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THE EFFECT OF INVESTOR ATTENTION AND INFORMATION ASYMMETRY ON STOCK RETURN VOLATILITY: THE MEDIATING ROLE OF TRADING VOLUME

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Abstract

This study aims to examine the effects of investor attention and information asymmetry on stock return volatility, with trading volume as a mediating variable. The study was conducted on companies included in the IDX Small-Mid Cap (IDX SMC) Index listed on the Indonesia Stock Exchange during the period of November 2025-March 2026. The sample was selected using a purposive sampling method, resulting in 60 companies with 1,242 observations after outlier removal. Investor attention was measured using the Abnormal Search Volume Index (ASVI) derived from Google Trends; information asymmetry was measured using the relative bid-ask spread; trading volume was measured using trading volume activity; and stock return volatility was measured using the GARCH model. Data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with the assistance of SmartPLS. The results indicate that investor attention does not have a significant effect on stock return volatility, but has a positive effect on trading volume. Trading volume is proven to have a positive effect on stock return volatility and fully mediates the relationship between investor attention and stock return volatility. In addition, information asymmetry is proven to have a positive effect on stock return volatility. These findings indicate that stock return volatility among IDX SMC companies is influenced more by trading activity and information conditions in the market than by investor attention directly. The implication is that companies need to enhance information transparency, while investors should consider trading volume and the level of information asymmetry when making investment decisions.

Keywords: investor attention, information asymmetry, trading volume, stock return volatility

INTRODUCTION

The capital market is part of the financial market that serves as a vehicle for long-term corporate funding and an investment instrument for the public; its effective functioning reflects investor optimism about profitable investment opportunities (Shah et al., 2018). One of the most popular instruments in the capital market is stocks, which are characterized by price volatility, risk, and potential returns for investors (Qamar & Ahmed, 2022). The returns offered by stocks attract investors as compensation for the high level of risk reflected in stock return volatility (Qatrunnada, 2024).

Stock return volatility (VRT) is a crucial indicator that reflects both risk and potential returns for market participants, with sharp price fluctuations indicating greater uncertainty (Andrei & Hasler, 2015; Wang, 2024). The higher the volatility, the greater the uncertainty investors face in predicting future prices, making VRT an important parameter for investment decision-making

(Fordian *et al*., 2024). Understanding its patterns is crucial for investors to formulate risk mitigation strategies and identify the right timing of transactions (Sari *et al*., 2017).

VRT is highly important to study because excessively high volatility can disrupt capital market stability and directly affect investor decisions and welfare, particularly for retail investors, who generally have limited access to information (Ballinari et al., 2022a; Hu & Sun, 2025)(Ballinari et al., 2022b; Hu & Sun, 2025). In the face of such uncertainty, investors tend to delay trading until they obtain more reliable information (Sari *et al*., 2017) and require higher returns as compensation for the risk they bear (Chen, 2017). From a corporate perspective, high volatility can also increase the cost of capital (Brigham & Ehrhardt, 2019) and affect market perceptions of a company's performance and prospects, even when the company is fundamentally sound (Antika *et al*., 2025).

This phenomenon can be empirically observed in the movement of stocks included in the IDX Small-Mid Cap (IDX SMC) Index from late 2025 to early 2026, which recorded an anomalous massive uptrend before subsequently plunging sharply, in contrast to the relatively more stable movements of the IHSG and LQ45 indices. Volatility can be measured through the coefficient of variation, which shows the dispersion of stock returns relative to their mean (Brigham & Ehrhardt, 2019). Based on this calculation for the period of November 2025-February 2026, the IDX SMC Index recorded a value of 8.17%, far higher than the IHSG (3.5%) and LQ45 (2.05%), indicating a greater level of risk in that segment.

The high VRT in the IDX SMC Index highlights the need to identify the factors that determine it. Volatility is influenced not only by fundamental aspects of the company but also by non-fundamental factors related to market participant behavior (Qamar & Ahmed, 2022). One factor proposed in this study is investor attention (INA), namely the intensity of cognitive allocation that investors give to certain information prior to making investment decisions (Andrei & Hasler, 2015; Hu & Sun, 2025). Limited investor attention causes stock price movements to be influenced not only by fundamental value, but also by the extent to which a stock attracts public attention, which can manifest as volatility (Feng, 2026), because attention is a scarce resource that prevents investors from absorbing all information simultaneously (Padungsaksawasdi *et al*., 2019).

