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Impact of Full Periodic Call Auction on Stock Volatility and Liquidity in Watchlist Board of Indonesia Stock Exchange

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ABSTRACT

The Indonesia Stock Exchange (IDX) has implemented a Full Periodic Call Auction (FCA) mechanism for stocks listed under the Watchlist Board on March 25, 2024, to enhance market quality and investor protection. This study investigates the impact of the FCA mechanism on stock volatility and liquidity in the Indonesian capital market, particularly for equities listed on the Watchlist Board of the IDX. A quantitative research approach is employed to examine the impact of the FCA mechanism on stock volatility and liquidity for equities included in the Watchlist Board of the IDX. Using a time-series regression framework and a robust event study design, this research analyzes 40 stocks over a 12-month period surrounding the implementation of the FCA on March 25, 2024. The results reveal that 80% of the sample experienced statistically significant changes in volatility, with 81.4% showing increased volatility, especially among low-priced stocks (< IDR 51). This finding supports the Thin Market Hypothesis and Market Microstructure Theory, suggesting that auction mechanisms can amplify price reactions in illiquid environments. Aggregate testing confirms that FCA significantly increased volatility and weakened liquidity across the sample. These findings indicate that while the FCA reactivated previously dormant stocks and facilitated price discovery in certain contexts, its effects are not uniformly beneficial. The outcomes vary depending on stock classification, with distress-level (Criteria 5) stocks showing volatility suppression and low-price, low-liquidity stocks (Criteria 1) facing heightened trading frictions. This study concludes that the success of trading mechanism reforms depends on market context and accompanying infrastructure. It recommends differentiated policy strategies, including transparency enhancements and liquidity provision incentives, to ensure that the FCA achieves its intended objectives in emerging markets like Indonesia.

KEYWORDS *Full Call Auction, Volatility, Liquidity, Market Microstructure, Watchlist Board, Indonesian Capital Market.*

INTRODUCTION

The implementation of new trading mechanisms in capital markets is frequently met with mixed reactions from investors and market participants. Evidence from the *Shanghai Stock Exchange* demonstrates that modifications to the closing auction system significantly altered investor order behavior and increased trading aggressiveness before market close, indicating a diverse market response to structural reforms (Ma et al., 2021). Prior studies also suggest that innovations such as limit order books and periodic auctions can enhance liquidity, price stability, and the flow of information. However,

these mechanisms may simultaneously introduce new challenges—including increased volatility, price distortions, and systemic interdependencies—depending on how they interact with investor behavior, asset characteristics, and the surrounding regulatory infrastructure (Zare, Salavati, & Mohammadpour, 2020).

In this context, the *Indonesia Stock Exchange* (*IDX*) introduced the *Full Periodic Call Auction* (*FCA*) mechanism for stocks listed on the *Watchlist Board*. This board comprises stocks that fulfill one or more of eleven risk-based criteria, such as negative equity, extremely low trading volume, or adverse audit opinions. These characteristics are commonly associated with poor disclosure, higher levels of insider trading, and greater firm opacity—factors that elevate information asymmetry and reduce investor confidence. Improving transparency and reducing information gaps are therefore seen as essential steps toward creating more efficient and credible markets (Chen, Xing, & Wu, 2022). The transition from a continuous auction model to *FCA* is thus aimed at mitigating these structural issues by consolidating liquidity and reducing the frequency of executions, with the broader goal of dampening volatility and discouraging market manipulation.

Nevertheless, the implementation of *FCA* has sparked considerable debate. While regulators argue that the policy is designed to improve market quality by reducing volatility and enhancing liquidity, many investors have voiced concerns about its impact on transparency and execution efficiency. Central to these concerns is the use of a blind order book, which conceals real-time bid-ask spreads and is argued to limit the ability of market participants to anticipate price movements and execute trades effectively. Investor dissatisfaction with this mechanism is evident in a petition signed by over 16,000 individuals demanding its revocation, citing diminished trading activity and perceived unfairness in price formation. The *FCA* model, which aggregates all buy and sell orders for execution at an equilibrium price during fixed intervals, is theoretically grounded in market microstructure theory, which posits that call auctions enhance price efficiency, particularly in illiquid markets (Madhavan, 2000; Comerton-Forde & Putnins, 2015). However, empirical evidence from the *Hong Kong Stock Exchange* shows that its standard call auction design remains vulnerable to closing price manipulation, especially during derivative expirations and periods of large end-of-day orders (Park, Suen, & Wan, 2021). To address transparency concerns, *IDX* has adopted a partial mitigation approach by disclosing *Indicative Equilibrium Price* (*IEP*) and *Indicative Equilibrium Volume* (*IEV*), which aim to emulate pre-trade transparency while maintaining the protective features of the blind auction system.

