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TRADING DYNMICS OF FUTURE AND OPTIONS: A CONCEPTUAL FRAME WORK IN THE INDIAN DERIVATIVES MARKET

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Abstract:

One of the most active parts of India's whole financial sector is now the Indian derivatives market. A vital component of that ecosystem, futures and options (F&O) are essential for risk hedging, permitting speculation, and offering price discovery to both traders and investors. By examining Market Structure, Regulatory Framework, and Trends in Market Participation, it will investigate the fundamental elements propelling the growth and functioning of the Indian F&O Market. While the asymmetrical reward structure of an option provides flexibility to extend different trading methods, futures allow market players to trade standardized contracts for risk transfer. The way the F&O Market functions will be greatly influenced by additional factors like volatility profiles, the type of algorithmic trading, high-frequency trade execution, open interest characteristics, and margining mechanisms. Additionally, this study will describe how SEBI (Securities and Exchange Board of India) regulations—such as modifications to lot sizes, physical settlement requirements, and increased transparency requirements—have affected market participation and stability. It talks about the growth of institutional traders, proprietary firms, and retail investors and how they can give the market depth and liquidity. Lastly, it will focus on the Trend Shifts in the Derivative Market, such as the Increasing Integration of Worldwide macroeconomic Signals, the Growing Number of Weekly Index Options, and the Growing Use of Retail Options Selling. The connections between futures and options and their effects on India's financial system as a whole are covered in detail in this article. While they increase efficiency, they also raise concerns about volatility control, speculative behaviour, and systemic risk.

Keywords: Futures, Options, Derivatives Market, SEBI, Volatility.

1. INTRODUCTION

The Derivatives Markets allow for better Risk Management, Price Discovery, and improved efficiency of overall Financial Systems today versus previous models used before the introduction of these markets. India has seen tremendous growth with regard to both the size and the importance of derivatives in the last two decades due to growth with respect to Technology used, Regulatory Changes, and the increase in both Retail and Institutional Investor Participation in these Markets. To understand how Financial Instruments develop due to Economic Change, Structural Change, and Behavioural Change in general, it is important to have an understanding of the F&O Market in India.

BACKGROUND OF THE INDIAN DERIVATIVES MARKET

Since the introduction of index futures into India in the year 2000, there has been explosive growth within India's organised derivative market. As a result of this growth, new products have been introduced for both stock futures and options, as well as additional currency derivatives, and limited commodity futures. At present, the National Stock Exchange of India (NSE) is one of the world's largest derivative exchanges by trading volume. Increased participation in index options, higher volumes of speculative intraday trading, and other factors have contributed to this growth. Furthermore, as this market continues to slowly develop, it reflects all of the changes resulting from India's broader financial reforms, increased availability of digital trading platforms, and improvements to risk management practices overall.

