“Real earnings management trends in the context of the COVID-19 pandemic: The case of non-financial listed companies in Vietnam”

AUTHORS	Dang Anh Tuan Nguyen Ngoc Khanh Dung Bui Thi Thu Thao

ARTICLE INFO	Dang Anh Tuan, Nguyen Ngoc Khanh Dung and Bui Thi Thu Thao (2023). Real earnings management trends in the context of the COVID-19 pandemic: The case of non-financial listed companies in Vietnam. *Investment Management and Financial Innovations*, *20*(2), 295-306. doi:10.21511/imfi.20(2).2023.25
DOI	http://dx.doi.org/10.21511/imfi.20(2).2023.25
RELEASED ON	Friday, 30 June 2023
RECEIVED ON	Saturday, 27 May 2023
ACCEPTED ON	Tuesday, 27 June 2023

JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
51	0	7

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Dang Anh Tuan (Vietnam), **Nguyen Ngoc Khanh Dung** (Vietnam),
Bui Thi Thu Thao (Vietnam)

REAL EARNINGS MANAGEMENT TRENDS IN THE CONTEXT OF THE COVID-19 PANDEMIC: THE CASE OF NON-FINANCIAL LISTED COMPANIES IN VIETNAM

Abstract

Real earnings management comprises the intervention by managers intending to change business strategies or policies to achieve specific goals. The paper aims to examine trends and levels of real earnings management in the context of the COVID-19 pandemic in Vietnam. The study uses time series data, and the sample includes 1,800 observations from 2016 to 2021. The methods of the study are regression analyses of the real earnings management model. The results indicate that the COVID-19 pandemic positively and significantly affected real earnings management of companies listed on the Vietnamese stock exchange. The trends and levels of real earnings management in the context of the COVID-19 pandemic increase depending on the severity of the pandemic. In terms of applications, the study provides evidence that the quality of financial reporting is lower during the pandemic. Listed enterprises in Vietnam are using high financial leverage, leading to a higher vulnerability to shocks such as the pandemic. Therefore, the real earnings management technique mainly used by managers is operating cash flow adjustment by using income maximization strategies to increase the ability to borrow capital to maintain business operations. The study suggests that the choice of income maximization or income minimization strategy depends mainly on commitments with the capital provider (credit institutions), specific contexts, and economic factors.

Keywords cash flow, financial statement, financial leverage, auditing, financial fraud, Vietnam

JEL Classification M41, M42, G34

Received on: 27th of May, 2023
Accepted on: 27th of June, 2023
Published on: 30th of June, 2023

Dang Anh Tuan, Ph.D., Lecturer, Faculty of Accounting and Auditing, Industrial University of Ho Chi Minh City, Vietnam.

Nguyen Ngoc Khanh Dung, Ph.D., Lecturer, Faculty of Accounting and Auditing, Industrial University of Ho Chi Minh City, Vietnnam. (Corresponding author)

Bui Thi Thu Thao, Ph.D., Lecturer, Institute of Financial Training: Ho Chi Minh, Vietnam.

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The financial crisis of 1997–1998 and 2008 had a downward impact on the world economy, similar to when the COVID-19 pandemic spread worldwide in 2020 (Pjaaka, 2022). The COVID-19 pandemic not only caused financial difficulties but also increased instability (Hassan et al., 2021; Almustafa et al., 2023), leading to an inevitable decline in business results compared to expectations (Kumar & Vij, 2017). At the same time, the evaluation of the performance of managers is more complex and complicated due to increasing information asymmetry (Van der Tas, 2020), whereby managers often conduct earnings management (EM) to ensure personal interests, as well as maintain their image and commitment with stakeholders, especially the capital sponsor.

There are three trends of manipulating real profits, including increasing, decreasing, or smoothing earnings with various techniques (El Diri, 2017). The most prominent way for managers to change actual business practices is to reduce discretionary costs, such as research and development (R&D) costs, followed by overproduction, and boost

revenue by offering discounts or easing payment terms, thus reporting lower costs and ultimately increasing the income of the current year (Roychowdhury, 2006; Trombetta & Imperatore, 2014; Cohen et al., 2008; Zang, 2012). However, the REM level depends on the cash flow level and the discretion available. Several studies on the impact of crises, natural disasters, and, more recently, the COVID-19 pandemic provide statistical evidence that real earnings management (REM) decreases during the crisis compared to pre-crisis (Trombetta & Imperatore, 2014; Cimini, 2015; Kumar & Vij, 2017; Xiao & Xi, 2021). Some other studies provide evidence to the contrary, for example, Klomp (2022) and Yan et al. (2022). This raises the question of how the pandemic has affected REM tools.

Vietnam is a developing country; non-financial listed companies are mainly small and medium enterprises, and the primary source of business capital is external loans. Moreover, the legal environment protecting investor rights is underestimated, creating a loophole for managers to implement REM easily. In addition, the pandemic hindered the business activities of enterprises, with consequences such as worsening business results, delayed dividend payments, and increased liquidity loss, whereas raising capital becomes more difficult. In response to unforeseen instability, managers can implement REM to ensure the ability to mobilize loans from credit institutions to maintain business operations (e.g., Cohen et al., 2008; Roychowdhury, 2006). In addition, several studies provide evidence that the level of EM depends on the severity of the disaster and the firm's perception of resilience (Supavinee, 2018).

In the context of contrasting evidence, studying the impact of the COVID-19 pandemic is quite interesting when it is both a crisis situation and a market downturn. This raises the question of whether the efficiency view, which is informed by signaling theory, suggestive that managers use REM to signal private information to capital market participants, or the opportunistic view based on agency theory will have the most prevalent impact on managerial behavior. By examining the occurrence of REM in the financial statements of listed companies in Vietnam during the COVID-19 pandemic, the study aims at adding empirical evidence to this currently insufficient research area. This is the first study to examine the severity of the COVID-19 pandemic affecting the quality of financial statements conducted in the Vietnam market.

