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A Study on the Impact of Derivatives (Future & Options) in India

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ABSTRACT: The Derivatives market plays a critical role in a nation's economic development. The volatility of stock prices, interest rates, and exchange rates has increased financial risks for corporations. The corporate world is threatened by bad conditions.

Changes in macroeconomic indicators. The establishment of a derivatives market is crucial for managing financial risks and ensuring economic stability. Derivatives are hedging tools used to manage price risks and balance exchange rates for globally traded goods. These instruments stabilise asset values and improve credit distribution, mitigating the impact of market fluctuations. Derivatives improve market efficiency and increase the linkages between today's linked global financial markets. liquidity. India's derivatives market began in June 2000. Since then, the Indian derivatives market has experienced rapid growth in terms of contracts and transaction volume. The derivatives market is one of the world's fastest expanding. This article seeks to trace the growth of the Indian derivatives market and its current situation.

It studies the growth and extension of equity derivatives traded on the National Stock Exchange (NSE). India for a period of seven years, from 2015-2016 to 2022-2023. The market turnover has significantly increased from Rs.64825834.30 Crores in 2015-2016 to Rs.2052359240.21 Crores in 2022-2023 (as of November 30th, 2022). The paper covers the history, scope, and forms of financial derivatives in India.

KEY WORDS: Derivatives, national stock exchange, financial market, futures, options.

I. INTRODUCTION

A broad category of financial instruments known as derivatives are defined in relation to other financial instruments; that is, the value of a derivative is contingent upon the value of an underlying security. Although they can be any type of security, these underlying securities are typically shares or bonds. other derivatives, or even other financial products. For the sake of illustration, let us examine the derivative known as a "call option," which is defined on a common share.

Types of Derivatives

Derivatives can be classified based on the underlying asset, market, product attributes, and so on. Financial and commodity derivatives are based on their underlying assets. There are two types of derivatives markets: exchange traded and over-the-counter. On the basis of Product Features: Basic and Complex Derivatives. Financial derivatives include forwards, futures, options, and swaps. Futures and options are traded on stock exchanges, whereas forwards and swaps are done over-the-counter between private parties. This paper investigates only basic financial derivatives traded on the National Stock Exchange, providing proven explanations.

Futures: Futures contracts, often known as exchange traded forwards, are similar to forward contracts but have distinct characteristics. These standardised contracts follow stock market rules and regulations. In these contracts, the underlying assets exchange allows you to buy and sell at a certain price on a specified date. Purchase/sale details, including amount, price, timing, and location, are predetermined. Financial futures contracts include equity/stock futures, stock index futures, currency futures, and interest rate-bearing securities futures. These markets are known for their enormous leverage, particularly in the stock market.

Options: Options are contracts that grant the right to buy or sell an underlying security at a certain price on a specific date. These contracts do not include a commitment to buy or sell. The most popular underlying security is equity, or

stock. A number options other than equities include gold, oil, currencies, bonds, and so on. There are two types of options: calls and puts. A call option allows the buyer to purchase a certain amount of the underlying securities at a specific price on or before a specific date. A put option allows the buyer to sell a certain quantity at a specific price on or before a specific date.

Overview of Indian Derivative Market

The Indian Equity Derivative Market plays a vital role in the global derivatives market. The National Stock Exchange is the world's largest derivatives exchange by contract volume. For the third year in a row, NSE retains the top position. 2021. The volumes have likewise outpaced those of the Cash Segment. Since its debut in 2000, the Indian derivative market has grown exponentially in terms of contract volume and number of trades. Derivative trading in India began in June 2000, with both the BSE and NSE launching it. The initial type of derivative.

II. LITERATURE REVIEW

Park, H. (2019, January 1). The exponential rise of the global financial derivatives market has led interdisciplinary researchers to suggest that financialized capitalism dominates modern society and inhibits our ability to imagine alternatives to capital realism. Finance and derivatives, according to scholars such as Max Haiven and anthropologists Edward LiPuma and Benjamin Lee, are important components of capitalism's imagination and socially imaginary objects. Aimee Bahng's book "Migrant Futures" digs into speculative fiction to investigate the consequences of technologies designed to protect the future from potential disasters.

