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THE ROLE OF INFORMATION ASYMMETRY AND TRANSPARENCY IN SHAPING INVESTORS' ENGAGEMENT IN DERIVATIVES TRADING

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Abstract

The derivatives market in India has experienced significant growth since the introduction of exchange-traded derivatives by SEBI in 2000. However, information asymmetry and market transparency continue to influence investor participation, impacting market efficiency and risk management. This study explores the interplay between information asymmetry, transparency, and investor engagement in derivatives trading. The key research questions focus on how information asymmetry affects investor behaviour and the role of transparency in mitigating trading risks. A quantitative, descriptive, and analytical research design was employed, using structured surveys to collect data from 384 investors. The study applied regression analysis, ANOVA, and sentiment analysis to evaluate the impact of transparency on trading behaviour. The findings reveal that market transparency ($\beta = 0.38$, $p < 0.001$) and financial literacy ($\beta = 0.57$, $p < 0.001$) significantly enhance investor confidence, whereas information asymmetry ($\beta = -0.42$, $p < 0.001$) negatively impacts engagement. Descriptive analysis indicates that trading frequency increases by 67% in highly transparent markets compared to opaque markets. The results highlight the need for policy reforms to enhance real-time disclosures, financial literacy programs, and AI-driven transparency measures. Future research should focus on longitudinal analyses and cross-market comparisons to further assess the effectiveness of regulatory intervention

Keywords: Derivatives trading, Financial literacy, Information asymmetry, Investor confidence, Market transparency

Introduction

Derivatives trading plays a critical role in financial markets by providing investors with opportunities to hedge risks, speculate on price movements, and enhance portfolio diversification. In India, the derivatives market has witnessed substantial growth following the introduction of exchange-traded derivatives in 2000 by the Securities and Exchange Board of India (SEBI) (Sarkar, 2020). This expansion has contributed to greater market depth and liquidity, enabling both institutional and retail investors to engage in risk management strategies. However, the effectiveness of derivatives trading is largely influenced by the availability and quality of market information.

Information asymmetry, which arises when one party in a financial transaction possesses superior knowledge compared to the other, has been a persistent issue in financial markets (Akerlof, 1970). In the context of derivatives, disparities in information access and processing capabilities among investors can lead to suboptimal decision-making, increased market volatility, and potential financial losses. On the other hand, market transparency—ensuring that all market participants have equal access to relevant information—can mitigate these risks by fostering a fair and efficient trading environment (Bhattacharya & Daouk, 2002).

In India, regulatory measures such as mandatory disclosure requirements, electronic trading platforms, and stringent reporting guidelines have been introduced to enhance transparency and curb information asymmetry. Nevertheless, challenges persist, particularly concerning retail investors' ability to interpret complex derivatives contracts and institutional investors' access to superior analytical resources (Chakrabarti & Mohanty, 2021). Given these dynamics, understanding the interplay between information asymmetry and transparency in derivatives trading is crucial for promoting market stability and investor confidence.

Problem statement

Despite regulatory advancements, Indian financial markets continue to grapple with the challenges posed by information asymmetry in derivatives trading. Unequal access to market information can distort price discovery, create

inefficiencies, and deter retail investor participation (Sharma, 2019). Institutional investors, armed with advanced technological tools and proprietary trading models, often hold a significant advantage over retail traders, leading to a potential erosion of market fairness.

Market transparency initiatives, such as real-time price dissemination, improved corporate disclosures, and risk management regulations, aim to level the playing field (SEBI, 2022). However, the extent to which these measures influence investor behaviour and willingness to engage in derivatives trading remains an area of active research. This study seeks to examine how information asymmetry and transparency shape investor participation in India's derivatives market, with a particular focus on the behavioural tendencies of retail and institutional investors.

Objective of the study

The primary objective of this study is to analyze the impact of information asymmetry and transparency on investors' engagement in derivatives trading in India. Specifically, this research aims to explore how information asymmetry and transparency influence investors' willingness to engage in derivatives trading.

Research questions

The major research questions of this study are:

- How does information asymmetry affect investor behaviour in derivatives trading?
- What role does transparency play in reducing the risks associated with derivatives trading?

Significance of the study

This study contributes to the existing literature by offering insights into the relationship between information asymmetry, transparency, and investor engagement in derivatives trading within the Indian financial landscape. By identifying key challenges associated with information disparity, this research aims to inform regulatory policies and market practices that promote fairness and efficiency. Additionally, the findings can help institutional investors, policymakers, and market participants design strategies to improve financial literacy, risk management frameworks, and investor protection mechanisms.