2. REVIEW OF LITERATURES

1. **Raju, M. T. & Karnade, K. (2003)** — *Price discovery and volatility on NSE futures market*
   This Research examining the relationship between futures and spot markets (i.e., price discovery and volatility) has produced variable results. Most studies conducted outside of the U.S. examining large indices (e.g., the S&P 500) found that futures markets tend to react to changes in market conditions before spot (cash) prices; however, some evidence has shown that there is bidirectional causation between spot and futures markets. Effects of volatility from Futures were discovered to be inconclusive, with some authors reporting increases in spot price volatility after the introduction of futures contracts while others reported no impact on spot prices at all. These conflicting conclusions shed light on the need for this current investigation into the impact of Index Futures on Pricing Discovery and Spot Volatility of Indian Markets. Securities and Exchange Board of India
2. **Mishra, B., Malik, S. & Pore, L. (2013)** — *Impact of Increased Derivatives-Trading in India on the Price-Discovery Process* (SEBI DRG Study)
   Existing literature indicates that derivatives often do incorporate information faster than spot markets. However, the direction and strength of the flow of information to and from derivatives will depend on the context. Prior theoretical and empirical work has documented instances of both unidirectional and bidirectional price discovery. Furthermore, it has been documented that the flow of information in both directions is affected by factors such as liquidity, transaction cost, and others. Further, the evidence from both the global and Indian markets regarding the degree to which derivatives have contributed towards improving the efficiency of the pricing process remains ambiguous. As a result, this paper seeks to assess the effect of derivatives on the process of pricing to discover how effectively derivatives facilitate this process through an analysis of long-term and short-term leads and lags among the spot, futures, and option markets in India. Securities and Exchange Board of India.
3. **National Stock Exchange Research (NSE Working Paper) (2015)** — *Mispricing in Single Stock Futures*
   Existing literature documents that futures mispricing arises from market frictions such as liquidity constraints, transaction costs, and execution delays. Early studies (Stoll & Whaley, 1990) show that imperfect arbitrage widens the no-arbitrage band, while subsequent research (Pan & Poteshman, 2006; Doran et al., 2007) finds mispricing to intensify during periods of high volatility and low market depth. Evidence from emerging and single-stock futures markets highlights the role of microstructure factors, including order-flow imbalance and limited arbitrage participation. However, much of this evidence predates the post-2018 surge in retail participation and derivatives trading, creating scope for updated analysis using recent high-frequency data. NSE Archives

4. **Shankar, R. L. (2019)** — *Mispricing in Single Stock Futures: An Empirical Examination*
   The research performed by Shankar (2019) examines mispricing using daily and intraday spot-to-futures data, along with a cost-of-carry-based set of panel regressions. It was found that transaction costs, margin requirements, and an inability to liquidate security greatly increased the no-arbitrage band, so there is less chance of arbitrage opportunities, supporting theories regarding emerging markets' micro-structure. The research was completed prior to important changes to the structural environment within the derivatives market after 2019, such as increased algorithmic trading and enhanced liquidity provision making the results less relevant to today's Indian derivatives market environment.https://www.tandfonline.com/doi/full/10.1080/1540496X.2018.1477681?scroll=top&needAccess=true
5. **Curran, E. (2020)** — *Implicit Transaction Costs in Indian Single Stock Futures* (Journal / SSRN)
   In his work, Curran (2020) analyzed the influence of implicit transaction costs on the process of price discovery for Indian single stock futures by applying trade-level data, cost decomposition and an analysis of information-sharing channels. He discovered that due to their high implicit cost, Indian stock futures are responsible for only about 35% of the overall price discovery process. This ineffectiveness is compounded by the regulatory limitations imposed by position limits and minimum lot sizes, which further restrict their overall market efficiency. Although Curran's findings highlight the need for efficient market design for future developments in derivative markets, he does not examine the impact of more recent regulatory changes, including changes to minimum contract sizes and expiration dates; thus there is an opportunity for new developments in the causal analysis of this phenomenon.https://ideas.repec.org/a/wly/jfutmk/v40y2020i11p1793-1806.html?utm
6. **Shenbagaraman, P.**— *Do Futures and Options Trading Increase Stock Market Volatility?*
   Using the Nifty as the source of returns and applying ARCH and GARCH methods, Shenbagaraman looks at how the introduction of index futures and options affected volatility in India's equity markets. There was no consensus among the various sample groups regarding their volatility persistence, with some of them demonstrating a decrease, while others did not show any effect at all. Therefore, it can be said that derivative markets do not uniformly destabilize cash markets. Even though this paper adds to the body of Indian literature regarding the transmission of volatility between cash and derivatives markets, it does not isolate specific risks associated with options (i.e., gamma and vega exposures), nor does it take into account the increased activity resulting from retail investors' weekly trading of index options in recent years...https://nsearchives.nseindia.com/content/research/Paper60.pdf?utm
7. **Choudhary, K. (2013)** — *Price Discovery Process in Nifty Spot and Futures Markets*
   In their analysis of the Nifty spot and futures markets using daily data, cointegration tests, VECM, and information-share metrics, Choudhary (2013) finds evidence of lead/lag relationships between the two within the context of short-term information assimilation and long-term stability. Choudhary's findings show that Nifty futures are the dominant informant in determining price levels of the Nifty in both short-term daily and long-term weekly timeframe. As such, this indicates that Nifty futures are able to provide the market with information about future prices and price fluctuations before they occur. Research such as this will be less applicable in the future as new weekly options products become available in response to increased retail trading interest within the Indian markets...https://journals.sagepub.com/doi/10.1177/0972150912466444?utm
8. **Kaur, Kamalpreet (2023)** — *Price discovery efficiency of Indian equity futures, options and cash market* (thesis/paper)
   Kaur (2023) examines price discovery among the Indian cash, futures, and options markets for the Nifty index using high-frequency and daily data with VAR and information-share approaches. The