1. LITERATURE REVIEW

In recent years, EM has always been one of the central topics of widespread academic interest. A series of empirical studies have been conducted to determine the influencing factors and the consequences of earnings management behavior in different types of businesses and organizations. The results of most studies show that EM exists through the preparation of financial statements. However, until now, academia has not reached a consensus on how contextual factors affect the REM behavior of managers, especially in times of crisis or pandemic.

EM is an action of profit adjustment to achieve a specific goal, creating a corporate financial image desired by managers rather than investors, and it does not usually reflect the actual financial situation of the enterprise (Schipper, 1989). There are many forms of EM, such as accrual real earnings management (AEM), REM, income smoothing, and income transfer using financial instruments such as futures and options (El Diri, 2017). The two most popular forms are AEM and REM. Gordon (1964) defined AEM as implementing EM behavior through flexibility in applying policies and accounting estimates in following regulations or choosing when to apply them, for example, choosing the amortization period, depreciation method, and provisions. AEM does not change the economic nature of the actual transaction but does affect the presentation of financial information in the financial statements, the profit for the period, and cash flow (Tuan, 2022). The second category is REM-managers' behaviors that affect the nature of transactions, changing business, production, and commercial activities to achieve expected financial results, such as increasing revenue by reducing the price of goods sold, easing payment deadlines for customers, changing delivery schedules or delaying

http://dx.doi.org/10.21511/imfi.20(2).2023.25

the recognition of R&D expenses, and investing in short-term profits to gain desired returns but not long-term benefit, which has a direct effect on cash flow (Rankin et al., 2012). REM is defined as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations" (Roychowdhury, 2006, p. 337). Compared to AEM, REM is more difficult to detect increases, uncertainties in future cash flows and, consequently, increases credit risk, stock price crash risk and cost of equity. In contrast, others suggest that REM produces smooth earnings and, as a result, reduces credit risk (Habid et al, 2022).

Several studies provide empirical evidence indicating various factors associated with managers' motivation to participate in REM activities, including financial reporting, auditing, governance and controls, and capital market incentives. Most of these studies conclude that managers substitute the REM regime to inflate earnings (Habid et al., 2022). According to Stolowy & Breton (2004), there are at least four groups of reasons why managers participate in REM – market expectations, contractual arrangement, debt market, and public scrutiny/pressure. Habid et al. (2022), in a review of research on REM, admitted that there are at least two different perspectives commonly used to explain the tendency to perform REM in the direction of increasing or decreasing (Habid et al., 2022). The sign theory-based efficiency view posits that managers engage in REM to signal positive future business prospects to capital market participants, thereby reducing the cost of funding (Gunny, 2010). Several studies (e.g., Cohen et al., 2008; Roychowdhury, 2006) provide empirical evidence that managers apply AEM and REM for loss avoidance earnings increase, smoothness, meeting or beating analyst earnings forecasts, and preserving a desired credit rating.

In contrast, based on agency theory, the management opportunity perspective suggests that REM conceals a firm's actual performance (Habid et al., 2022). Earnings minimization (reducing earnings) is implemented during periods of good business to reserve for periods of bad business (Leuz et al., 2003). According to Kirschenheiter and Melumad (2002), when business results are weak, managers prefer to use the "Big Bath" accounting technique; on the contrary, if the news is good, they want to smooth the earnings further. The REM strategy in the direction of reduction is mainly aimed at serving individual managers, explained by agency theory (Habid et al., 2022). Although most studies provide evidence that managers adjust REM based on market signal theory, they provide inconclusive evidence; for example, research on credit and the capital market consequences of REM also provides mixed evidence.

There is a correlation between a crisis and REM behavior. In these rare cases, managers often consider an income management strategy based on the crisis's severity and the business's resilience. Several studies on the impact of crises, and natural disasters, provide statistical evidence that REM decreases during the crisis compared to before the crisis (Byard et al., 2007; Cimini, 2015; Ebrahimi et al., 2017; Filip & Raffournier, 2014; Kumar & Vij, 2017). This is because institutional and macroeconomic factors dominate market factors (Filip & Raffournier, 2014) or, in politically sensitive contexts, managers are more accountable for benefits or protections (Jones, 1991). Therefore, REM will be more difficult (Kumar & Vij, 2017). Others provide evidence that the pandemic has had no statistically significant impact on REM (e.g., Jordan et al., 2021 in the US; Ljubisavljević & Jakobsson, 2022 in Sweden; and Kazemi, 2022 in European Union). Some studies have considered the pandemic as an observed variable to assess the motivation and level of profit management among managers (e.g., Ljubisavljević & Jakobsson, 2022; Klomp, 2022; Kazemi, 2022; Lassoued & Khanchel, 2021; Xiao & Xi, 2021; Yan et al., 2022; Ali et al., 2022; Liu & Sun, 2022) and have shown the same patterns as earlier literature on crisis periods. Whether there is also a notion that crisis periods give opportunities to engage in more REM because investor tolerance increases during these periods (Ahmad-Zaluki et al., 2011).

Through a review of related previous studies, this study confirms that the extent and trends of REM still differ between studies in the context of financial crises or pandemics. Does the

severity of the pandemic affect the extent and trends of REM? Therefore, this study inherits the estimation model by Roychowdhury (2006), following Cohen et al. (2020) to confirm whether COVID-19 affects the level of REM and whether the severity caused by COVID-19 changes the trend of REM for listed companies in Vietnam. To confirm the trends and levels of real earnings management in the context of the COVID-19 pandemic in Vietnam, two research hypotheses are proposed to test the extent and trend of REM during the COVID-19 period.

H_1: *There is a difference in real earnings management before and during the COVID-19 pandemic for non-financial listed companies in Vietnam.*

H_2: *The trend of real earnings management depends on the severity of the COVID-19 pandemic.*

2. METHODOLOGY

The sample is the top 300 non-financial listed enterprises with the largest capitalization on the Vietnam stock market (VN300). VN300 were selected with fully disclosed information during the six years (from 2016 to 2021). The data used for the empirical study of the paper are gathered from the annual reports and financial statements on the website of the State Securities Commission in Vietnam.