Ewald, C. (2011, January 1). This paper looks at forwards and European call options written on non-storable renewable resources, utilising examples such as futures on fresh catch of wild salmon in the United States and the Fish Pool market in Norway, which trades futures on a combination of wild catch and farmed salmon. The price of these contracts is based on fundamental principles, beginning with modelling the dynamics of resource reserves and assuming open access to extraction. The study develops formulas for the forward price of renewable resources and European call options based on them.

Fong, L., & Han, C. E. (2015, February 3). This article investigates the effects of futures and options markets on underlying market volatility, focusing on their long-term persistence. Unlike earlier studies, the research focuses on the Hang Seng index and reveals fresh conclusions. Empirical evidence suggests that derivative trading affects spot market volatility differently: futures markets tend to reduce volatility by providing new, substantive information, whereas options markets introduce noisy information, resulting in increased volatility and decreased sensitivity to price movements. Futures have a longer-term influence than options, probably because the futures market is driven by informed, experienced participants, whereas the options market attracts fresher, less experienced investors.

Tietze, J. (2010, January 1). The "classical" financial mathematical treatment of future payment flows assumes that the number, amount, and frequency of payments are either fixed or, as in the case of interest payments, are considered constant throughout time (or at least at certain time intervals).

Prasad, T. D., & Visalakshi, N. (2013, January 1). This article investigates the vast derivative markets, which have developed into multi-trillion-dollar industries. Derivatives are financial instruments that are connected to changes in the value of underlying assets, with a large portion tied to currencies and interest rates, while others to equity or equity indices. While commodities-indexed futures account for a small proportion of total derivatives, they still represent large markets in comparison to physical commodity markets.

Prasad, T. D., & Visalakshi, N. (2013, January 1). This study looks at forwards, futures, swaps, and options as contractual arrangements for future transactions. These derivatives have several advantages to holding the underlying asset, including lower transaction costs and the possibility to avoid trading limitations and regulations. Forward, future, and swap valuations are based on non-arbitrage price relations and the net-cost-of-carry principle. Unlike futures, options grant the right but not the obligation to acquire or sell an asset. Practical methods for option valuation include binomial trees and the Black-Scholes model.

Research Objective

- To analyze the role of futures and options in Indian financial system
- To understand about the derivatives market.
- To know why derivatives is considered safer than cash market.
- To construct portfolio and analyses the risk return relationship.
- To hedge the most profitable portfolio

III. RESEARCH METHODOLOGY

Research Methodology is a systematic procedure of collecting information in order to analyses and verify a phenomenon. the collection of information is done in two principle sources. They are as follows

1. Primary Data
2. Secondary Data

Primary Data: It is the information collected directly without any references. In this study it is gathered with personal observation in trading times Secondary Data:

Secondary Data:

The secondary data was collected from already published sources such as, NSE websites, internal records, reference from text books and journal relating to derivatives. The data collection includes:

- a) Collection of required data from NSE and BSE websites
- b) Reference from text books and journals relating to Indian stock market system and financial derivatives

IV. LIMITATIONS OF THE STUDY

- The findings of the current study shall hold good only for the period under study i.e., 2015-2022 as there might be changes in data over different periods of time.
- The study has covered the aspects of Equity derivative market segment of National Stock Exchange only. All aspects of Derivative market are not covered.

Concept of Derivatives

Derivatives are financial products based on the price of another financial asset or commodity. These instruments cannot exist without an underlying asset, which is a security, commodity, or loan. They are also known as postponed payment or delivery devices. According to Section 2 (ac) of the Securities Contracts (Regulation) Act of 1956,

"Derivative" means (A) "a security derived from a debt instrument, share, loan, whether secured or unsecured, risk instrument or contract for differences or any other form of security;" (B) "a contract which derives its value from the prices, or index of prices, of underlying securities;"

Uses/Application of Derivatives

- ❖ Derivatives are primarily used to efficiently manage risks through tactics such as arbitrage, spreading, and hedging.
- ❖ Derivatives predict future pricing trends, leading to price adjustments in the spot market.
- ❖ They help individual and institutional investors create effective asset allocation and portfolio management techniques.
- ❖ Derivatives improve liquidity by eliminating the need for fast settlement, as most transactions are done through margin trading. This market attracts a large number of dealers and arbitrageurs, cutting transaction costs.
- ❖ Derivatives help stabilise cash market values by reducing short-term swings.
- ❖ Market perfection ensures that no investor has a significant advantage over others, as the returns of more securities are already covered by current ones, leaving no room for additional securities.
- ❖ Derivatives enable the free trading of risk components, resulting in increased market efficiency. Traders seek to substitute derivative positions for underlying asset positions.
- ❖ Though not a common application, financial derivatives are also utilised for speculating. They can be hazardous if not used properly. Proper knowledge allows for profitable usage of these tools.