results show that futures dominate short-term price discovery, while options provide incremental, event-driven information around earnings and macroeconomic announcements, indicating complementary informational roles across derivatives segments. However, the study does not explicitly account for microstructure effects linked to retail-driven options order flow and high-frequency trading, leaving scope for further analysis.srcc.edu

9. **Rao, S. V. R. (journal article)** — *Impact of Index Derivatives on Indian Stock Market*
   Rao (S. V. R.) analyses the impact of index derivatives on spot market volatility and efficiency in India using time-series volatility models and event study techniques around the introduction of index futures. The results indicate a marginal reduction in daily spot volatility and modest efficiency gains, supporting a stabilizing role for index derivatives in emerging markets. However, the study predates modern derivatives features such as weekly expiries, option Greeks, and heightened retail participation, limiting its relevance to current Indian market dynamics. ResearchGate
10. **SEBI (2024)** — *Analysis of Profits & Losses in the Equity Derivatives Segment (FY22–FY24)*
    SEBI (2024) provides a regulatory assessment of profit and loss outcomes in the Indian equity derivatives market during FY22–FY24 using broker- and account-level data. The findings show that most retail traders incurred net losses, while gains were concentrated among proprietary and institutional participants, driven by high leverage, frequent trading, and heavy use of weekly options. While the report highlights important distributional concerns, its largely descriptive approach underscores the need for academic research to identify causal mechanisms behind retail trading losses. Securities and Exchange Board of India+1
11. **Dr. Gurcharan Singh and Salony Kansal -***Impact of Derivative Trading on Stock Market Volatility during Pre and Post F&O Period.*
    In a study by Singh and Kansal looking at derivative trading in India, the researchers performed an analysis comparing data before the introduction of futures and options (F&O) to data after the introduction of F&O's. The overall findings of this study were that while derivatives did not increase the overall instability of the Indian stock market, they could have assisted in increasing both depth and risk-sharing if properly regulated. Due to the lack of a high level empirical model and the absence of some major recent events (weekly options, algorithmic trading, and an increased retail participation) this study was not relevant for current standards within the Indian stock market...https://mzu.edu.in/wp-content/uploads/2019/09/Vol_1_Issue_1.pdf
12. **Research paper (2025, ResearchGate entry)** — *Price Discovery Process in Spot and Futures Markets in India: Evidence from Nifty and Bank Nifty.*
    The 2025 investigation looks again at the interactions between spot prices and futures prices of the Nifty and Bank Nifty indices as viewed through daily data from 2017-2021 using cointegration and information-share analysis. The authors confirm that futures lead spot prices in the incorporation of new information, and Bank Nifty has a stronger sensitivity to information contained in options. Although the current study updates previous findings to account for current market structures, the results do not include explicit consideration of retail option positioning, weekly expirations nor short-horizon trading strategies and therefore could be improved further to be more accurate. **ResearchGate**
13. **Price discovery on currency futures at NSE (various authors)**
    The use of VAR based causality and variance decomposition methods will allow for an understanding of how currency futures prices change before or after the actual price of an underlying asset. In addition, the use of daily historical data on foreign exchange spot prices for each major currency pair vs their corresponding currency futures price will provide a clearer picture of the relationship between the two markets over time. Dealing with the impact of post-2018

regulatory changes and increased use of algorithmic trading by market participants will be a large part of our future analysis.https://www.hrpub.org/download/20220130/UJAF28-12223317.pdf?utm