A high level of INA is expected to strongly correlate with VRT through cognitive biases, Fear of Missing Out (FOMO), and herding behavior. A number of studies found a positive and significant effect of INA on VRT (Audrino et al., 2020; Hu & Sun, 2025; Padungsaksawasdi et al., 2019; Yang et al., 2023), while others found a negative effect (Tanaya & Suyanto, 2021) or an insignificant one (Long et al., 2016). This inconsistency indicates that the effect of INA on VRT remains unsettled, requiring further investigation.

To explain this inconsistency, this study proposes trading volume (TRD) as a mediating variable. Empirically, TRD has been proven to have a positive effect on VRT (Lee & Rui, 2002; Samman & Al-Jafari, 2015; Shrestha, 2017; Thampanya et al., 2020), while INA consistently has a positive effect on TRD through the Google Search Volume Index (GSVI) proxy, as higher search intensity is associated with greater trading activity (H. Y. Chen & Lo, 2019; Joseph et al., 2011; Lai et al., 2022; Nguyen et al., 2020; Padungsaksawasdi et al., 2019). TRD acts as the transmission mechanism whereby spikes in INA trigger increased transaction frequency through noise trading and information-based trading (Barber & Odean, 2007; Padungsaksawasdi *et al*., 2019)., ultimately disrupting price equilibrium and significantly increasing VRT (Ayala *et al*., 2024). Without actual trade execution, investor attention remains unrealized intent without the power to alter the structure of market volatility (Lu *et al*., 2010; Zhao *et al*., 2025).

Beyond cognitive factors, stock price behavior is also influenced by an unequal distribution of information, or information asymmetry (IAS), which occurs when there is a gap in information access between institutional and public investors, creating an inefficient market condition (Franco & Urcan, 2022). Various studies show that IAS consistently has a positive effect on VRT (Elbadry & others, 2015; Widianingsih & Setiawan, 2022) when prices do not fully reflect fundamental values (Hu & Sun, 2025), informed investors can earn greater returns at the expense of others (Yassin *et*

al., 2015), a condition typically reflected in a widening bid-ask spread (Nurazi *et al*., 2016) that directly increases VRT by triggering unstable market reactions (Paital & Sharma, 2016; Widianingsih & Setiawan, 2022).

This study offers novelty by combining variables that have predominantly been studied separately, positioning TRD as a mediating variable between INA and VRT while integrating both the behavioral factor (INA) and the market structure factor (IAS) in a single integrative model. The research problems are: (1) does investor attention affect VRT; (2) does TRD affect VRT; (3) does investor attention affect TRD; (4) does TRD mediate the effect of investor attention on VRT; and (5) does IAS affect VRT. Theoretically, this study aims to contribute to behavioral finance literature, while practically, it is expected to help investors, investment managers, and companies better manage risk and improve information transparency in the Indonesian capital market.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Literature Review

First, the Efficient Market Hypothesis (EMH), proposed by Fama (1970), states that a market is efficient when stock prices fully reflect all available information, such that price fluctuations represent rational adjustments toward a new fundamental value. However, this assumption of perfect rationality has been questioned when markets exhibit excessive volatility that cannot be fully explained by fundamental changes (Andrei & Hasler, 2015), a phenomenon driven by the limited attention of retail investors that causes disproportionate market reactions (Hu & Sun, 2025) and the influence of investor sentiment that pushes prices away from their intrinsic values (Qatrunnada, 2024).

Second, Limited Attention Theory, rooted in the work of Kahneman (1973) and applied to capital markets by Hirshleifer (2003), posits that attention is a scarce resource, such that investors cannot simultaneously absorb and process all information available in the market. This limitation drives investors to be selective, focusing only on stocks that stand out or are currently in the spotlight (attention-grabbing stocks), while less salient information tends to be ignored (Hirshleifer *et al*., 2003; Yang *et al*., 2023). As a result, investment decision-making is more influenced by the most attention-catching information rather than all relevant information (Hirshleifer *et al*., 2003; Qamar & Ahmed, 2022), so that stocks receiving greater attention are more likely to be actively traded, potentially triggering volatility that deviates from fundamental values (Audrino et al., 2020; Hu & Sun, 2025).

Third, Asymmetric Information Theory, first developed by Akerlof (1970) and extended by Jensen and Meckling (1976) in an agency context, explains the existence of an information imbalance among parties involved in the market, both between management and investors and between informed and uninformed investors, which generates uncertainty and a tendency toward speculation. This condition can trigger adverse selection problems, in which information-limited investors risk making inaccurate assessments of a stock (Dierkens, 1991; Tessema & Abou-El-Sood, 2022). The higher the level of information asymmetry, the greater the potential for VRT to increase (Harakeh *et al*., 2020; Lin, 2016), particularly in smaller companies with limited capacity for information disclosure (Setiawati, 2022).

