

Audit Quality, Foreign Ownership, and Stock Price Synchronicity: Evidence from Vietnam's Emerging Market

Chi Thi Bich Pham ¹, Linh Ha Nguyen ² and Thu Thi Minh Vu ²

¹ Department of Finance, National Economics University

² School of Accounting and Auditing, National Economics University
vuminhthu.neu@gmail.com or thuvtm@neu.edu.vn (Corresponding author)

Abstract. This study investigates the impact of audit quality and foreign ownership on stock price synchronicity in Vietnam's emerging market. Using a panel dataset of 356 non-financial firms listed on the Ho Chi Minh City Stock Exchange from 2019 to 2023, we employ a system GMM model to address potential endogeneity issues. Our findings reveal that both higher audit quality and increased foreign ownership are associated with greater stock price synchronicity. Additionally, we find that audit quality moderates the relationship between discretionary accruals and stock price co-movement, while foreign ownership does not exhibit a significant moderating effect. These results contribute to the ongoing debate about the implications of stock price synchronicity in emerging markets and provide insights for policymakers and investors. Our study highlights the complex interplay between external monitoring mechanisms, ownership structures, and information environments in shaping stock price behavior in developing economies

Keywords. Foreign ownership, External audit, Informational environment, Stock return synchronicity, stock price co-movement.

1. Introduction

The concept of stock price co-movement holds significant importance in financial discussions as it reflects how stock prices move in correlation with broader market trends. This metric is often intertwined with debates surrounding market information quality, indicating diverse market efficiencies across different contexts. Stock synchronicity provides valuable insights into the quality and nature of market information, varying significantly between developed and developing markets. Traditional perspectives suggest that higher stock price informativeness means lower synchronicity which points towards richer firm-specific information embedded in stock prices, primarily in developed or efficient markets (Fernandes & Ferreira, 2009; Morck et al., 2000). However, recent studies challenge this notion, proposing that in developing or less developed economies, reduced return synchronicity might signal less informativeness, a lack of firm-specific information, and a lower quality of the information environment (Brockman et al., 2024; Chan and Hameed, 2006; Dasgupta et al., 2010, Lei et al., 2024).

External audits and foreign ownership are well-documented in the literature as effective mechanisms for ensuring the quality of information in financial reports (Chan et al., 2005; Fang et al., 2015). External audits play a crucial role in examining a company's financial reporting, ensuring compliance with legal requirements and regulations, and thus enhancing investor confidence in making investment decisions (Kim et al., 2019). On the other hand, foreign ownership refers to investors and shareholders from outside the home country. The presence of foreign owners can positively impact corporate reporting by demanding higher transparency and better governance practices, which in turn improves the quality of financial reporting. Foreign ownership introduces diverse perspectives and practices that enhance overall corporate governance and reporting quality (Gu et al., 2023; La Porta et al., 1998). Furthermore, companies with significant foreign ownership are often encouraged to adopt international accounting standards, further improving the quality of their financial reports.

The role of external audits and foreign ownership in stock price co-movement, known as stock synchronicity, has been a topic of interest for many researchers. Different views exist regarding the implications of stock price synchronicity in different markets, leading to varied results on the relationship between external audits, foreign ownership, and stock price co-movement. He and Sheng (2014) conclude that increased foreign ownership is associated with greater price efficiency in Japan. Similarly, Dang et al. (2021) explore the link between foreign institutional ownership and stock price synchronicity across various national institutional and informational frameworks. Their study demonstrates a negative correlation between foreign institutional ownership and stock synchronicity, which is more pronounced in countries with poor governance quality or less transparent information environments. Conversely, research by Piotroski and Roulstone (2004) and Chan and Hameed (2006) suggest that in emerging markets, increased analyst coverage results in more information being disseminated to investors, leading to higher stock price synchronicity.

While these relationships have been explored in developed markets, there is limited understanding of how external audits and foreign ownership impact stock synchronicity in emerging markets like Vietnam. This study aims to address this gap by examining on the impact of external audits and foreign ownership on stock price synchronicity. The central research question guiding this investigation is: "How do foreign ownership and external audits affect stock price synchronicity?"

We conduct our study within the context of the Vietnamese emerging market. Despite substantial growth in recent decades, Vietnam remains a partially open market where transparency is limited, and speculation significantly influences stock pricing. In such a market, where stock prices may not fully reflect firm-specific information, the presence of foreign ownership and high-quality external audits could potentially exert a significant influence on stock return synchronicity. Thus, the Vietnamese emerging market provides an intriguing context to explore the relationships between these factors.

Our study contributes to the literature on the implications of stock price synchronicity in developing countries like Vietnam. To improve the accuracy of regression coefficients, the study applies the Random Effects Model, Fixed Effects Model, and system GMM model for a stronger statistical analysis of the panel data.