Given the increasing complexity of financial derivatives, ensuring transparency is essential for fostering trust and participation among investors. Enhancing market integrity through policy interventions can lead to more stable and resilient financial markets, ultimately benefiting the broader economy (Mishra & Sehgal, 2018).

Literature Review

Concept of information asymmetry

Information asymmetry refers to a situation in which one party in a financial transaction possesses superior or more relevant information than the other, leading to an imbalance in decision-making (Akerlof, 1970). In financial markets, this asymmetry can exist between corporate insiders and retail investors, institutional traders and individual market participants, or even between different classes of investors due to disparities in access to data and analytical capabilities (Stiglitz, 2002). The presence of information asymmetry can distort market efficiency, lead to adverse selection, and increase moral hazard risks, ultimately affecting asset pricing and investor confidence (Bagehot, 1971).

In the Indian context, information asymmetry has been a significant concern, particularly in derivatives trading, where complex financial instruments require a high level of market knowledge and access to real-time information (Chakrabarti & Mohanty, 2021). While institutional investors leverage advanced predictive models and algorithmic trading tools, retail investors often struggle with inadequate information, leading to suboptimal investment decisions. This asymmetry is exacerbated by opaque corporate disclosures, insider trading risks, and the complexity of derivatives contracts (Sharma, 2019).

Transparency in financial markets

Information asymmetry refers to a situation in which one party in a financial transaction possesses superior or more relevant information than the other, leading to an imbalance in decision-making (Akerlof, 1970). In financial markets, this asymmetry can exist between corporate insiders and retail investors, institutional traders and individual market participants, or even between different classes of investors due to disparities in access to data and analytical capabilities (Stiglitz, 2002). The presence of information asymmetry can distort market efficiency, lead to adverse selection, and increase moral hazard risks, ultimately affecting asset pricing and investor confidence (Bagehot, 1971).

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Impact of information asymmetry on investor behaviour

Several empirical studies have examined the impact of information asymmetry on investor behaviour in financial markets. The classical 'Market for Lemons' theory suggests that asymmetric information leads to adverse selection, where uninformed investors withdraw from the market due to perceived risks, leading to liquidity constraints (Akerlof, 1970). Similarly, behavioural finance research indicates that investors with limited access to information tend to exhibit herd behaviour, mimicking institutional trades without fully understanding market fundamentals (Shiller, 2003).

In the Indian derivatives market, studies suggest that information asymmetry leads to higher price volatility and trading inefficiencies (Chakrabarti & Mohanty, 2021). Retail investors, lacking access to proprietary trading algorithms, often fall prey to speculative trading strategies driven by incomplete or delayed information (Sharma, 2019). Furthermore, corporate earnings announcements, insider transactions, and selective disclosures have been found to disproportionately benefit institutional investors, creating a persistent disadvantage for smaller market participants (Ghosh & Dutta, 2020).

Role of transparency in derivatives markets

Transparency has been widely acknowledged as a fundamental determinant of market efficiency and investor confidence. Higher transparency in derivatives trading reduces information asymmetry risks by ensuring that all market participants have equal access to relevant data (Pagano & Roell, 1996). Research indicates that transparent markets exhibit lower bid-ask spreads, reduced volatility, and improved capital allocation efficiency (Bushman et al., 2004).

In India, the adoption of regulatory measures such as compulsory margin reporting, position limits, and standardized contract specifications has enhanced market transparency (SEBI, 2022). However, despite these initiatives, transparency-related challenges remain, particularly in over-the-counter (OTC) derivatives markets, where transaction details are not always publicly disclosed (Mishra & Sehgal, 2018). Studies suggest that while transparency improves liquidity and investor participation, excessive transparency may also deter market-makers from providing liquidity due to concerns over proprietary trading strategies being exposed (Healy & Palepu, 2001).

Gaps in existing literature

Despite extensive research on information asymmetry and market transparency, gaps remain in understanding their specific impact on investor engagement in India's derivatives market. Existing studies primarily focus on equity markets, leaving derivatives trading underexplored, particularly regarding retail investor behaviour and risk perception. While regulatory reforms by SEBI aim to enhance transparency, their effectiveness in mitigating asymmetric information and fostering investor confidence lacks comprehensive empirical validation. Additionally, the role of behavioural biases in shaping investor responses to transparency measures is not well- documented. Addressing these gaps is essential to developing policies that promote market efficiency, fairness, and broader participation in derivatives trading.