Methods to measure variables include REM and independent variables of the model. The study estimates REM according to the Roychowdhury model (2006), by measuring the anomaly level of three factors – extraordinary cash flow from operating activities (A_CFO), extraordinary variable costs (A_DISC), and production costs abnormal output (A_PROD) to determine the level of earnings management through the impact on arising

Table 1. The definition of variables and methods to measure the level of REM

Source: Developed by Roychowdhury (2006) and Cohen et al. (2020).

Roychowdhury's (2006) model adds ROA and LV, hereafter REM in formula (I)	
Determine abnormal levels (ε_{it}) of operating cash flow (*A_CFO*), accordingly: $\frac{CFO_{it}}{A_{it-1}} = \propto \frac{1}{A_{it-1}} + \beta_1 \frac{SALES_{it}}{A_{it-1}} + \beta_2 \frac{\Delta SALES_{it}}{A_{it-1}} + \beta_3 ROAit + \beta_4 LVit + \varepsilon_{it}$	• CFO_{it}: Cash flow from operations in year *t*; • $Sales_{it}$: Net sales of the company *i* in year *t*. The data is collected from the income statement; • $\Delta Sales_{it}$: Change in company *i*'s net sales in year t compared to year *t*-1; • A_{it-1}: Total assets in year *t*-1 • $DISC_{it}$: Calculated by the enterprise's total selling and administrative expenses, collected from each enterprise's income statement in each observation year. • $PROD_{it}$: Determined by the cost of goods sold plus the change in net inventory at the end of the period compared to the beginning of the period. The cost of goods sold is collected from the income statement of the enterprise. Net inventories are collected from the balance sheet.
Determine the industry specific normal levels (ε_{it}) of discretionary expenses (A_DISC), accordingly: $\frac{Disc_{it}}{A_{it-1}} = \propto \frac{1}{A_{it-1}} + \beta_1 \frac{SALES_{it}}{A_{it-1}} + \beta_2 ROAit + \varepsilon_{it}$	
Determine abnormal levels (ε_{it}) of production costs (A_PROD), accordin $\frac{PROD_{it}}{A_{it-1}} = \propto \frac{1}{A_{it-1}} + \beta_1 \frac{SALES_{it}}{A_{it-1}} + \beta_2 \frac{\Delta SALES_{it}}{A_{it-1}} + \beta_3 \frac{\Delta SALES_{it-1}}{A_{it-1}} + \beta_4 ROAit + \beta_5 LVit + \varepsilon_{it}$	
The measurement methods of variables in the equation (II)	
REM	The sum of the standardized three real earnings management proxies (Roychowdhury, 2006) in formula (I)
COVID-19 pandemic (COVID-19)	Dummy variable, 1 = pandemic (2020-2021), 0 = pre-pandemic (2015-2019).
Return on equity (ROA)	Ratio of profit to asset
firm growth rate (GROWTH)	Net sales growth rate
Enterprise size (SIZE)	Natural logarithm of total assets for firm
Financial leverage (LEV)	Ratio of total liabilities to total assets
Audit type (AD)	A dummy variable (if listed enterprises are audited by Big4 audit firms (Big4), it is 1, otherwise 0)
Net Income (NETIC)	Dummy variable, 1 = positive net income, 0 = negative net income

http://dx.doi.org/10.21511/imfi.20(2).2023.25

economic transactions, according to the following formula:

$$REM = A\_CFO \cdot (-1) + A\_PROD + \\ + A\_DISC \cdot (-1). \quad (1)$$

The definition of variables and methods to measure the level of REM are presented in Table 1.

To measure the impact of the COVID-19 pandemic on REM, the research model is an inherited model from Cohen et al. (2020). The proposed research model follows the equation (2):

$$REM_{it} = b_0 + b_1 COVID-19_{it} + b_2 ROA_{it} + \\ + b_3 GROWTH_{it} + b_4 LV_{it} + b_5 SIZE_{it} + \\ + b_6 AD_{it} + b_7 NETIC_{it} + e_{it}. \quad (2)$$

Here, REM_{it} (dependent variable) is equal to either the net level of REM or the absolute level of REM in year *t*. They represent the total level of REM in year *t*, where the three proxies are combined into an aggregate score following Cohen et al. (2020).

The multiple regression model adds six control variables to ensure the predictability of the dependent variable COVID-19 pandemic. First, operating performance (ROA) is inherited from Trombetta and Imperatore (2014) to control a company's performance. Second, firm growth rate (GROWTH) to control growth opportunities is derived from research by Burgstahler et al. (2006). Third, financial leverage (LV) is based on the argument that a company that uses a variety of debt from different sources will be subject to stricter supervision (Jelinek, 2007), creating a governance mechanism that helps reduce conflicts of interest between parties, thereby reducing discretionary spending by managers, limiting the opportunity to practice earnings management through accounting estimates. Fourth, the larger the firm size (SIZE), under tremendous pressure from capital market expectations (Richardson et al., 2002), the greater the advantage of negotiating and ignoring findings as well as the ability to manage a higher level of internal control system (Nelson et al., 2002). Additionally, in the context of a crisis, there are often political considerations wherein large-scale companies have a higher REM than in normal conditions (Byard et al., 2007). Fifth, the larger the size and quality of the independent audit (AD), the lower the REM (Becker et al., 1998). Sixth, previous research has shown that net income direction (NETIC) can affect the level of earnings management found in financial statements when companies try to change their results (Healy & Wahlen, 1999).

A regression analysis was performed on the impact of the pandemic on the dependent variable, REM_{it}, through the choice of method – optimal estimation between Pool OLS, FEM, and REM. The results of the above estimates all encounter heterogeneity of variance. Accordingly, FGLS is applied to overcome the variable variance and ensure the selection of an efficient estimation model between FEM and REM.