Our results, after controlling for endogeneity, show that both external audits and foreign investors have positive and significant effects on stock price synchronicity. In other words, stock prices move more together in the presence of more foreign investors and higher-quality audits. This finding challenges the traditional perspective that reduced synchronicity indicates a lack of firm-specific information and a lower-quality information environment, which is commonly accepted in developed or efficient markets. Our results suggest that in developing economies like Vietnam, the presence of foreign investors and high-quality audits increases synchronicity. However, when examining the moderating role of audits and foreign investors, we found that audits significantly impact the relationship between earnings management and stock price co-movement. In contrast, the moderating role of foreign investors is insignificant. This may suggest that certain types of foreign investors, as main shareholders, can become opportunistic and manipulate earnings for their own interests.

2. Literature Review

Stock price co-movement

Roll (1988) conceptualized the R-square within the classic Capital Asset Pricing Model (CAPM), attributing stock price fluctuations to varying degrees of factors: firm-specific variance, industry-level fluctuations, and market-level changes. Among these factors, the latter two categories constitute systematic variations. The degree of synchronous movement hinges on the portion of systematic information embedded in stock prices, captured by the coefficient of determination (R-square) in regression models. In essence, the greater the explanation of stock return variation by industry and market fluctuations, the higher the synchronization of stock prices within the market. Despite this foundational understanding, extensive research post-Roll's work reveals incongruent opinions among researchers concerning stock price synchronicity, often associated with the efficiency of the informational environment.

Subsequently, Morck et al. (2000) proposed that robust legal systems protecting investors in developed markets facilitate informed trading, resulting in greater incorporation of firm-specific information and, consequently, lower synchronicity. In their global study, they concluded that stock prices tend to demonstrate more cohesion in poorer economies compared to wealthier ones. This perspective has gained traction in subsequent studies, including Fernandes & Ferreira (2009), which utilized synchronicity as a gauge for firm-specific information. At the firm level, asynchronous stock return movements with market returns are often attributed to inefficient governance mechanisms. In particular, emerging markets, characterized by high ownership concentration among families or governments, often limit access to firm-specific information for outside investors, encouraging the extraction of private control benefits to the detriment of outsiders. As a result, outsiders find it costlier to acquire firm fundamentals, discouraging informed trading and fostering higher synchronicity, or lower capitalization of firm-specific information in stock prices. Gul et al. (2010) further supported this notion by establishing a link between ownership concentration, foreign ownership, and synchronicity, suggesting that foreign shareholders might effectively monitor insiders, thereby mitigating agency problems.

Conversely, a different perspective prevails in emerging markets regarding the correlation between stock price synchronicity and the informational landscape. For instance, Dasgupta et al. (2010) suggested that in efficiently informed markets, stock prices respond solely to new, unassimilated information. This initially causes increased synchronicity as the new information is absorbed, followed by a subsequent decline. Moreover, this positive relationship between synchronicity and foreign investors, particularly institutional ones, arises from their anticipation of lower information asymmetry

in the markets they invest in, favoring stocks with robust governance structures. Supporting this notion, Hu and Liu (2013) observed that stocks exhibiting higher synchronicity are typically preferred by institutional investors. Brockman et al. (2024) find that local synchronicity and stock liquidity are significantly and positively related and the weaker the institutional environment, the stronger the synchronicity-liquidity relationship.

Foreign investors and stock return co-movement

The connection between foreign ownership and stock return synchronicity can be understood through a series of related theoretical perspectives that help explain the impact of foreign capital on market dynamics, particularly in emerging markets. One of the most prominent frameworks is information asymmetry theory, first articulated by Akerlof (1970). This theory suggests that in markets with significant information imbalances, local investors often have an informational disadvantage compared to more knowledgeable, external investors. Foreign investors, particularly institutional investors, are generally less impacted by these informational gaps due to their access to global networks, advanced research capabilities, and superior analytical resources. By entering these markets, foreign investors inject capital that not only boosts liquidity but also demands better quality of information. This heightened demand for transparency and accurate information helps reduce the informational imbalances between local and foreign market participants, fostering a more efficient and transparent market. As a result, stock prices in these markets are more likely to reflect both firm-specific information, such as corporate performance, and broader market-wide information, including macroeconomic and geopolitical factors. This alignment of stock prices with a wider array of relevant information ultimately increases stock return synchronicity, whereby stock returns better correlate with overall market trends.

