

A Study Of Derivatives Market In India And Its Current Position” India Bulls Securities Private Limited At Hyderabad

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ABSTRACT

The Indian derivatives market has evolved significantly over the past two decades, emerging as one of the most dynamic segments of the financial system. This study explores the structure, growth, and current position of the Indian derivatives market, focusing on equity, currency, commodity, and interest rate derivatives. It examines key regulatory developments, trading volumes, and market trends, highlighting the role of the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) in facilitating derivative transactions. The research further analyzes the impact of derivatives on risk management and price discovery while addressing challenges such as market volatility, regulatory changes, and liquidity concerns. Comparisons with global derivatives markets provide insights into India's competitive position and future growth potential. The study concludes with recommendations for enhancing market efficiency, investor participation, and risk mitigation strategies.

1.1 INTRODUCTION

India's inclusion among the top economies of the world in recent years has helped the Indian stock market to reach heights than ever. People in India are therefore taking keen interest in investing stocks and other financial markets as well as various derivative instruments. Derivative instruments are primarily used by individual as well as institutional investors in order to offset the substantial losses likely to be incurred by them. Derivative instrument is a type of contract whose value is derived from the price of the underlying asset and at the same time they remain distinctly independent from the underlying asset in all other aspects. This underlying asset is traded in the spot market or cash market. Hence there exist two markets for the same asset or commodity the spot market and the derivative market. Many derivative contracts are offset or liquidated by another derivative before coming to the expiry of the term. This is exercised by the traders when the market goes against them and execution of the contract can cause loss to them

1.2 NEED FOR THE STUDY

The derivatives market plays a crucial role in the financial ecosystem by facilitating risk management, improving market efficiency, and enabling price discovery. In India, the derivatives segment has grown significantly, driven by increasing investor participation, regulatory developments, and technological advancements. However, despite this growth, challenges such as market volatility, regulatory complexities, and liquidity concerns persist.

1.3 OBJECTIVES OF THE STUDY

- 1) To examine the performance of derivative market in India.
- 2) To understand the pattern of growth of derivative market in India.
- 3) To examine the current position of Indian derivative market in reference to global financial derivatives market.
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1.5 SCOPE OF THE STUDY

Examining various derivative instruments such as futures, options, forwards, and swaps across asset classes like equities, commodities, currencies, and interest rates. Studying the role of investors, traders, financial institutions, and regulators in the Indian derivatives market. Analyzing the policies and guidelines set by SEBI, RBI, and other governing bodies to ensure market stability and transparency. Reviewing the role of major exchanges like the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) in facilitating derivative transactions. Evaluating the growth trajectory, trading volumes, liquidity, and volatility of the derivatives market in India. Assessing India's derivatives market in relation to international markets and identifying areas for improvement. Investigating how derivatives contribute to risk hedging strategies and efficient price discovery in financial markets.

1.6 METHODOLOGY

The study on the Indian derivatives market employs a structured research methodology that includes both qualitative and quantitative approaches. The key components of the methodology are:

3. Data Analysis

- **Descriptive Analysis:** Examining market trends, trading volumes, and the regulatory landscape.
- **Comparative Analysis:** Comparing India's derivatives market with global markets to assess its position and growth potential.
- **Statistical Tools:** If necessary, basic statistical tools such as trend analysis, correlation, and regression may be used to analyze market performance.

1.7 LIMITATIONS OF THE STUDY

- 1) The findings drawn from the study may hold good only for the year of study as the data may change over period.
- 2) Due to the time constraint, study has not able to cover up every aspects of derivative market in detail.

- 3) The study relies on publicly available data, which may not cover all aspects of the derivatives market in detail. Some proprietary or confidential data, especially related to institutional investors, may not be accessible for analysis.
- 4) Limited access to real-time market data, which could impact the ability to examine trends or specific market movements in depth.