3. RESULTS

According to the data in Table 2, overall, the average level of REM was –25% before the pandemic and –19% during the pandemic. The difference between the two periods is –6% (p-value < 0.01); this means that the level of REM during the pandemic is lower than it was before the pandemic, with the magnitude of the change from the mean absolute value of the REM (AREM) decreasing from 31% to about 27% of asset values at the beginning of the year, otherwise the manager implements a more income-maximizing strategy. The dominant trend of REM in both periods is income minimization, i.e., the average manager adjusts to a decrease in profit relative to total assets at the beginning of the year. The magnitude of the increase in income recorded in the financial statements compared to the total assets at the beginning of the year is –8% (APREM column 4 Table 3), which is higher than the magnitude of the decrease in income of –6% (ANREM column 5 Table 3). This change has the contribution of all three metrics A_PROD, A_DISC, and A_CFO. However, the adjustment of these indicators is in a different trend. The data show that the A_CFO shifts from earnings downward adjustment to earnings gain, production volume remains below REM normal, while management still overstates unusual customization costs (Table 3). This result indicates barriers to applying REM.

Table 2. Descriptive statistics of the variables in the model

Source: Authors'elaboration.

Variable	Obs	Mean	Std. Dev.	Min	Max
Data in 2016–2019					
REM	1,200	–0.25	0.32	–1.20	0.78
AREM (Absolute value)	1,200	0.31	0.26	0.00	1.25
APREM (Positive)	199	0.18	0.21	0.00	12.12
ANREM (Negative)	1001	–0.34	0.27	–1.25	–0.01
A_CFO	1,200	0.05	0.17	–0.86	1.95
A_PROD	1,200	–0.10	0.17	–1.40	1.39
A_DISC	1,200	0.10	0.13	–0.08	2.10
Data in 20120–2021					
REM	600	–0.19	0.31	–1.20	0.78
AREM (Absolute value)	600	0.27	0.25	0.00	1.25
APREM (Positive)	108	0.26	0.31	0.00	12.12
ANREM (Negative)	492	–0.28	0.24	–1.25	–0.01
A_CFO	600	–0.02	1.86	–45.36	0.73
A_PROD	600	–0.06	0.16	–0.86	0.86
A_DISC	600	0.07	0.09	–0.19	0.91

Two-sample t-tests for the three earnings management proxies developed by Roychowdhury (2006) between the pre-pandemic period (2016–2019) and the pandemic period (2020–2021). The test results indicate that there is a statistically significant difference between the observations in the two periods. This data provides initial evidence that there is a shift in REM adoption during the pandemic. The results confirm that a significant difference can be found for either of the proxies.

Table 4 shows the correlation matrix between the variables, indicating the possible relationship between the variables in the model. The model shows a correlation between the dependent, independent, and control variables, but the correlation coefficient between the variables is not high (<50%), and therefore, multicollinearity is unlikely.

Table 5 shows the regression results of the REM, A_CFO, A_PROD, and A_DISC showing the regression results between COVID_19 and REM types, respectively, including A_CFO, A_PROD, and A_DISC, whereby there is a positive correlation between COVID_19 and REM and A_PROD with correlation coefficients of 0.103 and 0.120 at 1% significance level, but are negatively related to A_CFO and A_DISC with negative correlation coefficients of -0.032 and -0.132, respectively, at 1% significance level (Table 4).

Table 3. Two-sample t-tests

Source: Authors' calculations using Stata 14 software.

	REM	AREM	APREM	ANREM	A_CFO	A_PROD	A_DISC
2016–2019	(0.25)	0.31	0.18	(0.34)	0.05	-0.10	0.10
2020–2021	(0.18)	0.27	0.26	(0.28)	-0.02	-0.06	0.07
Difference	(0.07)***	0.04***	(0.08)***	(0.06)***	0.07	(0.04)***	0.03***

Note: t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4. Pearson's correlation coefficient

Source: Authors'elaboration.

Pearson's Correlation Coefficient	REM	A_CFO	A_PROD	A_DISC	COVID_19	GROWTH	LV	ROA	SIZE	NETIC	AD
REM	1.000										
A_CFO	–0.187***	1.000									
A_PROD	0.849***	–0.079***	1.000								
A_DISC	–0.556***	0.010	–0.428***	1.000							
COVID_19	0.103***	–0.032	0.120***	–0.132***	1.000						
GROWTH	–0.129***	0.017	–0.141***	0.206***	–0.400***	1.000					
LV	0.312***	–0.111***	0.335***	–0.004	–0.003	0.137***	1.000				
ROA	–0.491***	–0.049	–0.457***	0.303***	–0.197***	0.298***	–0.164***	1.000			
SIZE	0.067***	0.049**	0.027	–0.104***	0.039*	0.066**	0.189***	0.001	1.000		
NETIC	–0.159***	0.004	–0.165***	0.106***	–0.135***	0.327***	0.027	0.380***	0.088***	1.000	
AD	–0.141***	0.042	0.130***	0.186***	–0.427***	0.396***	–0.013	0.191***	0.260***	0.109***	1.000

Note: t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

http://dx.doi.org/10.21511/imfi.20(2).2023.25

Table 5. Regression results according to each proxy of REM

Source: Authors'elaboration.