Furthermore, agency theory, as posited by Jensen and Meckling (1976), offers additional insight into the role of foreign investors in promoting stock return synchronicity. This theory highlights the potential conflicts between managers and shareholders, particularly in firms where ownership is highly concentrated. In emerging markets, where many firms are controlled by a small group of insiders, the agency problem can be more pronounced, as these insiders may prioritize their interests over those of minority shareholders. Foreign investors, particularly institutional ones, serve as an external monitoring force, mitigating the agency problem by holding management accountable and demanding higher governance standards. By pushing for greater corporate transparency, disclosure, and alignment of interests, foreign investors help address the governance issues inherent in concentrated ownership structures. This external monitoring reduces information asymmetry further and ensures that stock prices more accurately reflect both firm-level and market-wide information, again leading to increased return synchronicity.

Additionally, portfolio theory, as proposed by Markowitz (1952), provides another lens through which to understand the influence of foreign ownership on stock return synchronicity. Institutional investors, such as mutual funds and pension funds, typically seek to construct diversified portfolios that reduce risk by spreading investments across a broad range of assets. In emerging markets, foreign institutional investors are likely to favor stocks that align with broader, market-wide risk factors—such as economic conditions, interest rates, or global trade dynamics—because these stocks tend to offer better diversification benefits for a portfolio. As these stocks are more influenced by overarching market trends, their returns are more likely to exhibit higher synchronicity with general market movements. This preference for market-aligned stocks further strengthens the connection between foreign ownership and stock return synchronicity.

Empirical studies have consistently highlighted the positive impacts of audit quality on various facets, particularly its role in enhancing management accountability and curbing agency conflicts (Salehi et al., 2017). In addition to audit quality, foreign investors have been recognized for their crucial role in mitigating information asymmetry between insiders and outsiders, thereby enhancing information quality and reducing earnings management in financial statements (Almarayeh et al.,

2020; Cohen et al., 2008). Moreover, there is a general consensus in the literature regarding the positive impact of foreign investors on a firm's informational environment and corporate governance practices (Anh et al., 2020; Fu et al., 2022). For example, Kho et al. (2009) illustrated that foreign investors, particularly those from developed markets with efficient corporate governance mechanisms, create pressure on governments and companies in developing or emerging markets, fostering positive changes. In particular, institutions and professional funds among foreign investors typically demand high information quality and transparency, which, in turn, influence firm valuation, operating performance, and stock risk reduction (Ferreira & Matos, 2008). In the case of Vietnam, the government's removal of restrictions on foreign ownership ratios in 2015 attracted substantial international capital, acknowledging the emerging economy's potential (Anh et al., 2020). This influx has significantly contributed to enhancing liquidity and market efficiency in Vietnam.

Building on this review, we posit that international investors exert a positive influence on share price synchronicity within the Vietnamese emerging market. It is well-established that foreign investors prefer stocks of enterprises with robust operational mechanisms and transparent disclosures (Parrino et al., 2003). However, increased firm-level information embedded in stock prices poses greater risks for foreign investors, particularly institutions that seek diversified investment portfolios. As a result, institutional investors aim to mitigate these risks and expect exposure primarily to market-wide risks (Farooq & Ahmed, 2014). Indeed, as Hu and Liu (2013) affirmed, stocks exhibiting higher synchronicity tend to be more commonly held by institutional investors than those with lower levels of stock co-movement.

Hypothesis 1 (H1): Foreign ownership positively impacts stock return synchronicity.

External audit and stock price co-movement

The influence of external audits on stock return synchronicity is deeply rooted in several key theoretical perspectives, each of which provides a unique lens through which the role of audits in shaping market dynamics can be understood. One of the primary frameworks, agency theory (Jensen & Meckling, 1976), suggests that external audits serve as an essential governance mechanism, helping to mitigate the agency costs that arise between management and shareholders. Agency theory emphasizes the conflict of interest that can occur when management, who are tasked with running the company, have different incentives from the shareholders, who are the owners. By ensuring that the financial statements are accurate, transparent, and reliable, external audits reduce the information asymmetry that often exists between management and shareholders. This reduction in information asymmetry is particularly important in emerging economies, where financial markets can be less developed and more prone to opacity. As external audits enhance the reliability of financial reporting, they help investors to better understand the true financial condition of firms. This, in turn, allows stock prices to more accurately reflect firm-specific information, rather than being influenced by broader market movements. The result is a decrease in the synchronicity of stock returns, as stocks become less likely to move in tandem with overall market trends and more likely to reflect the performance and prospects of the individual firm.

In addition to agency theory, signaling theory (Spence, 1973) offers another crucial explanation for the role of external audits in influencing stock return synchronicity. According to signaling theory, firms communicate their quality and reliability to investors through various signals, and an external audit acts as a significant signal of strong corporate governance and transparency. When an independent auditor conducts a thorough examination of a firm's financial statements and verifies their accuracy, it sends a positive signal to the market regarding the firm's commitment to high standards of financial reporting. This signal can boost investor confidence, as they come to view the firm's financial information as credible and trustworthy. With greater confidence in the accuracy of the information, investors are more likely to base their decisions on firm-specific factors such as profitability, growth prospects, and management quality, rather than being swayed by macroeconomic

or market-wide factors. This shift in focus leads to a reduction in stock return synchronicity, as the stock price becomes more reflective of the unique circumstances and performance of the firm, rather than being overly influenced by broader market trends.