Despite these objections, call auction mechanisms have been widely adopted in global financial markets as an effective approach to stabilizing trading conditions, particularly for illiquid stocks. Unlike continuous auction trading, where orders are matched in real time whenever supply meets demand, *FCA* aggregates buy and sell orders over a fixed period before executing trades at a single equilibrium price. The academic debate remains inconclusive. On one hand, Ozenbas, D., & Schwartz, R. A. (2022) found that call auctions have unique benefits concerning liquidity provision, intraday volatility

control, and price discovery accuracy, while Orhun (2020) reports minimal effect on liquidity metrics. Meanwhile, Hadad (2025) emphasizes the importance of mechanism design in ensuring integration between equity sub-markets, suggesting the need to evaluate *FCA* through both micro and macro lenses. Recent literature also emphasizes the importance of considering behavioral responses of investors in illiquid markets when mechanisms like *FCA* are introduced (Hendershott, T., Wee, M., & Wen, Y., 2022). This mechanism is designed to reduce excessive price fluctuations, minimize market manipulation, and create a more structured price discovery process, particularly for stocks that meet the *Watchlist Board's* risk criteria. International exchanges such as the *Taiwan Stock Exchange* (*TWSE*), *National Stock Exchange of India* (*NSE*), and *Euronext* have implemented similar approaches with demonstrated success in mitigating price volatility and enhancing market quality.

Given the substantial shift in market structure introduced by *FCA*, this study examines its impact on volatility and liquidity in the Indonesian capital market. Volatility is a key indicator of market risk, reflecting the extent of price fluctuations over time, while liquidity measures the ease with which securities can be traded without significantly impacting prices (Harris, 2002). A well-functioning market should exhibit low volatility and high liquidity, ensuring that stock prices accurately reflect their underlying fundamental value (Harris, 2002). To evaluate these aspects, this study employs the Parkinson Volatility Model for measuring volatility and the Amihud Illiquidity Ratio for assessing liquidity, utilizing stock transaction data spanning September 24, 2023, to December 2024. This study contributes to this body of literature by offering empirical evidence from an emerging market, focusing on stocks with structural illiquidity and regulatory constraints. Specifically, this study aims to: (1) analyze changes in price volatility; (2) examine liquidity transformation; and (3) evaluate the aggregate effectiveness of *FCA* using a robust event-study design.

RESEARCH METHOD

This study employs a quantitative research approach to examine the impact of the *FCA* mechanism on stock volatility and liquidity for equities listed on the *Watchlist Board* of *IDX*. The research relies on secondary data collected from the *IDX's* official database and other reputable financial sources. The quantitative method was selected to ensure systematic, structured analysis through statistical testing, allowing for objective evaluation of policy impact across a defined observation period. The study applies both descriptive and parametric statistical techniques, including time-series regression and hypothesis testing, to capture the effects of the *FCA* implementation.

The sample consists of 40 stocks that remained on the *Watchlist Board* for six months prior to and six months after the *FCA* policy took effect on March 25, 2024. Stocks were selected through purposive sampling to ensure continuity and comparability of trading behavior. The observation window covers two equally long periods: the pre-*FCA* period from September 25, 2023, to March 24, 2024, and the post-*FCA* period from March 25, 2024, to September 25, 2024. Volatility is measured using *Parkinson Volatility*, which

accounts for the daily range between the highest and lowest prices—an approach considered more reliable in auction markets where closing prices may be distorted (Orhun, 2020). Liquidity is assessed using the *Amihud Illiquidity* ratio, which captures price response to trading volume (Lee, Lien, Sheu, & Yang, 2024).
Volatility is measured by using this formula:

$$\sigma_p^2 = \frac{(lnH_t - lnL_t)^2}{4ln2}$$

Description:
Volatility (σ_p) : Volatility of stock i at time t
H_t : Highest price of stock i at time t
L_t : Lowest price of stock i at time t
T : Number of trading days in the observation period

The Parkinson formula does not rely on closing price data and instead captures the intraday trading range, making it more appropriate under a call auction regime.

Liquidity is assessed using the Amihud Illiquidity Ratio, which estimates the price impact of trading activity by dividing absolute return by trading volume. Amihud Illiquidity Ratio can be calculated with this formula:

$$ILLIQ_i = \frac{1}{T}\sum_{t=1}^{T}\frac{|r_t|}{V_{i,t}}$$

Description:
$ILLIQ_i$: Amihud Illiquidity Ratio for stock i
r_t : Absolute return on day t
$V_{i,t}$: Trading volume of stock i on day t
T : Number of trading days in the observation period

This measure is particularly suitable for markets with batch execution, such as *FCA*, where bid-ask spread data may be absent or misleading. The main empirical analysis is conducted using time-series regression models applied to each stock individually. The model specification includes the dependent variable (volatility or illiquidity), a binary dummy variable to represent the *FCA* period (0 for pre-*FCA*, 1 for post-*FCA*), and control variables such as the exchange rate (*IDR/USD*). The use of exchange rate as a control variable can signal economic instability, prompting shifts in capital flows and risk premiums, which researchers need to account for when analyzing capital market dynamics. The coefficient of the dummy variable captures the net effect of *FCA* implementation on the dependent variables (Li, M., 2023). The statistical significance of the *FCA* impact is assessed using a p-value threshold of 0.05 (5%).