Theoretical Framework

Agency theory

Agency theory, as developed by Jensen and Meckling (1976), posits that conflicts arise when one party (the principal) delegates decision-making authority to another party (the agent), who may have access to superior information. In the context of derivatives trading, information asymmetry between market participants—such as retail investors, institutional traders, and market makers—can lead to agency problems, including adverse selection and moral hazard (Ross, 1973).

In the Indian derivatives market, institutional traders often possess sophisticated analytical tools and proprietary trading strategies, giving them an informational advantage over retail investors (Chakrabarti & Mohanty, 2021). This disparity can result in opportunistic behaviour, where institutional players manipulate market conditions to their benefit, exacerbating systemic risks and reducing overall market fairness (Sharma, 2019). Regulatory interventions by the Securities and Exchange Board of

India (SEBI) aim to mitigate these agency problems through enhanced disclosure norms, real-time data dissemination, and strict monitoring of insider trading activities (SEBI, 2022). However, challenges remain in ensuring equitable access to information for all investors.

Signaling theory

Signaling theory, originally developed by Spence (1973), suggests that entities with superior information can convey their credibility and reliability through signals that reduce information asymmetry. In financial markets, transparency mechanisms such as earnings reports, corporate disclosures, and regulatory filings serve as signals to investors, influencing their perception of market conditions and investment decisions (Healy & Palepu, 2001).

Within the Indian derivatives landscape, firms and market participants that provide timely and accurate disclosures enhance investor confidence and market participation (Ghosh & Dutta, 2020). SEBI's mandatory risk disclosures and margin reporting requirements function as critical signals that help investors assess risk exposure before engaging in derivatives trading (Mishra & Sehgal, 2018). However, selective disclosures and opaque financial statements can distort market signals, leading to mispricing and speculative trading, which further highlights the importance of robust transparency frameworks.

Behavioural finance

Behavioural finance challenges the traditional assumption of rational investor behaviour, emphasizing the role of psychological biases in financial decision-making (Kahneman & Tversky, 1979). Information asymmetry significantly influences investor sentiment, often leading to herding behaviour, overconfidence, and market anomalies (Shiller, 2003). When transparency is lacking, retail investors may make suboptimal trading decisions based on noise trading, speculative trends, or incomplete information (Barberis & Thaler, 2003).

In India, the derivatives market has witnessed episodes of excessive speculation driven by asymmetric information, particularly in the case of high-volatility instruments such as options and futures (Sharma, 2019). Regulatory measures aimed at improving transparency—such as algorithmic trading disclosures, circuit breakers, and enhanced surveillance mechanisms—seek to curb irrational trading patterns and create a more stable market environment (SEBI, 2022). Nonetheless, understanding investor psychology remains crucial in designing policies that protect retail participants from the adverse effects of information asymmetry.

Market efficiency theory

Market efficiency theory, as proposed by Fama (1970), asserts that financial markets incorporate all available information into asset prices, making it impossible for investors to consistently achieve above-average returns. The Efficient Market Hypothesis (EMH) suggests that in a fully transparent market with perfect information symmetry, asset prices should reflect all known data, minimizing arbitrage opportunities (Malkiel, 1992).

However, in the Indian derivatives market, inefficiencies persist due to delays in information dissemination, corporate governance lapses, and the presence of informed trading by institutional investors (Chakrabarti & Mohanty, 2021). While regulatory initiatives, such as mandatory real-time price feeds, enhanced disclosure requirements, and algorithmic trading controls, have improved transparency, the market still exhibits semi-strong efficiency, where some privileged investors benefit from non-public information (Ghosh & Dutta, 2020). Addressing these inefficiencies through technological advancements, regulatory reforms, and investor education remains critical to fostering a more transparent and equitable derivatives market in India.

Research Methodology

Research design

This study employs a quantitative, descriptive, and analytical research design to examine the influence of information asymmetry and transparency on investor engagement in the Indian derivatives market. A structured questionnaire is used to collect numerical data, enabling statistical analysis of investor perceptions, decision-making behaviour, and the impact of market transparency. The study adopts a cross-sectional approach, capturing data at a specific point in time to generalize findings across a broader investor population. This methodology ensures an objective assessment of investor behaviour and market dynamics.

Data collection methods

The study primarily relies on primary data collected through structured surveys distributed to individual investors, financial analysts, and market experts actively engaged in derivatives trading. The questionnaire is designed to assess investor perceptions of transparency, risk tolerance, and

decision-making under asymmetric information conditions. Secondary data from financial reports, SEBI publications, and stock exchange records provide contextual insights into regulatory measures and market efficiency (SEBI, 2022). A pilot study (n=30) is conducted to refine the questionnaire and ensure reliability and validity (Saunders, Lewis, & Thornhill, 2019).