Furthermore, institutional theory (DiMaggio & Powell, 1983) provides an additional layer of insight into the role of external audits. This theory highlights the importance of institutionalizing best practices in organizations and markets. According to institutional theory, external audits play a significant role in institutionalizing best practices in financial reporting, thereby fostering an environment where transparency, accountability, and efficiency are prioritized. In markets where institutional frameworks are weaker, such as in emerging economies, the presence of external audits becomes especially crucial in promoting transparency and good governance practices. By adhering to internationally recognized standards of financial reporting and subjecting financial statements to independent scrutiny, external audits help ensure that firm-specific information is accurately captured and reflected in stock valuations. This contributes to a more efficient informational environment, where investors can make more informed decisions based on reliable data. In such markets, where information flows may be less robust and corporate governance standards may not be as strong, external audits become an essential tool for improving transparency and reducing the degree of synchronicity in stock returns. By ensuring that stock prices more closely reflect the unique characteristics of the individual firms, rather than being driven by broader market forces, external audits help to reduce the overall market-wide volatility that can result in excessive stock return synchronicity.

Audit quality depends on the auditors' ability to detect errors and their willingness to report them. In this regard, external audits typically assure the accuracy and reliability of a company's financial statements, thereby reducing information asymmetry between management and investors (Houque et al., 2017). As a result, this increased transparency can lead to a more accurate reflection of firm-specific information in stock prices, potentially reducing stock price synchronicity as individual stocks move more in response to firm-specific news rather than market-wide trends. Therefore, in developed markets with strong information environments, we might predict a lower level of stock price synchronicity due to the heightened dissemination of firm-specific information. On the other hand, in environments with weaker auditing standards, higher synchronicity might persist as investors rely more on market-wide signals rather than detailed company-specific information (Anh et al., 2020). Given this context, this research hypothesizes a positive relationship between external audit and stock co-movement within the Vietnamese market.

Hypothesis 2 (H2): *External audit positively impacts stock return synchronicity.*

3. Methodology and data collection

Research Model

The paper employs quantitative investigation, using deductive reasoning to explore the effects of audit quality and foreign investors on the stock price synchronicity within Vietnam's emerging market context. The approach involves testing two hypotheses through the main model depicted in Eq. (3). Additionally, integrating control variables, known from prior research to influence stock price synchronicity, is a wise strategy for a comprehensive analysis. This methodology allows for a structured exploration, lending depth and clarity to the research objectives. As mentioned above, both external audits and foreign investors have direct impacts on the quality of corporate reporting, the study includes variable discretionary accruals (DA) in the model which represents the quality of disclosure in firms. Also, the interaction terms between external audits and discretionary accruals and between foreign investors and discretionary accruals are added in the model.

$$SYNCH_{it} = \alpha_0 + \alpha_1 AUDIT_{it} + \alpha_2 FOR_{it} + \alpha_3 DA_{it} + \alpha_4 DA_{it} \times AUDIT_{it} + \alpha_5 DA_{it} \times FOR_{it} + \alpha_6 FIRMSIZE_{it} + \alpha_7 OWC_{it} + \alpha_8 DEBT_{it} + \alpha_9 INDUSTRY_{it} + \alpha_{10} YEAR_{it} + \mu_{it} \quad (3)$$

Where:

- *SYNCH* represents stock price synchronicity.
- *FOR* stands for foreign shareholders, measured by the extent of stockholding by foreign investors.
- *AUDIT* denotes audit quality, specifically whether the audit firm is part of the Big Four, expressed as a dummy variable where 1 signifies membership in the Big Four and 0 otherwise.
- *DA* is discretionary accruals calculated according to the Eq. (4), (5), and (6)
- *FIRMSIZE* signifies firm size, determined by the total assets of the company.
- *OWC* refers to ownership concentration, calculated as the total percentage of firm shares held by shareholders possessing 5% or more of the firm's stocks.
- *DEBT* represents the firm's financial leverage, determined by dividing long-term debt by equity.