To complement the individual regression results, an aggregate analysis is performed by averaging the coefficient estimates across the sample and computing a t-statistic for aggregate significance. If the absolute value of the t-statistic exceeds 1.96, the effect is considered statistically significant at the 5% level. This dual approach—individual and aggregate—ensures that the results reflect both firm-level variations and systemic effects of the policy shift. Overall, this methodology is designed to comprehensively capture how the *FCA* affects stock market quality in terms of volatility and liquidity.

RESULTS AND DISCUSSION

Descriptive statistical analysis reveals that prior to FCA, 70% of the stocks exhibited zero or negligible volatility due to a lack of trading activity. After the FCA was implemented, these stocks became actively traded again, resulting in measurable volatility levels. Similarly, illiquidity measurements using Amihud's ratio showed that 67% of the stocks had undefined or zero values before the policy, due to no trading or returns.

Table 1 Changes of Volatility and Illiquidity Before and After the Implementation FCA Policy (%)

No	Parameter	Percentage of Stocks with Changes		No Change
		Increase	Decrease	
1	Volatility (40)	10%	20%	70%
2	Illiquidity (40)	25%	8%	67%

To complement these observations, trading volume was also assessed. As shown in Table 4.3, 72.5% of the stocks experienced an increase in trading volume post-FCA. According to the Mixture of Distributions Hypothesis (MDH) (Cheuathonghua, M., & Padungsaksawasdi, C., 2024) there is a strong link between volume and volatility, as new information entering the market induces heterogeneous investor reactions, reflected through increased volume and price movements. This theoretical foundation suggests that the measured increases in volatility and illiquidity post-FCA may partly reflect a return to active trading, not necessarily greater market instability.

Table 2 Distribution of Significant Dummy Coefficients

No	Parameter	Significancy		Coefficient of Dummy(sig)	
		Significant	Undefined	Positive	Negative
1	Volatility (40)	32 (80%)	23 (88,4%)	26 (81,4%)	6 (18,6%)
2	Illiquidity (40)	22 (55%)	18 (85,7%)	21 (95,5%)	1 (4,5%)

Volatility Results

Regression was conducted on a time series basis for each of the 40 sample stocks, controlling for macroeconomic influences such as the exchange rate (IDR/USD). The results show that 80% of the stocks analyzed experienced significant changes in volatility, with 81.25% of those showing an increase, suggesting that FCA tends to amplify price movements in thinly traded stocks. This supports the Market Microstructure Theory, which posits that trading mechanisms significantly affect price formation by influencing order flow and execution timing (Lillo, 2021). From a theoretical perspective, this finding aligns with the Thin Market Hypothesis, which posits that securities with low trading volume are more vulnerable to price swings due to sparse order flow and limited liquidity provision (Kyle, 1985). The blind order book mechanism under FCA may exacerbate this by preventing market participants from assessing the depth and sentiment of the market, thus leading to more pronounced reactions to small order imbalances.

Interestingly, stocks with increased volatility primarily fall under the criteria of having an average price below IDR 51 and exhibiting poor liquidity, confirming that

market frictions play a critical role in amplifying volatility under constrained auction environments. The increase in volatility among most stocks may reflect heightened market activity and information assimilation due to the structural shift introduced by FCA. According to O'Hara (1995), changes in trading mechanisms fundamentally alter the market microstructure, influencing how information is incorporated into prices. This theory is further supported by Koubaa and Slim (2019), who suggest that volatility is not merely indicative of risk but also of intensified trading engagement and information flow. Conversely, stocks with negative volatility coefficients all belonged to companies with negative equity (Criteria 5), indicating that the implementation of FCA may have a dampening effect on price volatility in fundamentally distressed firms. Stocks with negative and significant coefficients reflect volatility suppression, potentially due to reduced noise trading as FCA consolidates fragmented order flow into discrete sessions. This may be due to heightened investor caution and regulatory scrutiny, as well as the consolidation of trades into a single auction window, which reduces the frequency of random price shocks (Madhavan, 2000). This aligns with findings by Han et al. (2022), who observed that call auctions reduced intraday volatility in small-cap markets. Moreover, the EMH reinforces that volatility, when accompanied by informational price discovery, should not be misinterpreted as instability (Fama, 2021; Li et al., 2022). Hence, the observed increase in volatility post-FCA can be understood as restored informational efficiency, particularly for dormant stocks.