Variables	A_CFO	A_PROD	A_DISC	REM	Absolute REM
1	2	3	4	5	6
COVID_19	0.009*	0.001	0.005***	–0.020**	0.027***
	(1.74)	(0.47)	(2.84)	(–2.54)	(3.68)
GROWTH	0.001	0.001	0.000	0.000	0.006
	(0.07)	(1.63)	(1.14)	(0.07)	(1.16)
LV	–0.399***	0.019***	–0.006***	0.190***	–0.004
	(–259.04)	(18.16)	(–4.29)	(14.19)	(–0.39)
ROA	0.199***	–0.821***	0.336***	–1.602***	1.660***
	(7.19)	(–70.22)	(23.54)	(–30.53)	(36.21)
SIZE	0.023***	0.008***	–0.021***	0.027***	–0.072***
	(6.89)	(4.17)	(–14.32)	(5.23)	(–15.09)
NETIC	–0.005	–0.009***	0.033***	–0.031***	0.027***
	(–1.30)	(–4.97)	(24.41)	(–5.13)	(4.71)
AD	0.017*	0.006	–0.004	0.011	–0.034***
	(1.76)	(1.43)	(–1.00)	(0.84)	(–2.76)
	–0.019	–0.113***	0.240***	–0.470***	0.978***
	(–0.49)	(–5.40)	(14.55)	(–7.98)	(17.74)
N	1,800	1,800	1,800	1,800	1,800

Note: t statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01. All four regression models evaluated the fit between Pool OLS, FEM, and REM. The FEM model best fits the A_PROD and REM estimators, while REM best fits A_CFO and A_DISC. However, all four models have variable variance, so they are overcome using FGLS regression.

Table 5 regression results for each model show that there is a statistically significant difference during the pandemic compared to before the pandemic, supporting research hypothesis H1, specifically: A_CFO changes sign from positive to negative, i.e., changes in the adjusted trend from income-decreasing REM pre-pandemic (coefficient 0.05) to income-increasing REM during the pandemic (coefficient -0.02) (Table 3). The regression coefficient of the COVID-19 variable (Table 5) is 0.009, with a significance level of 10%, indicating increasing REM during the pandemic due to a downward adjustment of extraordinary cash flows from operations to inflate real income (Roychowdhury, 2006; Ryu & Chae, 2022).

The average abnormal cost of production (A_PROD) is negative in both periods, indicating that managers practice REM in the direction of income-increasing REM (Table 3). The regression coefficient of the COVID-19 variable (Table 5) is 0.001, indicating that the level of REM increases. However, p-value>0.05 does not provide statistical evidence that there is a difference in adjusting for abnormal production costs before and during the pandemic.

The average abnormal variable cost (A_DISC) has a positive sign in both periods, indicating that managers tend towards income-increasing REM (Table 3). The regression coefficient of the COVID-19 variable (Table 5) is 0.005, at the 1% significance level, providing statistical evidence that there is an increasing level of REM during the pandemic due to the use of income-decreasing REM.

The mean REM values through the t-test in Table 3 and Table 6 provide statistical evidence for a difference between the two periods. The dominant trend is that firms manipulate their earnings upward, i.e income-increasing (Li & Zaiats, 2017) during the pandemic. The regression results in Table 5 show REM increase (coefficient 0.027, 1% significance level, column 6). A positive beta indicates a higher level of earnings governance during the pandemic than before. This result supports hypothesis H1 that the extent of REM increases during the pandemic compared to pre-pandemic and the trend of income-increasing REM.

For hypothesis H2, what is the trend in earnings adjustment over the years during the pandemic? The study conducted REM regression year-by-year during the pandemic. The regression results in Table 7 provide statistical evidence that, despite the first year of the pandemic (2020), the REM in

Table 6. REM measures result

Source: Authors'elaboration.

Measure	Trends REM according to Li and Zaiats (2017)		Research result	
	increasing	decreasing	Trends REM	Level of REM
C_CFO	Abnormally low (–)	Abnormally low (+)	Income–increasing	Higher
A_PROD	Abnormally low (–)	Abnormally low (+)	income–increasing	Higher
A_DISC	Abnormally high (+)	Abnormally high (–)	income–increasing	Higher

Table 7. REM regression results by year during the pandemic

Source: Authors'elaboration.

Variables	Pool OLS	FEM	REM	FGLS
Pandemic1	–0.035**	–0.022	–0.025*	–0.022*
	(–2.01)	(–1.64)	(–1.89)	(–1.72)
Pandemic2	0.051*	0.123***	0.102***	0.123***
	(1.92)	(4.68)	(4.24)	(3.63)
GROWTH	0.005	0.010	0.010	0.009
	(0.46)	(1.09)	(1.08)	(0.80)
LV	0.251***	0.485***	0.396***	0.485***
	(10.97)	(16.68)	(16.17)	(8.52)
ROA	–1.656***	–1.401***	–1.457***	–1.401***
	(–19.82)	(–12.49)	(–15.82)	(–9.31)
SIZE	0.013	–0.011	–0.012	–0.011
	(1.23)	(–0.23)	(–0.72)	(–0.19)
AuD	–0.010	0.040**	0.023	0.040*
	(–0.69)	(2.24)	(1.47)	(1.84)
NETIC	0.004	0.014	0.008	0.014
	(0.15)	(0.57)	(0.36)	(0.56)
_cons	–0.384***	–0.371	–0.269	–0.371
	(–3.37)	(–0.65)	(–1.46)	(–0.53)
N	1,800	1,800	1,800	1,800
R–sq	0.304			0.271

Note: t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

the direction of downward adjustment of income is lower than before the pandemic (pandemic1 = –0.022, significance level of 10%). However, in the second year (in 2021), during the pandemic, the regression coefficient (pandemic2 = 0.123, at 1% significance level) showed the opposite result, meaning that managers practice income-increasing REM more than income-decreasing REM in the year 2021 and tend to adjust for income growth differently from year one. This result implies that the second year of the negative impact of the COVID-19 pandemic on the financial statement of the listed companies in Vietnam had greater severity, prompting managers to adjust earnings according to an upward trend to ensure market expectations and avoid breach of debt covenants to have enough operating cash flow in the future. This data supports the findings of higher earnings adjustment when natural disasters are more severe, as found in Supavinee (2018).

4. DISCUSSION

The research results show that the level of REM during the pandemic is higher than before the pandemic, supporting hypothesis H1 that there is a difference in REM compared to before the pandemic. The finding of this study is consistent with results in similar studies on the impact of COVID-19 on REM (Klomp, 2022; Yan et al., 2022). This contradicts studies that observed a decrease in the level of REM during the COVID-19 pandemic (Xiao & Xi, 2021; Ljubisavljević, 2022; Kazemi, 2022) and during financial crises (Cimini, 2015; Filip & Raffournier, 2014).

