
AEM	-0.437***	1.000						1.01
COVID	-0.122**	-0.058	1.000					1.08
LTTS	0.021	0.034	-0.060	1.000				1.13
AGE	0.169***	-0.035	-0.213***	0.011	1.000			1.06
LEV	0.021	-0.021	0.020	0.327***	-0.070	1.000		1.13
GROW	-0.015	0.055	-0.137**	0.054	-0.006	0.077*	1.000	1.03
Mean VIF								1.07

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations using Stata 17

4.3. Regression results

Table 4 reports the estimation results from the OLS, REM, xtsc and System GMM models. System GMM is adopted as the main specification because it simultaneously addresses endogeneity, autocorrelation and the dynamic nature of panel data.

Table 4. Regression estimation results

Variables	OLS	REM	xtscc	GMM
L.ROA	-	-	-	0.148** (0.059)
AEM	-0.198*** (0.030)	-0.203*** (0.026)	-0.198*** (0.022)	-0.187*** (0.062)
COVID	-0.023*** (0.006)	-0.019*** (0.005)	-0.023*** (0.004)	-0.018** (0.007)
EM_CO	-0.466*** (0.059)	-0.475*** (0.050)	-0.466*** (0.024)	-0.440*** (0.070)
LTTS	0.001 (0.002)	0.004 (0.003)	0.001 (0.001)	0.004 (0.004)
AGE	0.002*** (0.001)	0.004*** (0.001)	0.002** (0.001)	0.003** (0.002)
LEV	0.003 (0.013)	-0.011 (0.020)	0.003 (0.011)	0.001 (0.020)
GROW	0.004 (0.009)	0.003 (0.008)	0.004 (0.004)	-0.003 (0.009)
_cons	0.052 (0.057)	-0.054 (0.094)	0.052 (0.031)	-0.056 (0.111)
Obs	560	560	560	480
R ²	0.229	0.298	0.308	—
AR(1) p-value	-	-	-	0.000
AR(2) p-value	-	-	-	0.368
Hansen p-value	-	-	-	0.093

Notes: Standard errors in parentheses. OLS, REM, and GMM denote Ordinary Least Squares, Random Effects, and System GMM. xtscc indicates Driscoll-Kraay standard errors robust to heteroskedasticity, autocorrelation and cross-sectional dependence.

Source: Authors' calculations using Stata 17

The benchmark OLS and REM models show that AEM, COVID and the interaction term EM_CO all exhibit negative and statistically significant coefficients. When the model is re-estimated using xtscc with Driscoll-Kraay standard errors to correct for heteroskedasticity and autocorrelation, the signs and significance levels of these coefficients remain unchanged.

In the System GMM model, after controlling for endogeneity, the coefficient of AEM is -0.187 and statistically significant at the 1% level. COVID also exhibits a negative effect (-0.018, significant at 5%). Notably, the interaction term EM_CO is strongly negative (-0.440) and highly significant, indicating that the impact of AEM on ROA is conditional on the presence of COVID-19. The lagged dependent variable, L.ROA, carries a positive and significant coefficient (0.148 at the 5% level), confirming the persistence of FP over time. Model diagnostics further support the validity of the System GMM estimation: the Arellano-Bond test shows significant AR(1) ($p = 0.000$) but insignificant AR(2) ($p = 0.368$), suggesting no second-order serial correlation. The Hansen test yields a p-value of 0.093, confirming the appropriateness of the instrument set.

Overall, the consistency in coefficient signs across different estimation techniques reinforces the robustness of the empirical findings.

Marginal effects analysis

Based on the System GMM estimates, Figure 1 illustrates the marginal effect of AEM on ROA under the two states of the COVID variable, along with their confidence intervals. Because the model includes the interaction term EM_CO, the marginal effect of AEM depends on whether COVID equals 0 or 1. When COVID = 0, the marginal effect corresponds to the standalone coefficient of AEM (approximately -0.187). When COVID = 1, the effect equals the sum of the AEM coefficient and the interaction term, yielding an estimated value of about -0.627.

Figure 1 shows that both marginal effects are negative and statistically significant, as their confidence intervals do not include zero. Moreover, the magnitude of the effect is substantially larger during the COVID period, indicating that the influence of AEM on ROA intensifies under crisis conditions. This difference confirms that the relationship between AEM and firm performance is context-dependent and that incorporating an interaction term is appropriate to capture this variation.