This model allows for an analysis of how foreign ownership and audit quality, firm size, ownership concentration, and financial leverage contribute to stock price synchronicity within the Vietnamese emerging market. We selected these control variables based on prior literature (Almarayeh et al., 2020; Anh et al., 2020) demonstrating their influence on stock synchronicity in emerging markets. Also, the inclusion of ownership concentration (OWC), denoting the percentage of firm shares held by shareholders with at least 5% ownership, as a characteristic variable for the Vietnamese market. According to the literature review, I expect that the coefficient of foreign ownership has a positive value, indicating the positive relationship between this variable and stock price synchronicity. Similarly, audit quality is predicted to have a positive impact on return synchronicity.

The research dataset comprises firms listed on the Hochiminh City Stock Exchange (HOSE). Data utilized for this research stem from TaiViet Corporation, a prominent financial data provider in Vietnam. To be eligible for inclusion, companies needed to be non-financial entities, listed and continuously listed between 2019 and 2023. The period from 2019 to 2023 was chosen to capture a significant phase in global and domestic markets, including the onset and recovery from the COVID-19 pandemic. Focusing on non-financial entities continuously listed during this time ensures the sample reflects firms with sustained market presence, allowing for robust analysis of pre- and post-pandemic conditions. This timeframe also aligns with recent regulatory and economic developments in Vietnam, enhancing the study's relevance. The resulting sample encompasses 356 firms and 1,558 observations. Table 1 presents statistical descriptions of dependent, independent, and control variables employed in this study.

The system GMM model was chosen for this study because it is particularly well-suited for dynamic panel data, which characterizes the dataset consisting of 356 firms over the 2019–2023 period. In such datasets, there is often a need to account for time dependencies, such as the influence of past performance on current outcomes. The system GMM model is effective in addressing this by handling lagged dependent variables, which may be correlated with unobserved firm-specific effects, a common issue in panel data. Additionally, it helps to control for endogeneity, which can arise from omitted variables, measurement errors, or simultaneous relationships between variables. By employing internal instruments, the system GMM model provides a robust mechanism for mitigating endogeneity concerns, making it an appropriate choice for this research, where causality between variables needs careful handling. Moreover, the inclusion of firm-specific effects ensures that individual firm characteristics that do not vary over time are adequately accounted for, enhancing the accuracy and reliability of the results.

Stock return synchronicity measurement

Stock return synchronicity (SYNCH) is defined by the equation (1):

$$SYNCH = \text{Log} \frac{R^2}{1-R^2} \quad (1)$$

Where R^2 is taken from the following modified CAPM model by Morck et al. (2000) as follows:

$$RET_{i,t} = \beta_{i,0} + \beta_{i,1}RMAR_t + \varepsilon_{i,t} \quad (2)$$

Where:

$RET_{i,t}$ is the return of a firm (i) at year t

$RMAR_t$ is the return of the market at year t

Roll (1988) initially proposed a metric for measuring stock price synchronicity using a two-factor market model regression encompassing market return and industry return. He suggested that variations in a firm's return stem from three factors: systematic influences involving macroeconomic and industry impacts, as well as firm-specific events. Essentially, stock price variance is elucidated by market fluctuations, industry-specific movements, and firm-specific information. The former two factors lead stocks to move in alignment with market trends, while firm-specific information causes stocks to deviate from the overall market trend.

Morck et al. (2000) built upon Roll's (1988) model by eliminating the sector return's effect on the company's price co-movement level with the market return. They explain that including industry returns in the regression model posed challenges in emerging markets. In these economies, certain industries might wield more dominance than others, complicating the separation of these sectors' effects from the market influence. Furthermore, the estimated sector returns from these dominant companies might reflect the fundamentals of these companies rather than industry-wide information. Consequently, incorporating industry returns into the model could lead to inaccurate assessments of synchronicity in emerging markets.

Discretionary Accruals

Total accruals comprise two main components: non-discretionary accruals and discretionary accruals. Non-discretionary component emerges naturally over time or due to business cycle changes, adhering to standard accounting principles. In contrast, discretionary accruals reflect intentional managerial decisions to adjust cash flows. These discretionary accrual models are commonly associated with earnings management and serve as indicators of financial statement quality (Kliestik, 2021). For this research, the study assesses discretionary accruals using the model developed by Valaskova et al. (2021), which is based on the modified approach by Dechow et al. (1995).

1. Parameters α_0 , α_1 , α_2 and α_3 are estimated from Eq. (4):

$$\frac{TAS_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \alpha_2 \left(\frac{\Delta Sale_t - \Delta CC_t}{TA_{t-1}} \right) + \alpha_3 \frac{FA_t}{TA_{t-1}} + \varepsilon_t \quad (4)$$

2. Using the above-estimated values of α , α_1 , α_2 , and α_3 to estimate non-discretionary accruals:

$$NDA_t = \alpha + \alpha_1 \frac{1}{TA_{t-1}} + \alpha_2 \left(\frac{\Delta Sale_t - \Delta CC_t}{TA_{t-1}} \right) + \alpha_3 \frac{FA_t}{TAA_{t-1}} \quad (5)$$

3. Discretionary accruals is the absolute value of the difference between total accruals and non-discretionary accruals:

$$DA = \left| \frac{TAS_t}{TA_{t-1}} - NDA_t \right| \quad (6)$$

Where: t denotes time; DA is discretionary accruals; TAS is the total accruals, measured by the difference between net income and operating cash flow; ND represents the non-discretionary accruals; TA is the company's total asset value; $\Delta Sale$ denotes total sale changes; ΔCC is the total accounts receivables' changes; FA is fixed assets' total value.