In the first year of the pandemic, managers adopted a strategy of minimizing income to reserve for the future in line with the "big bath" approach in their first year (Cohen et al., 2008). Managers maximize income for the second year of the pan-

http://dx.doi.org/10.21511/imfi.20(2).2023.25

demic (more income-increasing earnings management). The results of this study are consistent with Klomp's (2022) study across nine European countries. However, this result is inconsistent with the findings of Xiao and Xi (2021) in China that state-owned enterprises perform AEM more frequently and more income-decreasing earnings management during pandemic outbreaks and the study of Ljubisavljević & Jakobsson (2022) in Sweden that there is no change in REM.

Table 3 shows that during the pandemic, the abnormal cash flow from operations decreased (negative), indicating that the main direction is income-increasing REM to avoid losses, consistent with the assessment of Roychowdhury (2006). Abnormal (positive) discretionary expenses but lower levels during the pandemic indicate that income-increasing earnings management, as argued by Li and Zaiats (2017), by deferring, e.g., R&D investments, fewer costs will be reported, leading to increased reported earnings (Roychowdhury, 2006). Similarly, abnormal (negative) lower production costs during the pandemic indicate that managers practice income-increasing REM, as Li and Zaiats (2017) argued, by reporting higher costs associated with their production.

With data for two years during the COVID-19 pandemic, the level of earnings manipulation also differs from the pandemic, and the trends are contrary from year to year. The level of REM in the second year was higher than before the pandemic and much higher than that in the first year (Table 7). This can be explained by the fact that, in the first year (2020), Vietnam successfully controlled the pandemic, and the impact of the pandemic on business activities is not much. However, most of the time, during the second year of the pandemic (in 2021), Vietnam implemented social distancing, economic activities were stalled, and the impact of COVID-19 had a significant impact on the economy. Therefore, businesses tend to implement REM in an upward direction. This result is consistent with the study of Supavinee (2018), i.e., the degree of EM is directly proportional to the severity of the natural disaster.

Combining the analysis results of Tables 3 and 5 shows managers' motives and REM strategies in the context of the pandemic. Both the beta coefficients of ROA and NETIC are positive (1.660 and 0.027, 1% significance level, column 6, Table 5), indicating that dynamic REM depends on management's expectation of achieving business objectives. Meanwhile, the beta coefficients of LV, SIZE, and AD are all negative and statistically significant except for the coefficient of LV (column 6, Table 5). This result shows that the REM strategy toward maximizing or minimizing income also depends on the business characteristics and the level of internal and external control. The beta coefficient of LV (column 5) is 0.19, and the 1% statistical significance level provides evidence that LV also significantly affects the motivation and strategy of REM of managers. This implies that Vietnamese listed companies depend mainly on external loans, which become the biggest motivation for managers to adjust profits from pressure to fulfill commitments to external parties. Capital financing is mainly credit institutions instead of shareholders.

Three points need to be discussed more closely. One is that the REM is higher during the pandemic, but the upward adjustment trend in income differs in magnitude. Second, the level of REM in the second year is much higher than in the first year, providing additional evidence that the severity of the disaster or crisis is positively correlated with the level of REM. Third, when comparing the trend of REM between two years, it was found that in the first year, with a lower level of impact of COVID-19, managers implemented income minimization ("big bath" approach). This finding reinforces the efficiency view, which is informed by signaling theory, suggesting that managers use EM to signal private information to capital market participants (Habid et al., 2022). However, when the pandemic was seriously affected in the second year, the management implemented the income maximization strategy to enhance firm performance. In return, managers will have cash flow from sponsors and shareholders to maintain business operations in the short term before calculating longer-term goals. This finding is consistent with the opportunistic view based on agency theory (Habid et al., 2022). Managers use REM to provide misleading information to

achieve financial reporting goals to gain benefits (Roychowdhury, 2006). In addition, the research results also show that, during the pandemic, managers use the operating cash flow adjustment technique compared to the other two proxies. Because the managers wanted to discharge the goods to recover or have money to pay debts. When production activities are restored, managers want to compensate for the reduced output due to social distancing, so production output often increased compared to before the pandemic.

CONCLUSION

The purpose of the paper is to examine trends and levels of REM in the context of the COVID-19 pandemic in Vietnam through the accounting data of 300 non-financial listed companies in Vietnam. Research results have shown that REM during the pandemic was higher than before, mainly towards an upward adjustment from pre-pandemic levels. The level of REM is mainly based on the behavior of managers rather than on market motives and pressure from increasing investor control since the investor protection environment needs to be more vital to prevent managers from implementing REM. The REM trend changed during the epidemic years, depending on the pandemic's severity and each business's financial health, while the strategies and techniques of using REM by managers of enterprises depend on specific contexts and economic factors. Accordingly, the study provides evidence that the quality of financial reporting is lower during the pandemic. Listed enterprises in Vietnam are mainly small- and medium-sized enterprises, using high financial leverage, leading to a higher vulnerability to shocks such as the pandemic. Therefore, in financial difficulties, managers often use income maximization strategies to increase the ability to borrow capital to maintain business operations. The REM technique mainly used by managers is operating cash flow adjustment.

Like most other studies, this study also has limitations that open up future research directions. First, the research data analyzed is only non-financial listed enterprises; additional research is needed for the remaining listed companies to generalize the theory. Second, the study only assessed the pandemic effect on REM, so there is a need for research to confirm the trade-off in applying two EM strategies, REM and AEM, in the context of a pandemic. Finally, the study only confirmed the severity of the pandemic over time. Further studies could explore the severity of the pandemic for businesses across different sectors.