Sampling strategy

A stratified random sampling technique is employed to ensure representation across key demographic segments, such as age, income, education, and investment experience. The target population comprises individual investors with a minimum of six months of experience in derivatives trading, financial analysts, and market experts. The sample size is determined using Cochran's formula, resulting in 384 participants, ensuring statistical adequacy for hypothesis testing (Cochran, 1977). This approach enables a diverse and comprehensive analysis of investor engagement in derivatives trading.

Analytical tools and techniques

To analyse the collected data, the study employs a combination of descriptive and inferential statistical techniques.

- Descriptive statistics (means, medians, frequencies, and standard deviations) summarize investor risk tolerance, market perceptions, and demographic trends.
- Inferential statistics, including correlation and regression analysis, assess the relationship between information asymmetry, transparency, and investor engagement.
- Binary Logit and double log models are used to evaluate the impact of transparency reforms on investment behaviour and risk perception (Gujarati & Porter, 2009).

This analytical framework facilitates a robust understanding of the determinants of investor confidence in derivatives markets.

Limitations

Despite its comprehensive approach, the study has certain limitations. First, the cross-sectional design captures investor behaviour at a single point in time, limiting insights into evolving market trends. Second, self-reported survey data may introduce bias due to subjective perceptions. Third, while the study covers key demographic groups, it may not fully account for external factors such as global economic conditions or policy changes affecting derivatives trading in India. These limitations highlight the need for future longitudinal studies and broader datasets for enhanced generalizability.

Analysis and Discussion

Demographic profile of the respondents

Understanding the demographic characteristics of investors is essential for analysing their behaviour, preferences, and participation in derivatives trading. The present study surveyed 384 respondents, focusing on key demographic variables such as age, gender, marital status, education level, employment status, income, investor type, experience in derivatives trading, and trading frequency. These demographic insights provide a foundation for assessing how different investor segments perceive information asymmetry and market transparency in shaping their trading decisions (Chaudhary, 2022).

Table 1: Demographic characteristics of investors

Variable/ Description	No. of Respondents'	Percent
(Age in years)		
18–25	89	23.2
26-35	68	17.7
36-45	83	21.6
46-55	72	18.8
56 and above	72	18.8
Gender		
Male	292	76.0
Female	92	24.0
Marital status		
Single	101	26.3
Married	96	25.0
Divorced	91	23.7
Widowed	96	25.0
Level of education		
High school	91	23.7
Undergraduate degree	92	24.0
Post graduate degree	109	28.4
Professional course	92	24.0
Employment status		
Employed (Full-time)	94	24.5
Employed (Part-time)	83	21.6
Self-employed	125	32.6

Retired	48	12.5
Student	34	8.9
Annual income of the family		
Below Rs. 5,00,000	114	29.7
Rs. 500001 - 1000000	92	24.0
Rs.100001 - Rs. 2000000	86	22.4
Above Rs.2000001	92	24.0
Type of investors		
Retail investor	200	52.1
Institutional investor	184	47.9
Experience in derivative trading		
Less than 1 year	95	24.7
1 - 3 years	113	29.4
4 - 6 years	97	25.3
More than 6 years	79	20.6
Trading frequency		
1-5 trades	99	25.8
6-10 trades	111	28.9
11-15 trades	88	22.9
More than 15 trades	86	22.4
Total	**384**	**100.0**

Age distribution and investment behaviour

The study reveals that investors across different age groups actively participate in derivatives trading, with a balanced representation across categories. The largest group (23.2%) falls within the 18–25 age bracket, followed closely by the 36–45 age group (21.6%), indicating that both younger and mid-career investors exhibit strong engagement in derivatives markets. Prior research suggests that younger investors are more risk-tolerant and willing to trade frequently, while older investors prioritize portfolio diversification and risk mitigation (Agarwal & Jain, 2021).

Gender and investment participation

Males constitute 76% of the respondents, while females make up 24%, reflecting a gender disparity in derivatives trading. This is consistent with previous studies indicating that male investors exhibit higher risk-taking behaviour, while female investors are generally more risk- averse and prefer traditional investment avenues (Sarkar, 2020).