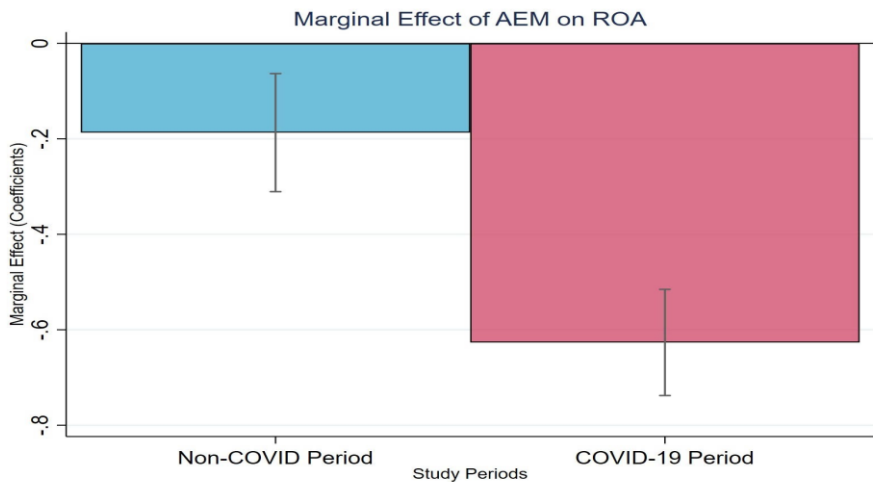


Figure 1. Marginal effect of AEM on ROA

Source: Authors' calculations using Stata 17

4.4. Robustness checks

To assess the reliability of the empirical findings, two robustness checks are conducted.

First, the results obtained using ROA as the dependent variable are compared across alternative estimation techniques, including OLS, REM, xtsc and System GMM. The key variables: AEM, COVID and EM_CO, consistently exhibit negative and statistically significant coefficients in nearly all specifications. This stability indicates that the findings are not sensitive to the choice of estimator.

Second, the dependent variable ROA is replaced with ROE to evaluate the stability of the results. As shown in table 5, both AEM and EM_CO remain negative and statistically significant. In particular, the coefficient of EM_CO is -0.720 ($p < 0.01$), indicating a strong and consistent moderating effect. The COVID variable also remains negative and statistically significant ($p < 0.05$), confirming the robustness of its impact across different model specifications. Importantly, the interaction term EM_CO continues to be strongly significant, suggesting that the core relationship in the model remains intact when an alternative measure of FP is used. Model diagnostics further support the validity of the GMM estimation. The AR(1) test is significant ($p = 0.026$), while the AR(2) test is not ($p = 0.874$), confirming the

absence of second-order serial correlation. In addition, the Hansen test yields a p-value of 0.418, indicating that the instrument set is valid and the model is well specified.

Table 5. System GMM estimation using ROE as the dependent variable

Variables	Coefficient	Standard error	t-value	p-value
L.ROE	0.029	0.153	0.19	0.848
AEM	-0.254	0.083	-3.05	0.002
COVID	-0.020	0.010	-2.01	0.047
EM_CO	-0.720	0.076	-9.49	0.000
LTTS	-0.001	0.004	-0.12	0.905
AGE	-0.002	0.002	-0.85	0.396
LEV	-0.003	0.026	-0.11	0.911
GROW	0.003	0.010	-0.33	0.746
_cons	0.171	0.136	1.25	0.214
AR(1)	-	-	-	0.026
AR(2)	-	-	-	0.874
Hansen	-	-	-	0.418

Source: Authors' calculations using Stata 17

In sum, the robustness checks demonstrate that the empirical results remain stable when substituting the performance measure, thereby reinforcing the credibility of the study's findings.

4.5. Discussion

The System GMM estimates indicate that all three hypotheses: H_1 , H_2 and H_3 , are supported with strong statistical significance. The consistency in coefficient signs and significance levels across alternative model specifications reinforces the reliability of the results and confirms that the findings are not sensitive to estimation choices.

With respect to H_1 , the negative coefficient of AEM (approximately -0.187) reveals an inverse relationship between AEM and FP. This implies that increasing accrual manipulation does not enhance firms' underlying financial capacity; instead, it erodes performance. From an agency theory perspective, such practices stem from conflicts of interest between managers and shareholders, whereby managers manipulate earnings to meet short-term objectives. However, distorting financial information undermines reporting credibility, hampers efficient resource allocation and increases agency costs [1], [36]. In Vietnam-where transparency and market-monitoring mechanisms remain in progress, these adverse effects tend to be more pronounced, consistent with recent empirical evidence [7], [23].

Regarding H_2 , the negative coefficient of COVID (around -0.018) indicates that the pandemic exerted a detrimental impact on firms' financial performance. This finding reflects the role of COVID-19 as a macroeconomic shock that weakened the business environment. According to resource dependence theory, firms rely heavily on external resources such as markets, supply chains and capital flows. The disruptions caused by the pandemic, ranging from supply-chain breakdowns to declining demand and rising operating costs directly reduced profitability [20], [37]. Thus, the results not only confirm the adverse effect of COVID-19 but also clarify the mechanisms through which the shock affected FP.