Fourth, the Mixture of Distribution Hypothesis (MDH), proposed by Clark (1973) and further developed by Epps and Epps (1976), states that trading volume and volatility emerge simultaneously as responses to the flow of information entering the market, such that they are closely related because both are driven by the same factor (Lu *et al*., 2010). When investor attention increases, information absorption intensifies, driving contemporaneous increases in trading volume, the tangible form of investor response to information (Paital & Sharma, 2016). However,

the assumption of perfect simultaneous information absorption is often violated due to investors' cognitive limitations (Hirshleifer *et al*., 2003).

Fifth, the Sequential Arrival Information Hypothesis (SAIH), developed by Copeland (1976), offers an alternative perspective, explaining that information is not received simultaneously by all investors but rather gradually. This causes stock prices to adjust repeatedly through a price discovery process that amplifies price fluctuations. In the context of this study, SAIH is relevant to explain the effect of information asymmetry on VRT, which arises from differences in the speed of information access among investors (Paital & Sharma, 2016).

Hypothesis Development

Based on Limited Attention Theory, investors have a limited ability to process all available market information (Kahneman, 2011), such that when INA increases, information is reflected more rapidly in stock prices. Andrei and Hasler (2015) developed this concept into an asset pricing model, showing that VRT is positively influenced by investor attention. A number of empirical studies support this relationship (Audrino et al., 2020; Hu & Sun, 2025; Padungsaksawasdi et al., 2019; Yang et al., 2023), leading to the following hypothesis:

H1: Investor attention positively affects stock return volatility.

According to MDH, when there is an increase in relevant new information, investors adjust their portfolios, thereby driving increased trading activity. Retail investors tend to behave as attention-driven buyers, transacting only in stocks that capture their attention (Barber & Odean, 2007). This is empirically supported by Da *et al*. (2011) , Padungsaksawasdi *et al*. (2019), and Dananjaya *et al*. (2025), leading to the following hypothesis:

H2: Investor attention positively affects trading volume.

The relationship between TRD and VRT is explained by MDH, which states that both are driven by the same factor (the flow of information) and is reinforced by SAIH, in which information received gradually triggers repeated transactions that accelerate price changes (Copeland, 1976; Karpoff, 1987). Empirically, increased trading volume has been shown to correlate significantly with increased volatility as a reflection of high information activity in the market (Karpoff, 1987; Lu et al., 2010; Paital & Sharma, 2016), leading to the following hypothesis:

H3: Trading volume positively affects stock return volatility.

The role of TRD as a mediating variable is essentially an integration of H2 and H3: increased investor attention drives increased trading activity, which in turn reinforces the market's price adjustment process and ultimately increases VRT. Without actual trade execution, investor attention remains unrealized intent without the power to alter the structure of market volatility (Lu et al., 2010; Zhao et al., 2025). Therefore, the following hypothesis is formulated:

H4: Trading volume mediates the effect of investor attention on stock return volatility.

Based on Asymmetric Information Theory (Jensen & Meckling, 1976), the imbalance in information access between informed and uninformed investors generates uncertainty and drives market participants to adjust bid and ask prices through the bid-ask spread as a form of protection against information risk. Empirically, high information asymmetry has been proven to increase stock price instability and amplify VRT (Nurazi et al., 2016; Paital & Sharma, 2016; Widianingsih & Setiawan, 2022). Therefore, the following hypothesis is formulated:

H5: Information asymmetry has a positive effect on stock return volatility

RESEARCH METHODS

This study employs an associative quantitative research design to analyze the relationships between the independent and dependent variables. The research focuses on the relationship between stock return volatility and investor attention and information asymmetry, and on the mediating role of trading volume. The research subjects are issuers listed on the IDX Small-Mid Cap

(IDX SMC) Index on the Indonesia Stock Exchange during the period from November 1, 2025, to March 31, 2026.

This study uses weekly secondary data, including stock closing prices, trading volume, and bid-ask spreads obtained from the Indonesia Stock Exchange, as well as Search Volume Index (SVI) data from Google Trends based on each issuer's stock ticker, using the Indonesia region parameter and the Finance category. The population of this study comprises all companies listed on the IDX SMC Index during that period. The sample was determined using a purposive sampling technique with the following criteria: (1) the stock was not delisted during the observation period; (2) weekly stock reports were fully available on the IDX website; and (3) weekly GSVI data were available on Google Trends. Based on these criteria, 60 companies were selected as the sample, yielding 1,260 initial observations over 21 weeks, which reduced to 1,242 after outlier removal.