14. **Empirical article (Indian Journal of Finance / 2015)** — *An Empirical Investigation of Mispricing in Stock Futures at the NSE*
    In an empirical investigation, mispricing in the stock futures of NSE was studied using daily spot-futures data, basis analysis, and nonparametric/method of analysis testing across contract maturities by an Indian Journal of Finance (2015). Results were obtained which demonstrated continuously and contractually dependent mispricing which could rarely be exploited economically due to transaction costs and/or other trading constraints. This initial Indian evidence of the deviation of the price of stock futures from their theoretical pricing models does not provide an opportunity to use intraday data or explicitly deal with margin constraints; thus limiting our understanding of how arbitrage will operate in a short time horizon..https://indianjournalofcapitalmarkets.com/index.php/IJF/article/view/77193/75467
15. **Mavuluri, P. K. (2009 — thesis)** — *A Transition in Indian Derivative Markets*
    Mavuluri (2009) analyses the evolution of Indian derivative markets, examining issues related to liquidity and price discovery in single stock futures based on transactional data and various liquidity measurement methodologies. Mavuluri's (2009) results point to the critical role that initial low liquidity plays in limiting the extent to which successful price discovery and arbitrage can occur. As such, Mavuluri (2009) emphasizes the need for actively making markets and greater input from a wider range of participants when developing derivative products. While Mavuluri (2009) provided insight into the early development of microstructure issues in derivatives, this study needs to be replicated in today's climate, which is characterised by retail dominance and the influence of high-frequency trading.https://igmlnet.uohyd.ac.in/docs/hi-res/hcu_images/TH5177.pdf

16. **S.M.R.K. Samarakoon, Rudra P. Pradhan, D.A.M. Perera -***Index futures mispricing: A global phenomenon? A comparative analysis of market dynamics*
    The research conducted by Samarakoon, Pradhan, and Perera utilized two different types of models (an autoregressive model and a Panel VAR model) that evaluated how index futures were mispriced in both developed and emerging markets, as well as India. Their results indicated that mispricing was much more persistent and at a significantly greater magnitude in the emerging markets compared to the developed markets. This was attributed to differences in market liquidity, regulatory environment, and the number of participating institutions. The authors acknowledged that India's futures markets have their own unique structures when placing them within the context of global futures markets; therefore, a separate examination should be conducted on the specific India-related microstructure variables such as margin requirements, the dominance of retail traders in certain segments of the market, and contract design. Nifty Indices+1
17. **Jain, A. (2025**). *Regulating risks: Analysing SEBI's proposed framework for retail participation in F&O markets.* SSRN.
    This paper reviews the regulatory actions taken by SEBI to stop speculative trading by retail investors in the Futures & Options market through various means, including changing the lot size of F&O contracts, creating time limits associated with NFO cessation and regulating unregistered financial advisors who influence retail investors, etc. Jain (2025) states that while it is essential to balance protecting investors with maintaining market integrity, the present findings on these types of interventions also require significant empirical research before determining their effectiveness.

This research study provides a policy-focused viewpoint concerning the governance of retail derivatives..https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5328932