Liquidity Results

The Amihud Illiquidity Ratio, capturing the price impact per unit of volume, reveals that 55% of the stocks experienced a significant increase in illiquidity post-FCA, with 95.5% showing positive coefficients. This suggests that the auction mechanism, while intended to improve market orderliness, may have reduced trading efficiency for many securities. This outcome aligns with the Market Microstructure Theory (O'Hara, 1995), where trading rules affect liquidity dynamics. In the context of FCA, execution constrained to a specific window may have reduced order flexibility, deterring investors and increasing transaction costs.

Additionally, the blind order book mechanism used in FCA elevates adverse selection risks, especially in thinly traded stocks (Criteria 1), where informational asymmetry becomes more pronounced. This discourages participation from retail investors and liquidity providers, especially in emerging markets. The auction setting, while promoting batch matching, can also lead to wider bid-ask spreads when order flow is uncertain and price signals are limited. In contrast, only one stock, categorized under Criteria 7 (no prior trading for 6 months), showed a significant decrease in illiquidity. For these dormant stocks, FCA may serve a coordinating function by concentrating sparse trading interest into a single execution point, supporting Information Aggregation Theory. However, the overwhelming illiquidity increase in Criteria 1 stocks suggests that FCA's rigid structure may amplify existing inefficiencies in thin markets, a view supported by

the Thin Market Hypothesis, which argues that low-depth markets react more sharply to microstructure frictions.

The results are also consistent with the Liquidity Pricing Model (Amihud & Mendelson, 2006), where investors demand higher returns for illiquid assets, leading to decreased participation and a liquidity spiral. Without complementary measures, such as order transparency improvements or designated liquidity providers, FCA may inadvertently increase segmentation in the equity market

Aggregate Results

Aggregate testing confirms divergent outcomes. The average t-statistic for volatility > 1.96, suggesting statistical significance. Aggregated testing across all stocks confirmed statistically significant impacts of FCA on both volatility and illiquidity. The mechanism had a clear average effect of increasing volatility and reducing liquidity. These findings corroborate prior empirical work on auction-based markets, where limited frequency and restricted visibility often create less favorable trading environments for retail investors. This reinforces findings from Eibelshäuser, S., & Smetak, F. (2022), which emphasize that auction-based reforms must be paired with complementary policies (e.g., designated market makers, corporate disclosures) to meaningfully enhance liquidity across the board. The other empirical evidence from the Chinese market further illustrates that the implementation of a closing call auction mechanism does not universally enhance market quality. Han et al. (2022) observed that the introduction of a closing auction at the Shanghai Stock Exchange had no significant aggregate impact on liquidity or pricing efficiency. However, it did improve closing price continuity and reduced risk for small-cap stocks, suggesting that the effectiveness of call auction structures is context-dependent and may vary across trading sessions and asset profiles.

The empirical findings from Said et al. (2024) reinforce that market microstructure reforms, such as call auctions, can significantly alter market dynamics, especially in emerging economies where liquidity and information flow are constrained. These reforms, while aimed at improving efficiency, may result in heterogeneous impacts depending on the underlying asset quality and market conditions. This aligns with our finding that the implementation of FCA reactivated dormant stocks yet simultaneously introduced frictions that increased volatility and weakened liquidity in thin markets.

Taken together, the results reinforce that while FCA may stabilize trading patterns for distressed firms, it tends to reduce liquidity and increase price volatility among low-value, thinly traded stocks. This suggests the need for differentiated policy applications, such as the introduction of market makers or transparency enhancements, to counteract unintended consequences. This echoes the proposition by Park, Suen, & Wan (2021) that market design must adapt to investor behavior heterogeneity.

CONCLUSION

The study reveals that the *FCA* mechanism significantly affects volatility and illiquidity for *Watchlist Board* stocks on the *Indonesia Stock Exchange*, though its impact

varies based on initial stock conditions. Approximately 80% of stocks showed volatility changes, with most experiencing increases—particularly low-priced, low-liquidity stocks—supporting the Thin Market Hypothesis. Conversely, stocks with negative equity saw reduced volatility, aligning with the Price Compression Effect. Overall, *FCA* heightened market volatility and worsened liquidity, with 55% of stocks becoming more illiquid post-implementation and only one improving. These results suggest that auction mechanisms like *FCA*, when applied to thin markets without transparency or liquidity support, may hinder trading activity and participation. The findings underscore the need for tailored market microstructure policies in emerging markets to balance efficiency and investor protection. While *FCA* can aid price discovery for inactive stocks, its effectiveness depends on trading depth, participation levels, and complementary infrastructure. A differentiated approach—incorporating transparency measures, market maker incentives, and customized auction rules—could help optimize *FCA's* benefits across diverse market segments. Without such adjustments, the mechanism risks exacerbating inefficiencies rather than mitigating them.

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