Notably, the findings for H_3 show that the interaction term EM_CO carries a large negative coefficient (approximately -0.440), indicating that the detrimental effect of EM is

amplified during the pandemic. The marginal effects analysis further demonstrates that the decline in performance attributed to AEM is substantially greater during COVID-19 than in normal periods. This suggests that COVID-19 served not only as a direct shock but also as a risk-amplifying factor. From a signaling theory perspective, heightened uncertainty may incentivize managers to manipulate earnings to convey positive signals and sustain investor confidence. However, when such signals fail to reflect fundamentals, market reactions become more negative, increasing costs and diminishing performance [19]. At the same time, resource pressures during crises leave firms more vulnerable to informational distortions, intensifying the adverse effects of EM [5], [8].

In addition to the main variables of interest, the control variables do not exhibit consistent statistical significance across specifications, suggesting that their effects on FP may be context-dependent rather than uniformly influential. Firm size (LTTS) appears statistically insignificant, indicating that scale advantages do not always translate into improved performance. Financial leverage (LEV) also remains insignificant, implying that debt levels may not play a dominant role in explaining FP variations in this sample. Firm age (AGE) shows a positive and significant effect in the ROA model but becomes insignificant in the ROE model, suggesting that its impact varies depending on the performance measure employed. Revenue growth (GROW) is consistently insignificant, indicating that short-term expansion does not necessarily enhance profitability. Overall, these findings suggest that while firm-level characteristics are relevant, the effects of EM and COVID-19 remain robust and more pronounced in explaining FP.

Although the sample size is relatively limited, the findings remain meaningful as they reflect the behavior of representative firms in key sectors of the Vietnamese economy. Therefore, the results should be interpreted as providing context-specific insights rather than broad generalizations to all firms. Furthermore, the impact of earnings management and macroeconomic shocks is likely to vary across industries. Sectors with stable demand, such as consumer staples, may exhibit greater resilience, whereas capital-intensive sectors such as real estate and industrials are more vulnerable to external disruptions. This heterogeneity suggests that the EM-FP relationship is not uniform but depends on industry characteristics and resource dependence, reinforcing the context-dependent nature of corporate behavior in emerging markets.

Taken together, the results demonstrate that both EM and the COVID-19 shock weaken FP. More importantly, in periods of heightened uncertainty, the adverse effects of earnings manipulation are not only persistent but also amplified, particularly in emerging markets such as Vietnam, where monitoring systems and disclosure practices are still evolving.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study examines the impact of EM and the COVID-19 pandemic on the FP of Vietnamese listed firms during 2018-2024. Using the dynamic System GMM estimator, the analysis shows that both EM and COVID-19 exert negative effects on FP.

More importantly, the findings indicate that the adverse effect of EM becomes more pronounced during the pandemic. This suggests that manipulating earnings to enhance short-term financial appearance not only fails to improve underlying performance, but also increases firms' vulnerability to economic shocks. In other words, reduced transparency due to earnings undermines not only the quality of financial statements but also a firm's ability to adapt and recover in uncertain environments.

Additionally, the findings regarding the control variables suggest that firm-specific characteristics do not exhibit consistent effects across model specifications. While firm age shows some positive influence in certain models, most control variables, including firm size, leverage and growth, are not statistically significant. This indicates that although internal characteristics may play a role, they are not the primary drivers of FP in this context.

The study contributes empirical evidence from an emerging market context and clarifies the role of macroeconomic shocks in shaping the relationship between EM and FP.

5.2. Recommendations and implications

Based on the empirical results, several theoretical and practical implications emerge.

From a theoretical standpoint, the study extends agency theory, signaling theory and resource dependence theory by demonstrating that the consequences of EM are context-dependent. Under heightened uncertainty, agency conflicts and information asymmetry tend to intensify.

For managers, the findings highlight that excessive reliance on earnings manipulation to achieve short-term targets may generate long-term adverse consequences. Rather than “managing” numbers, firms should focus on strengthening genuine performance, improving transparency and enhancing internal control systems to increase resilience against macroeconomic disruptions.

For investors, the results underscore the importance of exercising caution when evaluating FP, particularly during periods of instability. Assessing earnings quality, especially abnormal accruals is essential for accurately identifying firms’ financial conditions and inherent risks.

For regulators, the evidence points to the need for continued improvement in disclosure frameworks and audit quality. Strengthened oversight of firms exhibiting signs of EM during economic downturns will help enhance transparency and promote greater stability in the capital market.

5.3. Limitations and future research

This study is subject to several limitations. *First*, the sample includes only non-financial firms, which may limit the generalizability of the findings to the broader market. *Second*, the analysis focuses exclusively on accrual-based EM and does not examine real earnings management (REM).

Future research may extend the analysis by incorporating both AEM and REM, and by exploring heterogeneity across industries or ownership structures. Such extensions would provide a more comprehensive understanding of EM behavior in transitional economies.

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