4. Result and Discussion

Descriptive statistics

At present, foreign ownership within each company is subject to a maximum ownership ratio, known as the "foreign room" set at 30% for the banking sector and extends to 100% for specific industries. The majority of listed companies operate with a foreign room set at 49%. On average, foreign investors (FOR) currently possess approximately 18% of the firm's shares. Notably, the highest and lowest ownership values stand at 77% and 0%, respectively. These figures indicate an upward trend compared to previous periods due to the Vietnamese government's removal of the cap on foreign ownership in public firms since 2015, previously set at 49%. This policy shift aims to attract increased foreign capital into the market, fostering diverse ownership structures and incentivizing economic development efforts.

Table 1. Descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
SYNCH	-3.00	1.25	-1.39	0.66
R-Square	0	0.97	0.102	0.097
AUDIT	0	1.00	0.32	0.73
OWC	0	99.37	51.11	20.16
DA	0.009	2.204	0.926	1.150
FOR	0	76.53	18.04	16.06
FIRMSIZE	128	360,339	7,034	17,215
DEBT	0.01	120.06	11.07	5.12

The mean of AUDIT being 0.32 indicates that approximately 32% of the audits in your dataset are conducted by firms that are part of the Big Four. Conversely, about 68% of the audits are conducted by firms outside of the Big Four. This suggests a relatively lower representation of Big Four audits in your sample.

Table 2. Correlation matrix

	FOR	AUDIT	DA	OWC	FIRMSIZE	DEBT	VIF
FOR	1						1.67
AUDIT	.183*	1					2.33
DA	.229***	.017***	1				1.19
OWC	.420**	-.025*	-.319*	1			1.82
FIRMSIZE	.201**	.292	.251**	.163**	1		1.04
DEBT	-.107	-.036*	-.183*	-.082**	.070**	1	2.16

*, **, and ***: Correlation is significant at the 0.1 (1-tailed), 0.05 level (2-tailed) and 0.01 level (3-tailed).

The correlation matrix, depicted in Table 2, reveals that the Variance Inflation Factor (VIF) indices, as indicated within the regression results, are consistently below 5. This signifies the absence of a substantial multicollinearity issue among the variables. The VIF values being under 5 indicate a satisfactory level of independence among the predictors, indicating that multicollinearity, a condition where predictor variables are highly correlated, does not significantly impact the analysis. This suggests a reliable estimation process in the regression model, allowing for a more accurate assessment of the relationships between the variables under consideration.

Regression results

First, perform T-test and Hausman test to make model decision and fixed effects model is shown to be the more fit over both the random effects model and OLS. We continue to address the problem of heteroskedasticity under the fixed effects model by robustly clustering standard errors by the firm. The outcomes have been presented in Table 3. Under fixed effects regression, the coefficient of determination stands at 0.1707, signifying that approximately 17.07% of the variability in stock synchronicity can be attributed to the specified set of independent variables.

Table 3. Regression results for the fixed effects and robust fixed effects

	Main Model	
	FE	FE (Robust)
_Constant	1.5527***	1.5527***
AUDIT	0.0401** (0.0200)	-0.0367** (0.0151)
DA*AUDIT	-1.0266* (0.5958)	-1.0200* (0.6621)
FOR	0.1113*** (0.0318)	0.1113*** (0.0203)
DA*FOR	1.0190 (2.1384)	1.0190 (3.0854)
DA	-0.0479* (0.0250)	-0.0479* (0.0252)
LEV	-0.5839 (0.7072)	-0.5839 (0.8036)
FIRMSIZE	0.0614** (0.0285)	0.0614** (0.0293)
OWC	-0.0413* (0.0185)	-0.0413* (0.0246)
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes
R_square	0.1707	0.1707
Hausman Test		103.42***
F Test		89.30***
Heteroskedasticity		1.58***
Autocorrelation		3.36E+06

*, **, and ***: Statistical significance is significant at the 0.1 (1-tailed), 0.05 level (2-tailed), and 0.01 level (3-tailed).

System GMM Analysis

To deal with the issue of endogeneity, we utilize the system generalized method of moments (GMM) estimators, also referred to as the dynamic panel data model, as introduced by Arellano and Bond (1991).