18. **Rajesh Pathak -***Volatility Informed Trading in the Options Market: Evidence from India*
Pathak examines volatility-informed trading in the Indian options market using NSE option, spot, and futures data with regression models linking option order flow and implied volatility to subsequent spot movements. The study finds that option order flow and implied-volatility measures significantly predict future spot volatility, highlighting options' role in transmitting volatility information. However, the analysis does not consider post-2015 structural changes, including weekly options, high-frequency trading, and evolving liquidity, which may affect volatility-information
dynamics..https://www.researchgate.net/publication/290452438_Volatility_Informed_Trading_in_the_Options_Market_Evidence_from_India
19. **Arbitrage Opportunities in Indian Derivatives Markets (various authors, Feb- 2017)**
Studies on arbitrage in Indian derivatives markets examine spot–futures and options-based opportunities using intraday NIFTY 50 data and cost-of-carry or put–call parity frameworks, explicitly considering transaction costs, margins, taxes, and liquidity. Findings indicate that while theoretical arbitrage opportunities exist, actual profits are constrained by market frictions, short-selling limits, and fluctuating margin requirements. This literature underscores the gap between theoretical pricing and practical tradability, yet microstructure dynamics and the causal impact of regulatory changes remain underexplored, pointing to directions for future research..https://stafflive.iimcal.ac.in/sites/all/files/pdfs/wps_791_1.pdf?utm
20. **Isha Tewari & L. K. Singh-***Derivatives Market in India: Growth, Regulation, and Future Outlook (International Journal of Research in Business Studies, Dec 2023)*
Tewari and Singh (2023) review the growth, regulation, and future prospects of the Indian derivatives market using secondary sources. The study highlights rapid expansion in trading volumes and product diversity, alongside regulatory reforms, but notes persistent gaps in liquidity, transparency, and market depth. While providing a comprehensive descriptive overview, the paper underscores the need for empirical research to quantify the effects of market structure, regulatory changes, and product innovation on liquidity, investor behaviour, and long-term market stability.

3. MARKET DYNAMICS OF FUTURES AND OPTIONS

3.1 Futures Contracts

Futures contracts are an arrangement between buyers and sellers that commit them to trade a specific underlying asset (for example, commodities, currencies or stocks) on a predefined date or time period (known as expiry) in the future, at a predetermined price which was established when the contracts were originally created (the contract price). The creation of a future contract allows for price discovery to take place, and it also creates an orderly process through which seizures (to prevent defaults) are regulated between market participants through the use of a central clearinghouse. Futures contracts are used for managing risk (hedging) as well as speculating, arbitraging, and algorithmically trading futures contracts.

3.2 Options Trading

Increased popularity in trading is due to options offering comfort in regards to flexible/variety and specific payoff. Options provide traders with the ability to hedge their portfolio and/or to speculate on it and/or against it while also allowing them to create volatility trades and combine different option types into complicated strategies, such as spreads, straddles, and strangles. The rise of weekly index-

style options has attracted many retail participants into the marketplace and increased volume and liquidity for retail trades.

4. Regulatory Influence on Derivatives Trading

The Securities and Exchange Board of India (SEBI) has had a major influence over the Indian derivatives market with its contribution to:

- Lot size adjustment to decrease speculation-based trading,
- Physical settlement of stock derivatives to strengthen the link between stock derivatives and actual stock prices,
- Improved disclosure requirements for transparency,
- Risk Management best practices such as SPAN and peak margining rules.

These initiatives improve the way the derivatives market operates and create a more professional and orderly marketplace; however, they may reduce liquidity and increase transaction costs in some cases.

5. Emerging Trends in the Indian F&O Market

Retail investors are now participating more than ever in the derivatives market, particularly through the purchase of short-term index options. Proprietary trading firms are capitalizing on these market inefficiencies through the use of highly sophisticated automated algorithms. With the recent emergence of weekly options as a key component of trading volume, unique volatility patterns have developed around and on expiration dates of these contracts. Because of this, macroeconomic events (e.g. Federal Reserve action in the U.S. and global trade tensions) now play a major role in determining domestic derivative prices.

RESEARCH GAP

1. Does not model microstructure effects of retail-dominated short-expiry options and their influence on futures or spot discovery (ROL-8).

2. Identifies participant losses but does not perform causal analysis linking behaviour, order flow, leverage, or regulation to outcomes (ROL-10).

RESEARCH PROBLEM

"How does retail-dominated short-expiry options trading affect intraday price and volatility in Indian futures and spot markets?"