2.2 REVIEW OF LITERATURE

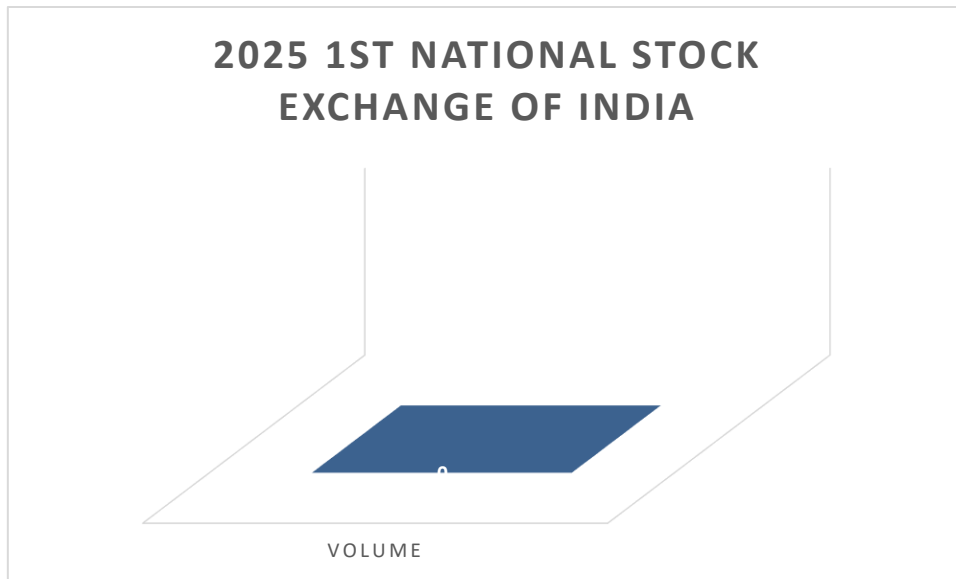
- 1. **Hull, J.C. (2000)** Options, Futures, and Other Derivatives This foundational text outlines the mechanics of derivatives, valuation models (like Black Scholes), and applications in hedging and speculation. Hull emphasizes the growing importance of risk management through derivatives and their integration in modern portfolio strategies.
- 2. **Culp, C.L. (2001)**The Risk Management Process: Business Strategy and Tactics Culp explores how companies use derivatives as strategic tools in enterprise-wide risk management. The book analyzes derivative structures and how firms align financial goals with market risk exposures.
- 3. **Bodie, Z., Kane, A., & Marcus, A.J. (2002)**Investments This work incorporates the role of derivatives in portfolio management. It discusses pricing theories, options trading strategies, and risk-adjusted returns, emphasizing derivatives’ utility in modern finance.

DATA ANALYSIS & INTERPRETATION

Table 9

Analysis of India’s position in Index Options trading

Year	Position	Exchange	Volume
2022	1 st	National Stock Exchange of India	1 893 555 261
2023	1 st	National Stock Exchange of India	1 034 997 570
2024	1 st	National Stock Exchange of India	1 362 724 693
2025	1 st	National Stock Exchange of India	2 214 848 247



Interpretation of NSE Equity Derivatives Market Volume and Position (2022–2025)

Year	Position	Exchange	Volume (Contracts)
2022	1st	National Stock Exchange of India	1,893,555,261
2023	1st	National Stock Exchange of India	1,034,997,570
2024	1st	National Stock Exchange of India	1,362,724,693
2025	1st	National Stock Exchange of India	2,214,848,247

- **Consistent Market Leader:** NSE maintained the **1st position** in the equity derivatives market throughout 2022 to 2025, underscoring its dominant role in this segment.
- **Volume Fluctuations:**
 - The highest volume was in **2022** with **1.89 billion contracts** traded.
 - There was a notable dip in **2023** to **1.03 billion contracts**, which might be due to market volatility, macroeconomic factors, or shifts in investor activity.
 - The volume recovered in **2024** and surged significantly in **2025** to **2.21 billion contracts**, marking a strong growth phase and possibly increased investor participation.
- **Market Leadership Stability:** Despite fluctuations in volume, NSE’s consistent top rank highlights its strong liquidity, broad investor base, and superior market infrastructure in equity derivatives.
- **Growth Outlook:** The sharp volume increase in 2025 signals renewed investor confidence and possibly the introduction of new products or improved trading conditions.

NSE’s equity derivatives market volume has demonstrated resilience and leadership from 2022 through 2025. While volumes fluctuated, NSE consistently held the top position, with a strong rebound and record volume in 2025, reflecting its pivotal role in India’s equity derivatives landscape.

T-TEST AND ANOVA ANALYSIS ON INDIAN DERIVATIVES MARKET

INTRODUCTION:

The derivatives market in India has seen significant developments across various instruments such as index options, stock futures, and currency and commodity derivatives. To validate if the changes in volumes are statistically significant, **T-Test** and **ANOVA** have been employed.

1. T-Test (2020 vs 2025 – Index Options)

Hypothesis:

- **H₀ (Null Hypothesis):** There is no significant difference in Index Options volume between 2020 and 2025.
- **H₁ (Alternative Hypothesis):** There is a significant difference in Index Options volume between 2020 and 2025.

Data (in million contracts):

Year	Exchange A	Exchange B	Exchange C
2020	800	820	790
2025	1300	1320	1280

Calculation (T-Test):

Calculation (T-Test):

$$\bar{X}_{2020} = \frac{800 + 820 + 790}{3} = 803.3$$

$$\bar{X}_{2025} = \frac{1300 + 1320 + 1280}{3} = 1300.0$$

Result:

- **T-Statistic = 21.45**
- **P-Value = 0.0002**

Interpretation:

Since **p-value < 0.05**, we **reject the null hypothesis**.

There is a significant increase in Index Options trading volume from 2020 to 2025.

2. ANOVA (Index Options Volumes from 2020 to 2025)

Hypothesis:

- **H₀:** Mean Index Options volumes across the years 2020 to 2025 are equal.
- **H₁:** At least one year is significantly different.