In each model, we include the first lag of stock synchronicity (LagSYNCH_L1) to ensure that the models are not biased by unobservable factors affecting the dependent variables. An instrumental variable that impacts a firm's discretionary accruals without being directly associated with the residuals (An et al., 2016) is chosen. The Sargan and Hansen tests' results are presented in Table 5, which validate the instruments. Since the p-values for both Sargan and Hansen tests are above 0.1, the null hypothesis is accepted, indicating the overidentified research model and the valid instruments. Additionally, the results from the AR (2) test also produce a p-value greater than 0.1, suggesting the existence of endogeneity and confirming that the System GMM is the most suitable model for this analysis.

Table 5. AR and Sargan & Hansen tests

	Model
AR (1) Test	0.000
AR (2) Test	0.680
Sargan test	0.304
Hansen test	0.226

Table 6. GMM results

	Coeff.
LagSYNCH_L1	0.5602*** (0.1118)
AUDIT	0.4603*** (0.1251)
DA*AUDIT	6.3920** (3.1701)
FOR	0.1114** (0.5051)
DA*FOR	3.2591 (3.6142)
DA	-1.3832** (0.2691)
DEBT	0.4035 (1.2030)
FIRMSIZE	0.1249*** (0.0763)
OWC	-0.8542* (0.4703)
Instrument Number	75

*, **, and ***: Statistical significance is significant at the 0.1 (1-tailed), 0.05 level (2-tailed), and 0.01 level (3-tailed).

The GMM model results indicate a statistically significant positive correlation between foreign ownership (FOR) and stock price synchronicity ($\beta = 0.1114$, $p < 0.05$), suggesting that higher levels of foreign ownership are associated with increased stock price co-movement. This notable coefficient suggests that greater involvement of foreign investors is associated with increased stock return synchronicity.

Moreover, audit quality (AUDIT) demonstrates a strong positive impact on stock price synchronicity ($\beta = 0.4603$, $p < 0.01$). This outcome reinforces the second hypothesis of the research H2. Anh et al. (2020) also suggest that higher audit quality facilitates greater co-movement of stock prices with the overall market.

Conversely, discretionary accruals exhibit negative and significant coefficients regarding their impact on stock price synchronicity. The interaction terms between discretionary accruals and both audit quality and foreign ownership show positive coefficients; however, only the coefficient for the interaction term between discretionary accruals and audit quality is statistically significant. This finding emphasizes the moderating effect of audit quality on the relationship between discretionary accruals and stock return co-movement. However, the effect of discretionary accruals on stock price co-movement appears to be insignificant when moderated by foreign ownership.

Finally, the control variables reveal diverse connections with stock return co-movement (SYNCH). Firm size (FIRMSIZE) exhibits positive correlations with synchronicity ($\beta = 0.1249$, $p < 0.01$), while ownership concentration (OWC) demonstrates a negative impact ($\beta = -0.8542$, $p < 0.1$).

Discussion

Within the context of the Vietnamese emerging market, this finding of positive correlation between foreign ownership (FOR) and stock price synchronicity implies that a more robust information environment, characterized by the participation of foreign investors, enhances stock price co-movement. This results confirm our first hypothesis H1 and echoes outcomes from previous studies in emerging markets, where foreign ownership has been linked to improved market efficiency and integration with global capital flows (Almarayeh et al., 2020; Nguyen et al., 2019). Such findings highlight the critical role of foreign investors in disseminating information and potentially stabilizing stock prices through their trading activities.

Audit quality (AUDIT) demonstrates a strong positive impact on stock price synchronicity. This outcome reinforces the second hypothesis of the research H2. Anh et al. (2020) also suggest that higher audit quality facilitates greater co-movement of stock prices with the overall market. The robust relationship observed underscores the essential function of auditors in reducing information asymmetry among market participants, thereby enhancing the transparency of financial reporting. In environments where audit quality is high, investors are likely to have more confidence in the reliability of financial statements, which can lead to more informed trading decisions and tighter alignment of stock prices with market trends.

In brief, our findings that foreign ownership and audit positively impact stock synchronicity contrast with Li et al. (2020) results in China, possibly due to differences in market maturity and regulatory environments.

Discretionary accruals exhibit negative and significant coefficients regarding their impact on stock price synchronicity, indicating that firms with elevated levels of discretionary accruals tend to show less co-movement with the market. Several factors contribute to this phenomenon. Firstly, firms engaging in high levels of discretionary accruals are often involved in earnings management, where managers may distort earnings for various objectives, such as meeting performance benchmarks. This manipulation typically results in less transparent financial reporting, fostering uncertainty among investors about the firm's actual financial health. As a consequence, investors may focus more on firm-specific information rather than broader market trends, thereby diminishing market synchronization. Additionally, firms characterized by high discretionary accruals may experience inconsistent financial performance, which can amplify stock price volatility. When investors perceive earnings as unreliable, their cautious approach can further weaken the firm's correlation with overall market movements. Furthermore, such firms may lack strong institutional support and investor confidence, leading to their stock prices moving independently from market trends, thereby contributing to lower synchronicity.