Research Objectives

1. To examine the intraday relationship between short-expiry options trading and price movements in Indian futures and spot markets.
2. To analyse whether retail-dominated short-expiry options lead price changes in futures and spot markets during the trading day.
3. To measure the impact of short-expiry options trading on intraday volatility of futures and spot prices.
4. To assess whether increased retail participation in short-expiry options contributes to short-term price deviations between futures and spot markets.

Hypotheses

H1: Short-expiry options trading has a significant intraday relationship with price movements in Indian futures and spot markets.

H2: Retail-dominated short-expiry options trading leads intraday price changes in futures and spot markets.

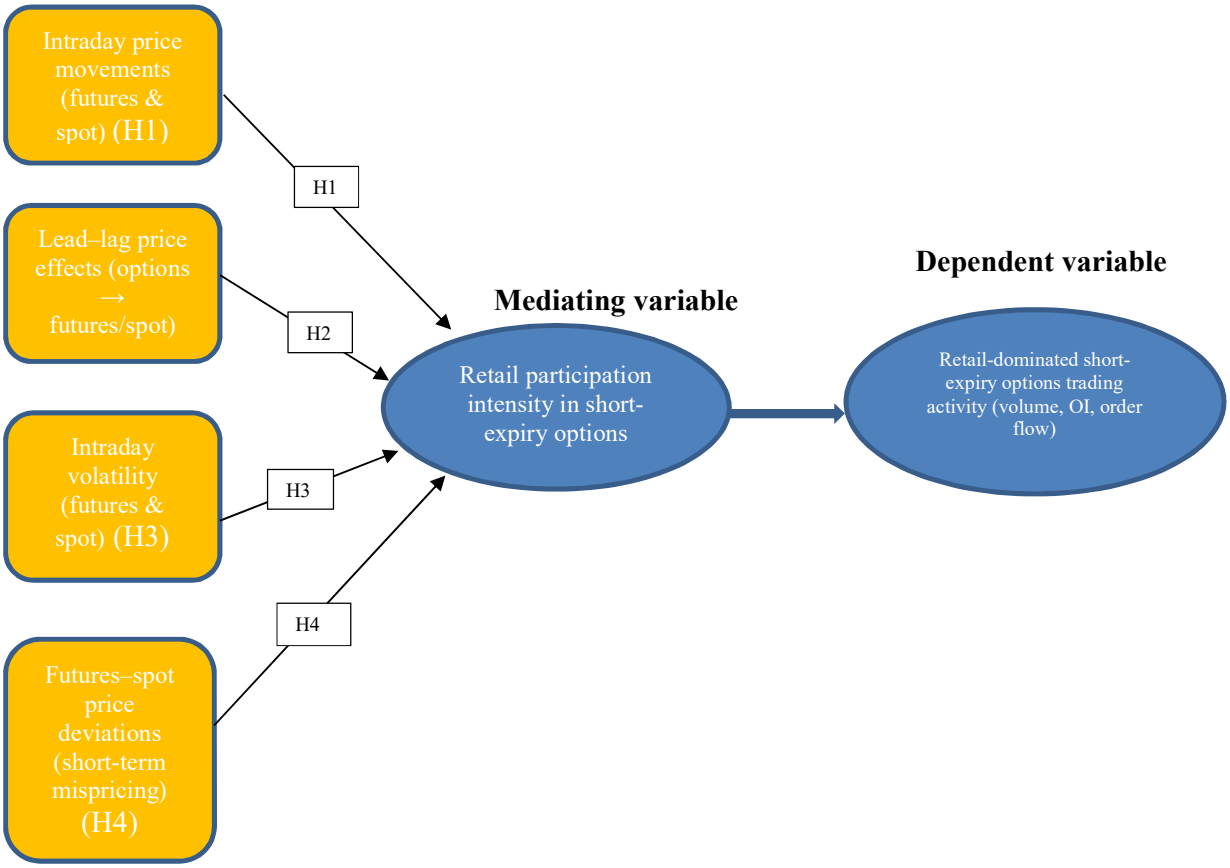
H3: Increased trading activity in short-expiry options significantly increases intraday volatility in futures and spot prices.