Marital status and risk appetite

The respondents were evenly distributed across marital status categories, with 26.3% being single, 25% married, 23.7% divorced, and 25% widowed. Prior literature suggests that single and divorced investors may be more inclined toward high-risk investments due to fewer financial dependents, whereas married individuals often exhibit a conservative investment approach (Gupta & Sharma, 2019).

Education level and financial literacy

A significant proportion of respondents hold postgraduate degrees (28.4%), followed by undergraduate degrees (24.0%) and professional certifications (24.0%). Higher educational attainment is associated with greater financial literacy, which influences investment decisions and engagement in complex financial instruments like derivatives (Bhattacharya, 2022).

Employment status and income levels

The majority of investors are self-employed (32.6%), followed by full-time employees (24.5%) and part-time employees (21.6%). This indicates that self-employed individuals exhibit higher engagement in derivatives trading, potentially due to their greater risk-taking capacity and flexibility in managing financial portfolios (Kumar & Rajan, 2021). Additionally, 29.7% of respondents earn below ₹5,00,000 annually, while 24.0% report incomes exceeding ₹20,00,000, signifying a diverse range of economic backgrounds among investors.

Investor type and experience in derivatives trading

Retail investors account for 52.1% of the sample, while institutional investors constitute 47.9%, indicating significant institutional participation. Experience levels vary, with 29.4% of investors having 1–3 years of experience and 24.7% having less than a year, demonstrating that a substantial portion of participants are relatively new to derivatives trading. This aligns with trends in emerging markets where retail investor participation in derivatives has increased in recent years (NSE, 2023).

Trading frequency and market activity

Trading frequency analysis indicates that 28.9% of respondents execute 6–10 trades per month, while 25.8% engage in 1–5 trades. 22.9% conduct 11–15 trades, and 22.4% execute more than 15 trades monthly, suggesting that a segment of highly active traders exists within the derivatives market. This is consistent with prior findings that frequent traders are often well- informed, technologically adept, and have access to real-time market data (Sharma & Verma, 2022).

Impact of information asymmetry on derivatives trading

Information asymmetry in financial markets refers to situations where one party possesses more or better information than others, leading to imbalanced decision-making (Akerlof, 1970). In the context of derivatives trading, information asymmetry can significantly impact investor behaviour, market efficiency, and overall trading dynamics (Easley & O'Hara, 2004). This study examines the impact of information asymmetry on derivatives trading by analysing investor perceptions of market transparency, risk tolerance, and trading frequency. The following tables provide descriptive statistics and regression results to illustrate the relationship between these factors.

Table 2: Descriptive statistics of investor responses on information asymmetry on derivatives trading

Variable	Mean	Std. Dev.	Min	Max	% Respondents Agreeing
Perceived Information Asymmetry (1-5 Scale)	3.85	0.92	1	5	65%
Perceived Market Transparency (1-5 Scale)	2.74	1.05	1	5	58%
Trading Frequency (per month)	6.42	2.19	1	15	*
Risk Tolerance (1-10 Scale)	5.91	1.45	1	10	*
Preference for Transparent Market (Yes/No)	*	*	0	1	73%

The descriptive statistics highlight key investor perceptions related to information asymmetry in derivatives trading. The mean score for Perceived Information Asymmetry is 3.85 (SD = 0.92), indicating that a majority of respondents experience a moderate to high level of information imbalance, with 65% agreeing that asymmetry exists. Conversely, the Perceived Market Transparency score is lower (M = 2.74, SD = 1.05), with only 58% of respondents agreeing that market information is sufficiently transparent.

Investors' Trading Frequency averages 6.42 trades per month (SD = 2.19), reflecting moderate participation in the derivatives market. The Risk Tolerance score of 5.91 (SD = 1.45) suggests that investors exhibit a balanced approach to risk-taking in derivatives trading. Notably, 73% of respondents prefer a more transparent market, reinforcing concerns about the adverse effects of asymmetric information on investment decisions.

The logistic regression model evaluates the impact of information asymmetry on derivatives trading behaviour. The negative coefficient for Perceived Information Asymmetry ($\beta = -0.75$, $p < 0.001$) suggests that higher information asymmetry discourages active trading, reducing the odds of participation by approximately 52.8% ($\text{Exp}(\beta) = 0.472$). This finding aligns with previous research indicating that market inefficiencies caused by information asymmetry deter risk-averse investors (Kyle, 1985).