Table 1: Historical Progress of Derivative Market in India (National Stock Exchange)

S. No.	Product	Asset Underlying	Date of Introduction
1.	Index Futures	NIFTY	12 th June 2000
2.	Index Options	NIFTY	4 th June 2001
3.	Individual Securities Options	Individual Securities	2 nd July 2001
4.	Individual Securities Futures	Individual Securities	9 th November 2001
5.	Interest Rate Futures	Government Bills and Bonds	June 2003
6.	Currency Futures	USD – INR	29 th August 2008
7.	Currency Options	USD – INR	29 th October 2010
8.	Bank Nifty Futures & Options	BANKNIFTY	13 th June 2013
9.	Cross currency Futures & Options	EUR-USD, GBP-USD and USD-JPY	27 th February 2018
10.	Bullion Futures	Respective Commodity	12 th October 2018
11.	Financial Services Nifty Futures & Options	NIFTY FINANCIAL SERVICES	11 th January 2021
12.	Nifty Midcap Futures & Options	NIFTY MIDCAP SELECT	24 th January 2022

Source: Compiled from NSE website. Discontinued Derivative products do not form a part of the table.

Business Growth of NSE in F&O Segment

(Table 2: Growth in F&O segment (National Stock Exchange))

Year	Total No. of contracts	Total Turnover (Rs. in crores)
2015-16	2098610395	64825834.30
2016-17	1399746129	94370301.61
2017-18	1913878548	164984859.05
2018-19	3167183212	237590973.69
2019-20	5137228372	345391355.46
2020-21	8534860876	643618108.26
2021-22	18660140821	1695233134.47
2022-23	22883189503	2052359240.21

Till 30th November 2022

Source: NSE Website

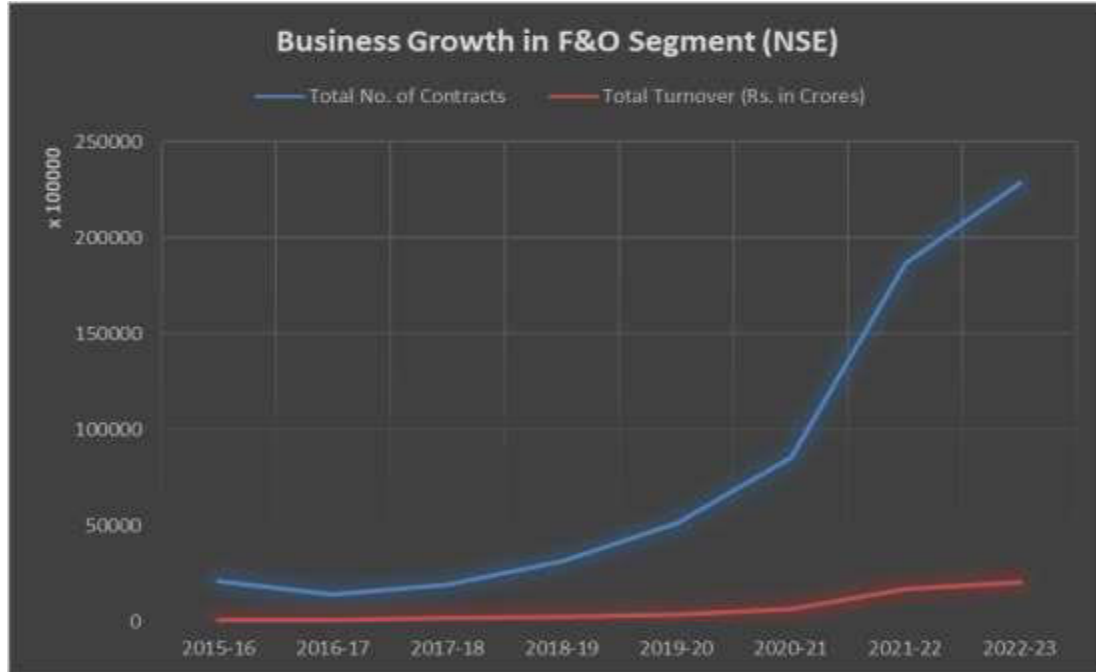


Fig 1: Business Growth in F&O Segment (NSE)

The chart above demonstrates the continuing rise of the derivative market in the NSE's F&O segment, both in terms of contract volume and turnover. This is a signal of growth and a good omen for the Indian economy.