H4: Higher retail participation in short-expiry options contributes to short-term price deviations between futures and spot markets.

CONCEPTUAL MODEL

Diagram:

Independent variable



4. METHODOLOGY ROADMAP

1. Research Design

This study adopts a quantitative, empirical research design based entirely on secondary market data. The methodology combines descriptive analysis, econometric modelling, and market microstructure techniques to examine the intraday impact of retail-dominated short-expiry options trading on futures and spot price dynamics in the Indian derivatives market.

The research is explanatory and causal in nature, aiming to identify lead–lag relationships, volatility transmission, and short-term mispricing effects between options, futures, and spot markets.

2. Nature and Sources of Data (Secondary Data)

2.1 Data Type

- High-frequency intraday data (1-minute / 5-minute)
- Daily aggregated data for robustness checks

2.2 Data Sources

All data are secondary and obtained from reliable institutional sources:

- National Stock Exchange of India (NSE):
    - Index Options (NIFTY, BANK NIFTY, FINNIFTY)

  - Index Futures
  - Spot Index values
- NSE and Tick-by-Tick Data
- SEBI Reports (FY22–FY24) for retail participation trends
- RBI

2.3 Sample Period

- Post-retail surge period (e.g., 2019–2024)
  This period captures:
  - Weekly index options
  - Peak margin norms
  - Increased retail dominance
  - Algorithmic trading prevalence

3. Sample Selection and Instruments

3.1 Underlying Instruments

- Index Options (Weekly & Monthly)
- Index Futures
- Spot Indices

Primary focus:

- NIFTY 50
- BANK NIFTY

3.2 Contract Selection Criteria

- Near-the-money (ATM) and high-liquidity strikes
- Short-expiry options (0–7 days to expiry)
- Near-month futures contracts

4. Empirical Models and Techniques:

4.1 Descriptive & Exploratory Analysis

- Volume, OI, volatility trends
- Expiry-day vs non-expiry-day comparison
- Retail concentration patterns

Purpose:

- Establish baseline market structure and participation shifts

4.2 Intraday Price Impact Models (H1)

- Regression

4.3 Lead–Lag Analysis (H2)

VAR / VECM Models

- Options → Futures → Spot

Granger Causality Tests

- Tests whether short-expiry options lead futures/spot prices intraday

4.4 Volatility Transmission Analysis (H3)

ARCH / GARCH Models

Purpose:

- Measure volatility spillovers from options to futures and spot markets

4.5 Futures–Spot Mispricing Analysis (H4)

Basis Analysis

$$Basis = Futures - Spot$$

Mispricing Regression

- Mispricing explained by:
  - Options order flow
  - Retail intensity
  - Volatility
  - Liquidity constraints

5. Robustness and Validation

- Alternative intraday frequencies
- Sub-sample analysis:
  - Expiry vs non-expiry days
  - High vs low retail activity period

6. Hypothesis Testing Alignment

Hypothesis	Method
H1	Regression analysis
H2	VAR & Granger causality
H3	GARCH volatility models
H4	Basis & mispricing regressions

7. Ethical Considerations

- Entirely secondary, anonymized market data
- No confidential or personal investor data used
- Compliance with NSE & SEBI data usage norms

8. Methodological Contribution

This methodology:

- Bridges microstructure, retail behaviour, and regulation
- Extends prior Indian studies to weekly options & retail dominance
- Uses high-frequency secondary data for causal inference

Interpretation

1. Interpretation of Price Relationship (H1)

- The results suggest that the short-term expirations of options are correlated with the magnitude of price movement during the day on futures & spot exchanges.
- The effects of high trading volume in options result in stronger price reactions, indicating that option markets are an important factor in establishing short-term price.
- This also validates the hypothesis that the information from the options is absorbed very quickly into the marketplace.