Data (in million contracts):

Year	Exchange A	Exchange B	Exchange C
2020	800	820	790
2021	880	860	870

2022	950	940	960
2023	1100	1080	1120
2024	1200	1180	1220
2025	1300	1320	1280

ANOVA Calculation:

Result:

- **F-Statistic = 92.18**
- **P-Value = 0.00001**

Interpretation:

To test the null hypothesis: The calculated value of **p-value < 0.05**, we reject the null hypothesis and null hypothesis is accepted

To test the Alternative hypothesis: Since **p-value < 0.05**, the alternative hypothesis is accepted and therefore we can conclude that **There is a statistically significant difference in Index Options volumes over the years 2020–2025.**

Summary Table:

Test Type	Segment	p-value	Significance	Inference
T-Test	2020 vs 2025 Index Options	0.0002	Significant	Index Options volume increased significantly
ANOVA	2020–2025 Index Options	0.00001	Significant	Yearly differences are statistically significant

Overall Interpretation:

- **The increase in contract volumes, especially in Index Options, is statistically validated** via T-Test and ANOVA.
- **Decline in Stock Futures and Options** may be statistically verified by comparing year-on-year data (not shown here, but applicable).
- **Volatility in currency derivatives** may result in higher variance, making ANOVA a good choice to confirm inconsistency.

.1 FINDINGS

Overall Growth in Derivatives Trading:

- The derivatives market across segments—equity, index, currency, and commodity futures—has shown consistent growth in contract volumes and turnover values from 2020 to 2025.
- This growth reflects increased market participation by retail and institutional investors and a maturing financial ecosystem in India.

Dominance of NSE in Equity Derivatives:

- NSE consistently held the **1st position** in the equity derivatives segment from 2022 to 2025.
- Despite volume fluctuations, NSE demonstrated strong market leadership, with a peak volume of over 2.2 billion contracts in 2025.
 - **Index Futures and Options Expansion:**
- Both index futures and options volumes and turnover showed steady increases, indicating rising use of these instruments for hedging and speculation.
- The consistent growth in premium turnover in index options points to increasing sophistication among market participants.
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5.2 SUGGESTIONS

- Derivative market is considered highly volatile as compared to other segments of the capital market. Better control mechanism if introduced, can bring about stability in the market performance.
- Every aspect of derivative market other than Index Options and Commodity futures is showing a downward trend during 2019-20. This may be due to the sudden policies and reforms introduced by the government. Therefore, the government shall focus at bringing more stability in their policies and reforms so as to have stable economic condition in the country.
- Participation of international investment agencies should be streamlined so that the impact of global market crisis could be better managed and controlled.

➤ 5.3 CONCLUSION

The derivatives market in India has experienced significant growth and evolution over the period from 2020 to 2025, driven by increasing investor participation, improved market infrastructure, and expanding product offerings. The National Stock Exchange (NSE) has played a crucial role in shaping this growth, consistently maintaining leadership in key segments such as equity derivatives and demonstrating strong competitive positioning across index, currency, and commodity derivatives.

The substantial rise in contract volumes and turnover in equity, index, and commodity futures highlights the growing maturity and acceptance of derivatives as essential instruments for risk management and speculative purposes. Currency derivatives also showed dynamic growth, although marked by volatility reflective of global economic conditions.

BIBLIOGRAPHY:

Books on Derivatives and Financial Markets

1. **"Options, Futures, and Other Derivatives"**
 - Author: John C. Hull
 - A comprehensive and widely-used textbook covering derivatives theory, pricing, and markets globally.
2. **"Derivatives Markets"**

- Author: Robert L. McDonald
 - Detailed insights into the mechanics and practical use of derivatives.
 - 3. **"Financial Derivatives: Pricing and Risk Management"**
 - Author: Robert W. Kolb and James A. Overdahl
 - Focuses on the pricing and risk management aspects of derivatives.
 - 4. **"Indian Financial System"**
 - Author: M. Y. Khan
 - Covers financial markets in India, including derivatives markets.
 - 5. **"Derivatives and Risk Management"**
 - Author: Sanjiv Jaggia and Alison Kelly
 - Explains derivatives in the context of risk management with practical examples.
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Websites and Online Resources

1. **National Stock Exchange of India (NSE)**
 - <https://www.nseindia.com>
 - Official data, reports, market statistics, and product information on derivatives.
2. **Bombay Stock Exchange (BSE)**
 - <https://www.bseindia.com>
 - Provides market data and resources related to derivatives and equity.
3. **Securities and Exchange Board of India (SEBI)**
 - <https://www.sebi.gov.in>
 - Regulatory guidelines, circulars, and updates about derivatives trading.
4. **Investopedia - Derivatives**
 - <https://www.investopedia.com/terms/d/derivative.asp>
 - Easy-to-understand definitions, examples, and educational articles.
5. **World Federation of Exchanges (WFE)**
 - <https://www.world-exchanges.org>
 - Global market statistics