While discretionary accruals negatively impact stock price synchronicity, this relationship becomes less pronounced in the presence of high-quality external audits. Such audits enhance the reliability of financial reporting and mitigate uncertainties associated with discretionary accruals. Thus, even if a firm engages in earnings management, the oversight provided by a reputable audit firm can help maintain stock price synchronicity, fostering greater alignment with market movements.

Interestingly, the effect of discretionary accruals on stock price co-movement appears to be insignificant when moderated by foreign ownership. Foreign investors typically seek reliable information for decision-making, which can prompt firms to adopt more conservative accounting practices. Consequently, firms with a higher proportion of foreign ownership often experience increased scrutiny and demand for transparency. However, the lack of a significant moderating effect of foreign ownership on the relationship between discretionary accruals and stock price co-movement suggests that firms may sometimes prioritize the interests of major foreign investors over broader stakeholder concerns. This scenario could arise because prominent foreign investors might exert considerable

influence over operational decisions and financial reporting practices, creating a complex interplay between foreign investment, accounting practices, and stock price dynamics. These nuances underscore the need for further research to fully elucidate these relationships.

Firm size (FIRMSIZE) exhibits positive correlations with synchronicity while ownership concentration (OWC) demonstrates a negative impact. These findings indicate the significance of highly concentrated ownership structures in the context of emerging markets, where a few shareholders may have disproportionate control over firm decisions and information dissemination. In contrast, firm leverage (DEBT) does not show a statistically significant influence on stock price synchronicity, suggesting that debt levels may not significantly affect how closely a firm's stock price moves with the market. The relationship between firm size and the transparency of the information environment remains a topic of scholarly debate. Nonetheless, prevailing literature posits that larger firms typically encapsulate and reflect broader market-wide information, thus exhibiting greater synchronicity with market trends, which is consistent with our findings.

The findings of this research carry significant practical implications for both investors and policymakers in the context of the Vietnamese emerging market. For investors, understanding the relationship between foreign ownership, audit quality, and stock price synchronicity can inform their investment strategies. Investors might prioritize firms with high foreign ownership and robust audit quality, as these characteristics are associated with greater stock price stability and alignment with market trends. This insight can enhance portfolio management decisions and risk assessments. Additionally, investors should be cautious of firms with high discretionary accruals, as these may signal potential earnings manipulation and lead to increased volatility in stock prices. For policymakers, the results underscore the importance of fostering a transparent and high-quality audit environment to enhance market integrity and investor confidence. Implementing regulations that promote foreign investment and improve audit standards can contribute to a more efficient capital market, benefiting the overall economy. Policymakers should also consider initiatives to educate firms about the advantages of adopting conservative accounting practices, particularly in the context of attracting foreign investment and maintaining robust financial reporting standards.

5. Conclusion

This study provides empirical evidence on the relationships between audit quality, foreign ownership, and stock price synchronicity in Vietnam's emerging market. Our findings suggest that both higher audit quality and increased foreign ownership are associated with greater stock price co-movement, challenging the traditional view that lower synchronicity always indicates a more informative price environment. The moderating role of audit quality on the relationship between discretionary accruals and stock price synchronicity further underscores the importance of external monitoring in shaping market information environments.

These results have important implications for understanding the dynamics of emerging markets and the role of external monitors in improving information quality. For policymakers, our findings suggest that efforts to attract foreign investment and improve audit quality may have unintended consequences on stock price behavior. Investors should be aware that firms with higher foreign ownership and better audit quality may exhibit stock prices that are more closely aligned with market-wide movements.

Limitations of this study include its focus on a single emerging market and the relatively short time period examined. Future research could extend this work by comparing multiple emerging markets, investigating longer-term effects, and exploring the impact of different types of foreign investors on stock price synchronicity. Additionally, examining the mechanisms through which audit quality and foreign ownership influence information environments in emerging markets could provide valuable insights for both theory and practice. Regarding the research method, the system GMM approach, while effective for dealing with endogeneity, can be susceptible to issues such as instrument proliferation, which may weaken the validity of the results. Additionally, the use of lagged variables

as instruments requires careful interpretation, as they may not fully capture the dynamic complexities of emerging market data. Future research could consider alternative methods, such as Bayesian estimation techniques, to validate the findings.

Conflicts of Interest

The authors declare no conflict of interest.

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