Table 3: Regression results of impact of information asymmetry on derivatives trading

Variable	Coefficient (β)	Standard Error	Odds Ratio (Exp(β))	z-Statistic	p-Value
Perceived Information Asymmetry (1-5 Scale)	-0.75	0.18	0.472	-4.17	0.000**
Financial Literacy Level (1-10 Scale)	0.62	0.14	1.857	4.43	0.000**
Access to Real-Time Market Data (Yes=1, No=0)	1.21	0.32	3.355	3.78	0.000**
High Bid-Ask Spread (Yes=1, No=0)	-0.59	0.21	0.554	-2.81	0.005**
Price Volatility Perception (1-5 Scale)	-0.42	0.16	0.659	-2.63	0.009**
Constant	-1.87	0.47	0.154	-3.98	0.000**
Sample Size (n) = 384					
Log-likelihood = -172.35					
Pseudo $R^2 = 0.41$					
Likelihood Ratio χ^2 (5) = 129.72 ($p < 0.001$)					
Overall Model Significance: $p < 0.001$					

In contrast, Financial Literacy Level ($\beta = 0.62$, $p < 0.001$, $\text{Exp}(\beta) = 1.857$) positively influences trading activity, implying that well-informed investors are

nearly twice as likely to engage in derivatives trading. Similarly, Access to Real-Time Market Data (β = 1.21, p < 0.001, Exp(β) = 3.355) significantly increases trading likelihood, underscoring the importance of transparent and timely information availability (Barber & Odean, 2001).

The negative impact of High Bid-Ask Spread (β = -0.59, p = 0.005, Exp(β) = 0.554) suggests that higher trading costs deter participation, consistent with liquidity-based theories of market efficiency (Amihud & Mendelson, 1986). Additionally, the perception of Price Volatility (β = -0.42, p = 0.009, Exp(β) = 0.659) negatively affects trading behaviour, implying that uncertainty discourages investors from taking positions in derivative markets.

The model demonstrates strong explanatory power with a Pseudo R^2 of 0.41, indicating that 41% of the variation in trading behaviour is explained by the included variables. The Likelihood Ratio χ^2 test (129.72, p < 0.001) confirms the overall model's statistical significance.

The findings highlight the critical role of financial literacy and access to real-time data in mitigating the adverse effects of information asymmetry on derivatives trading. High bid-ask spreads and perceived price volatility reduce investor participation, emphasizing the need for enhanced market transparency and regulatory interventions. The study aligns with prior research indicating that informed traders are better equipped to navigate information imbalances, thereby improving market efficiency (Stiglitz, 2000).

Role of transparency in shaping investor confidence

Transparency in financial markets plays a crucial role in shaping investor confidence by reducing information asymmetry and enhancing trust in market mechanisms (Akerlof, 1970; Stiglitz, 2000). Investors rely on market transparency to make informed decisions, manage risk, and optimize their trading strategies (Easley & O'Hara, 2004). This study examines the role of transparency in shaping investor confidence by analysing key factors such as perceived information asymmetry, market transparency, financial literacy, risk tolerance, age, and income level. The regression analysis presented in Table 4 provides insights into how these variables influence investor confidence.

Table 4: Regression results of role of transparency in shaping investor confidence

Independent variables	Coefficient (β)	Standard Error	t-Statistic	p-Value
Perceived Information Asymmetry	-0.42	0.11	-3.91	0.000**
Perceived Market Transparency	0.38	0.09	4.22	0.000**
Financial Literacy Level	0.57	0.13	4.38	0.000**
Risk Tolerance	0.29	0.07	4.14	0.000**
Age	-0.12	0.06	-2.00	0.046*
Income Level	0.24	0.08	3.00	0.003**
Constant	1.89	0.56	3.38	0.001**

The regression results highlight the significant impact of market transparency and investor characteristics on confidence levels.

- Perceived Information Asymmetry (β = -0.42, p < 0.001) has a negative and statistically significant impact on investor confidence. This finding indicates that as information asymmetry increases, investor confidence declines, supporting previous research that suggests market inefficiencies and hidden information discourage investment activity (Kyle, 1985).
- Perceived Market Transparency (β = 0.38, p < 0.001) positively influences investor confidence. A transparent market enhances trust, reduces uncertainty, and promotes greater participation in financial markets (Barber & Odean, 2001). This result is consistent with studies showing that well-structured disclosure mechanisms improve investor sentiment and decision-making.
- Financial Literacy Level (β = 0.57, p < 0.001) has the highest positive effect on investor confidence. A higher level of financial literacy enables investors to understand market dynamics, evaluate risks, and engage in informed decision-making (Lusardi & Mitchell, 2014). This suggests that investor education programs can significantly enhance market confidence.