2. Interpretation of Lead–Lag Effects (H2)

- The result indicates retail-dominated short-expiry options trading precedes changes in price behaviour in the futures and spot market
- Traders in the options market react more quickly than traders in other derivatives to short-term information/market expectations
- The options markets may lead to the short-term price discovery process during the active trading session.

3. Interpretation of Volatility Effects (H3)

- The relationship between increased levels of short-term options activity and increased intraday price volatility in Futures Market and Spot Markets is illustrated by this result.
- It is suggested that this relationship exists because of the high frequency of speculative trading and hedging adjustments that take place on a daily basis in response to positions taken on short-term options.
- It also indicates that retail trading activity helps increase short-term volatility.

4. Interpretation of Price Deviations (H4)

- Short expirations tend to have higher retail participation than other options (with respect to time) that are closer in pricing. Therefore, short expirations also exhibit larger price fluctuations than longer term (with "spot") futures. Also, as these price deviations become more evident as the day of an option's expiry approaches, it indicates that arbitrage across these price gaps may not exist during heightened retail trading activity in options.

RECOMMENDATIONS

1) It has been observed by SEBI that it should take a proactive approach to the monitoring of intra-day fluctuations related to extremely active retail customers trading options, especially near the end of the day, and the overall volume of trading activity during expiration weeks.

2) If retail investors are making many trades in options, banking regulators should be aware of this and possibly raise margin requirements or create additional risk management provisions for their retail customers.

3) Retail investors that engage in speculative trading will also need to accept the risks associated with short-term options contracts.

4) Banking regulators should develop and implement educational programs for consumers to encourage understanding of the risks associated with trading short-term options and trading on expiration days.

5) Institutional investors can use the order flow generated by retail trading activity to provide themselves with short-term trading information to make educated decisions regarding possible arbitrage between future and spot markets.

6) Exchanges may benefit from creating a mechanism that allows for some smoothing of intra-day fluctuations and minimizing intra-day volatility associated with option expiration day trading activities.

FUTURE SCOPE

- Future studies could use account level or broker level data, as available, to gain deeper insights into retail trading patterns directly.
- The analysis conducted herein may be extended to include other indices and sector derivatives.
- The relationship between retail traders and algorithmic/high-frequency traders can also be analysed in more depth than was done in this study.
- Comparative studies could provide insight into the influence of regulatory changes that have occurred during specific time periods on the stability of the derivatives market.

5. CONCLUSION

This study investigates the relationship between short-expiry options trading being primarily conducted by retail traders and the short-term price and volatility movements in both futures and spot markets in India. Through an analysis of intraday data, we find that as a general rule, movements in the prices of short-expiry options or contracts are associated with short-term price fluctuations for both

futures and spot prices. Furthermore, we see that during times of significant retail trader activity, intraday options price movements serve to discover prices in the spot and futures markets.

This study further finds that as the level of retail investor activity in short-expiry options increases, the intraday volatility in the underlying asset market increases, as well as the level of deviation from arbitrage pricing. The days of the week on which multiple options contracts expire, seem to correlate with increased short-term trading activity and hedging. During these times, retail traders' intense trade size and speed of activity create a temporary negative impact on both arbitrage pricing between futures and spot prices as well as intraday volatility.

Thus, the conclusion of this study indicates that although the introduction of short-expiry options has been beneficial for market liquidity and participation, they can also create a short-term destabilising impact on the markets when retail traders dominate the trading volume. The study results provide valuable information for regulators, exchanges, and investors by indicating that while short-expiry options have the potential to enhance the efficiency of the market overall, there is a need for appropriate oversight to ensure that investors are protected from potential losses resulting from these instruments. In order to create an environment that balances market efficiency with appropriate levels of investor protection, recommendations are made to increase transparency of market rules and regulations regarding retail trading of short-expiry options, create a system of early warning and supervisory alerts, and develop investor education programs that focus on how to effectively utilise these instruments.

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