The dependent variable, stock return volatility (VRT), was measured using the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model based on the conditional variance of stock returns, where stock returns were calculated as the natural logarithm of the ratio of the current to the previous period's stock price. The first independent variable, investor attention (INA), was measured using the Abnormal Search Volume Index (ASVI), a transformation of the Search Volume Index designed to capture unusual spikes in attention, following the methodology of Da *et al*. (2011). The second independent variable, information asymmetry (IAS), was measured using the relative bid-ask spread following the model of Amihud and Mendelson (1986) with price standardization as suggested by Stoll (1989). The mediating variable, trading volume (TRD), was measured using trading volume activity (TVA), defined as the ratio of shares traded to shares outstanding during the relevant period.

Data were analyzed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) method with the assistance of SmartPLS 4.0 and EViews software. SEM-PLS was selected for its ability to estimate complex research models that involve mediating variables and for not requiring the assumption of a multivariate normal data distribution. The analysis stages included descriptive statistics, evaluation of the structural model (inner model) using the coefficient of determination (R^2) and predictive relevance (Q^2predict) tests, and hypothesis testing using t-statistics and p-values at a 5% significance level (t-table: 1.96). The mediating role of trading volume was tested using the Sobel test, with the criterion that the indirect effect is considered significant if the t-statistic exceeds 1.96 or the p-value is less than 0.05.

The inner model equation system in this study is formulated as follows:

$$VRT_{i,t} = \alpha + \beta_1 INA_{i,t} + \beta_2 IAS_{i,t} + \beta_3 TRD_{i,t} + \varepsilon_{i,t} \quad \text{.....(1)}$$

$$TRD_{i,t} = \alpha + \beta_4 INA + \varepsilon_{i,t} \quad \text{.....(2)}$$

RESULTS AND DISCUSSION

Research Data Description

Based on purposive sampling, 60 IDX SMC companies were selected as the research sample from an initial population of 399 companies, after excluding 16 delisted companies and 323 companies with incomplete data. The descriptive statistics for 1,242 observations are presented in Table 1.

Table 1. Descriptive Analysis

Name	N	Minimum	Maksimum	*Mean*	*Standard Deviation*
VRT	1242	0,000	0,132	0,008	0,014
INA	1242	-3,750	3,651	-0,036	0,507
IAS	1242	0,000	0,039	0,006	0,003
TRD	1242	0,000	0,276	0,005	0,013

Source: Processed data (2026)

The descriptive statistics show that the average VRT across sample companies was 0.8%, with the highest value recorded by PT Bakrie & Brothers Tbk. (BNBR) and the lowest by PT Bank Tabungan Negara Tbk. (BBTN). The average INA of -0.036 indicates a level of information search slightly below normal, with a fairly large variation across companies (standard deviation of 0.507). The average IAS of 0.006 indicates a relatively low level of information asymmetry, while the average TRD of 0.5% of outstanding shares indicates a relatively moderate level of trading activity among sample companies.

Model Evaluation and Hypothesis Testing

All variables in this study (VRT, INA, IAS, and TRD) are single-indicator constructs measured via directly observable proxies, so outer model evaluation was not required; the analysis focused on inner model evaluation. The coefficient of determination (R^2) results indicate that INA, IAS, and TRD jointly explain 20.8% of the variation in VRT (R^2 = 0.208), whereas INA explains 7.1% of the variation in TRD (R^2 = 0.071). The Q^2predict values for VRT (0.035) and TRD (0.064), both greater than zero, indicate that the research model has good predictive relevance.

Table 2. Hypothesis Testing Results (Path Coefficient)

	Original sample	T statistics	P values	Result
INA -> VRT	0,042	1,160	0,246	Rejected
INA -> TRD	0,267	9,153	0,000	Accepted
TRD -> VRT	0,423	8,872	0,000	Accepted
INA -> TRD-> VRT	0,113	5,324	0,000	Accepted
IAS -> VRT	0,111	2,964	0,003	Accepted

Source: Processed data (2026)

The Sobel test results for the indirect effect of INA on VRT through TRD yielded a statistic of 6.366 with a p-value of 0.000, which is below the 5% significance level. This result shows that TRD significantly mediates the effect of INA on VRT. Because the direct effect of INA on VRT was not significant (H1 rejected), while its indirect effect through TRD was significant, it can be concluded that TRD fully mediates this relationship (full mediation).