- Risk Tolerance (β = 0.29, p < 0.001) also positively contributes to investor confidence. Investors with a higher risk tolerance are more likely to remain confident despite market
- fluctuations, reinforcing findings that suggest risk perception plays a key role in investment behaviour (Kumar & Goyal, 2015).
- Age (β = -0.12, p = 0.046) exhibits a slight negative relationship with investor confidence, suggesting that older investors may be more risk-averse and less confident in market transparency. This aligns with prior studies indicating that younger investors are more adaptable to market conditions and less influenced by perceived risks (Grable & Joo, 2004).
- Income Level (β = 0.24, p = 0.003) has a significant positive effect on investor confidence. Higher-income investors may have greater access to financial resources, better investment knowledge, and higher risk tolerance, all of which contribute to increased confidence in financial markets (Guiso, Sapienza, & Zingales, 2008).

The model suggests that market transparency, financial literacy, and income level are key determinants of investor confidence, while information asymmetry negatively affects confidence levels.

Investor behaviour in light of information disclosure

Investor behaviour is significantly influenced by the availability and transparency of information disclosure in financial markets. Market participants rely on disclosed data to assess risks, identify trading opportunities, and optimize their investment decisions (Easley & O'Hara, 2004; Barber & Odean, 2001). The impact of information disclosure levels on trading frequency and investor sentiment is crucial in understanding market efficiency and investor confidence. This study analyses the relationship between information disclosure and trading behaviour, using descriptive statistics, ANOVA results, and qualitative sentiment analysis.

			Disclosure
Low (Opaque Market)	8.5	2.3	-
Medium (Basic Market Reports)	11.4	2.8	34%
High (Real-Time Data, Risk Reports)	14.2	3.1	67%

Table 5 presents descriptive statistics on trading frequency across different levels of information disclosure. The results indicate a clear positive correlation between the level of disclosure and trading activity:

- Low disclosure (Opaque Market): Investors in markets with limited information trade less frequently, with a mean trading frequency of 8.5 trades per month (SD = 2.3).
- Medium disclosure (Basic Market Reports): The introduction of basic market reports leads to a 34% increase in trading frequency (11.4 trades per month, SD = 2.8).
- High disclosure (Real-Time Data & Risk Reports): Access to real-time data results in the highest trading frequency (14.2 trades per month, SD = 3.1), reflecting a 67% increase from the low-disclosure scenario.

These findings suggest that increased transparency reduces uncertainty and encourages market participation, aligning with previous research emphasizing the role of information flow in driving trading activity (Bloomfield & O'Hara, 1999).

The ANOVA results in Table 6 further validate the impact of information disclosure on trading volume. The F-statistic of 15.82 (p < 0.001) confirms that the differences in trading frequency across disclosure levels are statistically significant. The high sum of squares between groups (SS = 2150.72) compared to the within-group variability (SS = 25,843.18) indicates that disclosure level is a strong determinant of trading behaviour.

Table 5: Descriptive statistics of trading frequency based on information disclosure levels

Information Disclosure Level	**Mean Trading Frequency (Trades/Month)**	**Standard Deviation**	**% Increase from Low**

Table 6: ANOVA result of effect of information disclosure on trading volume

Source of	**Sum of Squares (SS)**	**Degrees of Freedom**	**Mean Square (MS)**	**F-Stati**	**p-Value**

Variation		(df)		stic	
Between Groups (High vs. Low Disclosure)	2150.72	2	1075.36	15.82	0.000**
Within Groups	25843.18	381	67.85		
Total	27993.9	383	-		

These results are consistent with studies on market transparency and investor behaviour (Kyle, 1985; Stiglitz, 2000).

Table 7: Qualitative insights of investor Sentiment Analysis

Investor Category	Sentiment Score (Scale: -1 to +1)	Key Observations
Retail Investors	0.67	Higher engagement with real-time data and predictive analytics
Institutional Investors	0.28	Lower sensitivity to information asymmetry, reliance on market models
High-Frequency Traders	0.79	Prefer automated trading platforms with transparent disclosures

Table 7 provides qualitative insights into investor sentiment based on disclosure levels:

- Retail Investors (Sentiment Score: 0.67): Retail investors demonstrate a strong positive sentiment toward transparent markets, showing increased engagement with real-time data and predictive analytics. This is consistent with previous studies indicating that retail investors benefit from enhanced information availability (Lusardi & Mitchell, 2014).
- Institutional Investors (Sentiment Score: 0.28): Institutional investors exhibit relatively lower sensitivity to information asymmetry, relying more on proprietary models and systematic strategies rather than direct market transparency. This finding aligns with prior research suggesting that institutional players use sophisticated methods to mitigate risks (Guiso, Sapienza, & Zingales, 2008).
- High-Frequency Traders (Sentiment Score: 0.79): High-frequency traders show the highest positive sentiment, favouring automated platforms with full disclosure. This supports findings that algorithmic trading thrives in highly transparent and efficient markets (Hendershott, Jones, & Menkveld, 2011).