AUTHOR CONTRIBUTIONS

Conceptualization: Dang Anh Tuan, Nguyen Ngoc Khanh Dung, Bui Thi Thu Thao.
Data curation: Dang Anh Tuan, Nguyen Ngoc Khanh Dung.
Formal analysis: Dang Anh Tuan, Bui Thi Thu Thao.
Investigation: Dang Anh Tuan, Nguyen Ngoc Khanh Dung, Bui Thi Thu Thao.
Methodology: Dang Anh Tuan, Nguyen Ngoc Khanh Dung.
Project administration: Dang Anh Tuan.
Resources: Dang Anh Tuan, Nguyen Ngoc Khanh Dung.
Software: Dang Anh Tuan, Nguyen Ngoc Khanh Dung, Bui Thi Thu Thao.
Supervision: Dang Anh Tuan.
Validation: Dang Anh Tuan, Nguyen Ngoc Khanh Dung, Bui Thi Thu Thao.
Visualization: Dang Anh Tuan.
Writing – original draft: Dang Anh Tuan, Nguyen Ngoc Khanh Dung.
Writing – review & editing: Dang Anh Tuan, Nguyen Ngoc Khanh Dung, Bui Thi Thu Thao.

http://dx.doi.org/10.21511/imfi.20(2).2023.25

REFERENCES

1. Ahmad-Zaluki, N. A., Campbell, K., & Goodacre, A. (2011). Earnings management in Malaysian IPOs: The East Asian crisis, ownership control, and post-IPO performance. *The International Journal of Accounting, 46*(2), 111-113. https://doi.org/10.1016/j.intacc.2011.04.001
2. Ali, H., Amin, H. M., Mostafa, D., & Mohamed, A. K. (2022). Earnings management and investor protection during the COVID-19 pandemic: evidence from G-12 countries. *Managerial Auditing Journal, 37*(7), 775-797. https://doi.org/10.1108/maj-07-2021-3232
3. Almustafa, H., Nguyen, Q. K., Liu, J., & Dang, V. C. (2023). The impact of COVID-19 on firm risk and performance in MENA countries: Does national governance quality matter? *PloS One, 18*(2), e0281148. https://doi.org/10.1371/journal.pone.0281148
4. Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24. https://doi.org/10.1111/j.1911-3846.1998.tb00547.x
5. Burgstahler, D. C., Hail, L., & Leuz, C. (2006). The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms. *The Accounting Review, 81*(5), 983-1016. Retrieved from http://www.jstor.org/stable/4093095
6. Byard D., Hossain M., & Mitra S. (2007). US oil companies earnings management in response to hurricanes Katrina and Rita. *Journal of Accounting and Public Policy, 26*(6), 733-748. https://doi.org/10.1016/j.jaccpubpol.2007.10.006
7. Cimini, G. (2015). How has the financial crisis affected earnings management? A European study. *Applied Economics, 47*(3). https://doi.org/10.1080/00036846.2014.969828
8. Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review, 83*(3), 757-787. Retrieved from http://www.jstor.org/stable/30244500
9. Cohen, D., Pandit, S., Wasley, C. E., & Zach, T. (2020). Measuring real activity management. *Contemporary Accounting Research, 37,* 1172-1198. https://doi.org/10.1111/1911-3846.12553
10. Cohen, D. A., & Zarowin, P. (2010). Accrual-Based and Real Earnings Management Activities around Seasoned Equity Offerings. *Journal of Accounting and Economics, 50,* 2-19. http://dx.doi.org/10.1016/j.jacceco.2010.01.002
11. Daniel, N. D., Denis, D. J., & Naveen, L. (2008). Do firms manage earnings to meet dividend thresholds. *Journal of Accounting and Economics, 45*(1), 2-26. https://doi.org/10.1016/j.jacceco.2007.11.002
12. Dang, V. C., & Nguyen, Q. K. (2021). Internal corporate governance and stock price crash risk: evidence from Vietnam. *Journal of Sustainable Finance & Investment,* 1-18. https://doi.org/10.1080/20430795.2021.2006128
13. Ebrahimi, S. K., Bahraminasab, A., & Mamashli, R. (2017). The effect of financial crisis on earnings quality. *Journal of Accounting and Auditing Review, 23*(4), 415-434. Retrieved from https://acctgrev.ut.ac.ir/article_60853.html
14. El Diri, M. (2017). *Introduction to earnings management*. New York, NY: Springer Books.
15. Filip, A., & Raffournier, B. (2014). Financial Crisis and Earnings Management: The European. *The International Journal of Accounting, 49*(4),455-478. https://doi.org/10.1016/j.intacc.2014.10.004
16. Garfatta, R., Hamza, M., & Zorgati, I. (2023). COVID-19 outbreak and earnings management practice: case of Tunisia. *Asian Journal of Accounting Research*. https://doi.org/10.1108/AJAR-04-2022-0129
17. Gordon, Milton M. (1964). *Assimilation in American Life*. New York: Oxford University Press.
18. Gordon, Milton M. (1978). *Human Nature, Class, and Ethnicity.* New York: Oxford University Press.
19. Gunny, K. A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research, 27*(3), 855-888. https://doi.org/10.1111/j.1911-3846.2010.01029.x
20. Ha, H. T. V., & Hung, D. N. (2018). Factors affecting earnings management: case study of listed firms in Vietnam. *Journal of Science and Technology – Hanoi University of Industry, 46*(6), 60-67. Retrieved from https://www.haui.edu.vn/media/27/ufpdf27951.pdf
21. Habib, A., Ranasinghe, D., Wu, J. Y., Biswas, P. K., & Ahmad, F. (2022). Real earnings management: A review of the international literature. *Accounting & Finance*. https://doi.org/10.1111/acfi.12968
22. Hassan, T. A., Hollander, S., van Lent, L., & Tahoun, A. (2021*). Firm-level exposure to epidemic diseases: Covid-19, SARS, and H1N1* (NBER Working Paper No. 26609). Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.2139/ssrn.3566530
23. Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons, 13*(4), 365-383. https://dx.doi.org/10.2139/ssrn.156445
24. Jelinek, K. (2007). The effect of leverage increases on earnings management. *Journal of Business and Economic Studies, 13*(2), 24-46.
25. Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29*(2), 193-228. https://doi.org/10.2307/2491047
26. Jordan, C. E., Clark, S. J., & Waldron, M. A. (2021). Testing for Earnings Management in the U.S.