Discussion

The H1 test results show that investor attention does not have a significant effect on stock return volatility (t-statistic 1.160 < 1.96; p-value 0.246 > 0.05). This finding indicates that an increase in investor attention, as reflected through ASVI, is not necessarily directly followed by an increase in stock return volatility. Investor attention serves as an initial selection mechanism in the investment decision-making process, but it is not always immediately followed by transactions, as investors may continue evaluating and processing information before making decisions. This finding is consistent with Tanaya and Suyanto (2021) and Long et al. (2016) also found an insignificant effect of INA on VRT, but differs from the findings of Hu and Sun (2025) and Yang et al. (2023), who found a positive and significant effect.

The H2 test results show that investor attention has a positive and significant effect on trading volume (t-statistic 9.153; p-value 0.000). This finding is consistent with the Mixture of Distribution Hypothesis and aligns with studies by Padungsaksawasdi *et al*. (2019), Dananjaya et al. (2025), and Da et al. (2011), which show that an increase in investors' information search is significantly correlated with increased stock trading activity. Argumentatively, increased investor

attention drives higher trading volume through mechanisms such as differences of opinion and herd behavior, in which investors tend to transact simultaneously on stocks currently in the spotlight.

The H3 test results show that trading volume has a positive and significant effect on stock return volatility (t-statistic 8.872; p-value 0.000). This finding is consistent with the MDH and the Sequential Arrival Information Hypothesis, as well as with the studies of Lu et al. (2010), Paital and Sharma (2016), and Karpoff (1987), which show that an increase in trading volume reflects high information activity in the market, which ultimately drives stock price fluctuations.

The H4 test results show that trading volume significantly mediates the effect of investor attention on stock return volatility (t-statistic 5.324; p-value 0.000), as shown by the Sobel test, indicating full mediation. This finding explains why the direct effect of INA on VRT was not significant: investor attention does not directly affect volatility; it must first manifest as increased actual trading activity before affecting price fluctuations. This finding provides an important contribution to explaining the inconsistency of previous research findings regarding the effect of INA on VRT, while also confirming the crucial role of TRD as a transmission mechanism.

The H5 test results show that information asymmetry has a positive and significant effect on stock return volatility (t-statistic 2.964; p-value 0.003). This finding is consistent with Asymmetric Information Theory and the studies of Nurazi et al. (2016), Paital and Sharma (2016), and Widianingsih and Setiawan (2022), which show that a high information gap in the market increases investor uncertainty and drives market participants to react more sensitively to any emerging signal, thereby widening the bid-ask spread and amplifying stock price fluctuations.

CONCLUSION (Calibri 11, Bold, spacing 1,5, spacing before 12 pt, after 0 pt)

Based on the SEM-PLS analysis of 60 IDX SMC companies during the period of November 2025-March 2026, it can be concluded that investor attention does not have a significant direct effect on stock return volatility, but has a positive effect on trading volume. Trading volume has been shown to positively affect stock return volatility and fully mediate the effect of investor attention on it. In addition, information asymmetry has been shown to have a positive effect on stock return volatility. Overall, the results of this study demonstrate that stock return volatility among IDX SMC companies is influenced more by trading activity and market information conditions than by investor attention directly.

Theoretically, this study contributes to the literature on stock return volatility by demonstrating that trading volume fully mediates the relationship between investor attention and volatility, while also confirming that information asymmetry is a determinant of volatility. In practice, investors are advised not to rely solely on a stock's popularity or high search volume when making investment decisions, but to consider developments in trading volume and the level of information asymmetry as additional indicators for assessing potential risk. For companies, this study suggests enhancing transparency and the quality of information disclosure to the public to reduce information gaps among investors, while capital market regulators are expected to continue strengthening oversight of issuer disclosure to create a more transparent and stable market.

This study has several limitations, including the use of a sample limited to companies in the IDX SMC Index, such that the results cannot yet be generalized to all companies listed on the Indonesia Stock Exchange; a relatively short observation period; and the measurement of investor attention and information asymmetry using only a single proxy each (GSVI and bid-ask spread, respectively). Future research is recommended to expand the research sample, extend the observation period to capture dynamics under various market conditions, and incorporate other variables that potentially influence stock return volatility, such as investor sentiment, macroeconomic factors, or company fundamental variables, in order to enhance the model's ability to explain the dynamics of stock return volatility.

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