The findings emphasize the significant role of information disclosure in influencing investor behaviour. Higher transparency levels result in increased trading activity, with statistical validation confirming a strong relationship between disclosure and market participation. Furthermore, investor sentiment analysis highlights varying preferences across different investor categories, reinforcing the importance of tailored transparency policies. Policymakers and financial institutions should prioritize real-time disclosures and risk reports to enhance market efficiency and investor engagement. These findings contribute to the broader literature on financial transparency and market efficiency (Stiglitz, 2000; Easley & O'Hara, 2004).

Findings and Implications

Key findings

The study highlights the significant role of transparency in shaping investor confidence and trading behaviour. Regression analysis (Table 4) reveals that perceived market transparency (β = 0.38, $p < 0.001$) and financial literacy (β = 0.57, $p < 0.001$) positively influence investor confidence, while information asymmetry (β = -0.42, $p < 0.001$) has a negative impact. Descriptive statistics (Table 5) show that higher levels of information disclosure lead to increased trading activity, with trading frequency rising by 67% in high-transparency markets compared to opaque markets. ANOVA results (Table 6) confirm a statistically significant effect of information disclosure on trading behaviour ($F = 15.82$, $p < 0.001$). Additionally, sentiment analysis (Table 7) indicates that retail investors (Sentiment Score = 0.67) and high-frequency traders (Sentiment Score = 0.79) show the highest positive response to real-time data, while institutional investors rely on systematic models and demonstrate lower sensitivity (Sentiment Score = 0.28).

Implications for market participants

For investors, increased transparency reduces

uncertainty, enhancing confidence and encouraging active trading. Retail investors benefit the most from real-time disclosures, supporting findings by Lusardi and Mitchell (2014). Institutional investors, while less dependent on direct disclosures, still benefit from reduced market inefficiencies (Guiso et al., 2008). High-frequency traders, who rely on automated systems, thrive in transparent environments, aligning with Hendershott et al. (2011).

For financial institutions, greater transparency fosters trust and market liquidity, encouraging broader participation. Enhanced disclosure mechanisms, including real-time risk reports, can improve investor engagement.

For regulators, findings underscore the need for stricter disclosure norms to mitigate the risks of information asymmetry, ensuring fair access to data and reducing market manipulation.

Implications for policy makers

To address the negative impact of information asymmetry, policymakers should mandate real- time disclosure of critical market data, such as risk assessments and institutional transactions. This aligns with Stiglitz (2000), who emphasizes that greater information flow leads to more efficient markets. Additionally, financial literacy programs should be integrated into regulatory policies, ensuring that investors can effectively interpret market data (Easley & O'Hara, 2004). Finally, developing technology-driven disclosure platforms, including AI-based risk prediction tools, can enhance market transparency and investor confidence.

Conclusion

Summary of key findings

This study establishes that greater transparency significantly enhances investor confidence and market participation while reducing the negative effects of information asymmetry. Regression results indicate that perceived market transparency ($\beta = 0.38$, $p < 0.001$) and financial literacy ($\beta = 0.57$, $p < 0.001$) are key determinants of investor confidence. Descriptive and inferential statistics confirm that increased information disclosure leads to a 67% rise in trading frequency and significantly impacts investor sentiment, particularly among retail and high-frequency traders.

Contributions to the field

The study contributes to the literature on financial market efficiency by quantifying the impact of transparency on investor behaviour. It provides empirical evidence supporting the role of real-time disclosures and financial literacy in improving market participation and investor engagement (Barber & Odean, 2001; Kyle, 1985). Additionally, it highlights differences in transparency needs across investor segments, offering new insights into regulatory frameworks for disclosure practices.

Suggestions for future research

Future studies should explore the impact of blockchain and AI-driven transparency solutions in reducing market inefficiencies. Additionally, a longitudinal analysis of investor behaviour under evolving disclosure policies could provide deeper insights into how regulatory changes shape market dynamics. Further research should also examine cross-market differences, comparing emerging and developed markets to assess the universality of these findings.

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