Business Growth of NSE in Stock Futures & Stock Options

Table 3: Business Growth in Stock F&O segment (National Stock Exchange)

Year	Stock Futures		Stock Options	
	No. of contracts	Turnover (₹ cr.)	No. of contracts	Premium Turnover
2015-16	234243967	7828606.00	100299174	61118.39
2016-17	173860130	11129587.14	92106012	95570.09
2017-18	214758366	15597519.71	126411376	148217.50
2018-19	255533869	16147010.86	186986542	200010.31
2019-20	257380338	14919550.78	198377569	229034.28
2020-21	252830922	18098365.39	330394648	579351.62
2021-22	265609687	21038937.56	677512461	1038830.27
2022-23*	192373118	12933207.83	547253828	634730.11

*Till 30th November 2022

Source: NSE Website



Fig 2: Performance of Stock Futures (NSE)

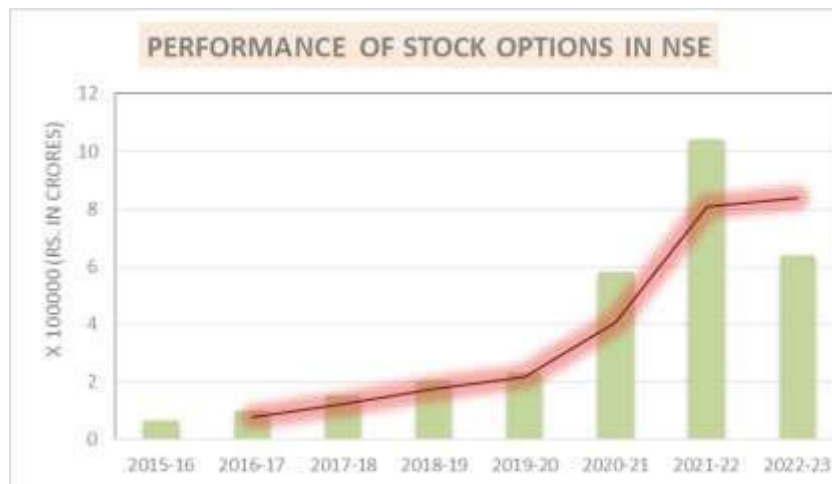


Fig 3: Performance of Stock Options (NSE)

Fig 2 depicts the pattern of performance of Stock Futures in NSE. The chart reveals that there is continuous hike in the trading of Stock futures from the year 2015-16 to 2018-19. There is a slight fall in the year 2019-20. Again they have bounced back to the upward trend.

Fig 3 indicates the pattern of performance of Stock Options in NSE. There has been a strong and steady increase in the turnover of Stock options year on year. The performance of Stock options is exceptionally good over the past 7 years. The dip in the year 2022-23 is not a real one since data has been included till 30th November 2022. With 4 more months to go the performance will end up on a higher note.

Findings & Conclusion

Based on the analysis of secondary data obtained from the website of National Stock Exchange the following are the findings and conclusion of the study.

- ❖ Equity Derivative markets in NSE experienced tremendous increase in terms of both number of contracts and turnover in the recent years.
- ❖ The volume of stock futures has been better than volume of index futures in NSE.
- ❖ The performance of index options has been better than performance of stock options in NSE

- ❖ Total of NSE Derivative Turnover of Indian Stock market shows a mounting trend i.e. Rs. 64825834.30 crores in 2015-16 to Rs. 2052359240.21 crores in 2022-23 (as on 30th November 2022)

Financial derivatives provide a significant contribution to price discovery in the Indian stock market. Increased volatility in financial assets, as well as the introduction of risk management strategies and instruments, have all contributed to the growth of the Indian derivative market. SEBI has also made multiple efforts to entice global investors to the Indian derivatives market by implementing regulatory modifications. However, misuses of the derivatives market cannot be fully eliminated. Regulatory systems should be not just efficient, but also investor-friendly. The National Stock Exchange has emerged as the world's largest derivatives exchange in terms of contract volume. In 2021, NSE retains its top position for the third year in a row. This demonstrates the efficiency of the Indian derivative market.

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