Amid the COVID-19 Pandemic. *Journal of Applied Business and Economics, 23*(5). https://doi.org/10.33423/jabe.v23i5.4559

27. Kazemi, S. (2022). *Impact of COVID-19 Pandemic on Earnings Management: The European Union Empirical Evidence*. (Master's Thesis). Hanken School of Economics, Department of Accounting and Commercial Law, Accounting. Retrieved from https://helda.helsinki.fi/dhanken/handle/10227/509524

28. Kirschenheiter, M., & Melumad, N. (2002). Can Big Bath and earnings smoothing co-exist as equilibrium Financial reporting strategies? *Journal of Accounting Research, 40*(3), 761-796. https://doi.org/10.1111/1475-679X.00070

29. Klomp, J. (2022). *Covid-19, Investor Protection and Earnings Management: A Cross-country Analysis* (Master's Thesis). https://theses.ubn.ru.nl/server/api/core/bitstreams/03fa0243-bf3d-4d2f-84ec-c9a08d62c69f/content.

30. Kumar, M., & Vij, M. (2017). Earnings management and financial crisis: Evidence from India. *Journal of International Business and Economy, 18*(2), 84-101. https://doi.org/10.51240/jibe

31. Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 Pandemic on Earnings Management: An Evidence from Financial Reporting in European Firms. *Global Business Review*. https://doi.org/10.1177/09721509211053491

32. Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics, 69,* 505-527. https://doi.org/10.1016/S0304-405X(03)00121-1

33. Li, T., & Zaiats, N. (2017). Information environment and earnings management of dual class firms around the world. *Journal of Banking and Finance, 74,* 1-23. https://doi.org/10.1016/j.jbankfin.2016.09.009

34. Liu, G., & Sun, J. (2022). The impact of COVID-19 pandemic on earnings management and the value relevance of earnings: US evidence. *Managerial Auditing Journal, 37*(7), 850-868. https://doi.org/10.1108/MAJ-05-2021-3149

35. Ljubisavljevic, A., & Jakobsson, C. (2022). *Earnings management during the COVID-19 Pandemic: evidence from Sweden* (Master's Thesis). https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1673003&dswid=8828.

36. Nelson, M. W., Elliott, J. A., & Tarpley, R. L. (2002). Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review, 77,* 175-202. Retrieved from http://www.jstor.org/stable/3203332

37. Pjaaka, C., & Brannan, H. B. (2022). *Earnings management in European real estate firms* (Master's Thesis). NTNU.

38. Rankin, M., Stanton, P., McGowan, S., Ferlauto, K., & Tilling, M. (2012). *Contemporary Issues in Accounting.* Milton, Qld.: Wiley & Sons.

39. Richardson, S., Tuna, I., & Wu, M. (2002). Predicting earnings management: The case of earnings restatements. *Social Science Research Network Working Paper Series.* https://doi.org/10.2139/ssrn.338681

40. Roychowdhury, S. (2006). Management of Earnings through the Manipulation of Real Activities that Affect Cash Flow from Operations. *Journal of Accounting and Economics, 42*(3), 335-370. https://doi.org/10.1016/j.jacceco.2006.01.002

41. Ryu, H., & Chae, S. J. (2022). The Impact of Covid-19 on Earnings Management in the Distribution and Service Industries. *Journal of Distribution Science, 20*(4), 95-100. https://doi.org/10.15722/jds.20.04.202204.95

42. Schipper, K. (1989). Commentary on Earnings Management. *Accounting Horizons, 3*(4), 91-102.

43. Smales, L (2021). Investor attention and global market returns during the COVID-19 crisis. *International Review of Financial Analysis, 73.* https://doi.org/10.1016/j.irfa.2020.101616

44. Stolowy, H., & Breton, G. (2004). Accounts Manipulation: A Literature Review and Proposed Conceptual Framework. *Review of Accounting and Finance, 3*(1), 5-92. https://doi.org/10.1108/eb043395

45. Stubben, S. R. (2010). Discretionary revenues as a measure of earnings management. *The Accounting Review, 85*(2), 695-717. https://doi.org/10.2308/accr.2010.85.2.695

46. Supavinee, J. (2018). *Essays on Earnings Management in Response to Natural Disasters* (Master's Thesis). The University of Exeter.

47. Tuan, D. A. (2022). Impact of corporate governance on earnings management – Experimental evidence on listed commercial banks in Vietnam. *Banks and Bank Systems, 17*(4), 189-197. https://doi.org/10.21511/bbs.17(4).2022.16

48. Trombetta, M., & Imperatore, C. (2014). The dynamic of financial crises and its non-monotonic effects on earnings quality. *Journal of Accounting and Public Policy, 33,* 205-232. https://doi.org/10.1016/j.jaccpubpol.2014.02.002

49. Van der Tas, L. (2020). *Five financial reporting issues to consider as a consequence of Covid-19.* Ernst & Young. Retrieved from https://www.ey.com/en_gl/assurance/five financial-reporting-issues-to-consider-as-a-consequence-of-covid-19

50. Xiao, H., & Xi, J. (2021). The COVID-19 and earnings management: China's evidence. *Journal of Accounting and Taxation, 13*(2), 59-77. Retrieved from https://academicjournals.org/journal/JAT/article-full-text-pdf/8686CB666438

51. Yan, H., Liu, Z., Wang, H., Zhang, X., & Zheng, X. (2022). How does COVID-19 affect earnings management: Empirical evidence from China. *Research in International Business and Finance, 63,* 101772. https://doi.org/10.1016/j.ribaf.2022.101772

http://dx.doi.org/10.21511/imfi.20(2).2023.25