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# A Study on Financial Derivatives (Futures and Options) with Special Preference to Indian Derivatives Market

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**Abstract**

This paper investigates the growth and function of financial derivatives, particularly futures and options, within the Indian capital markets. Derivatives serve as tools for hedging, speculation, and efficient portfolio management. With the introduction of derivatives in India in the early 2000s, their usage and significance have risen sharply. This study focuses on turnover and contract growth patterns on NSE and BSE, comparing these trends to global benchmarks. Findings indicate that India's derivatives market, though relatively young, has evolved into one of the most dynamic globally. The paper also highlights regulatory frameworks, trading practices, and key market instruments.

## 1. Introduction

Derivatives are financial contracts whose value is derived from underlying assets such as stocks, bonds, currencies, or commodities. These instruments include futures, options, forwards, and swaps. They are essential for risk management, price discovery, and arbitrage.

The Indian derivatives market began in earnest in June 2000 with the introduction of index futures on the NSE. This was soon followed by index options, stock futures, and stock options. Today, the Indian derivatives market stands as one of the most active globally, driven by policy reforms, institutional investor participation, and increased awareness.

## 2. Objectives of the Study

- Analyze the growth of the Indian derivatives market from 2000 to 2015.
- Evaluate the effectiveness of futures and options in risk management.

 

- Compare Indian derivatives with global counterparts.
- Examine the regulatory framework governing derivatives in India.
- Identify the challenges and limitations of the Indian derivatives market.

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**3. Literature Review**

Financial derivatives evolved from commodity markets where traders used forward contracts to hedge price risks. The modern financial derivatives era began post-1970s amid increasing market volatility. In India, SEBI and RBI laid the regulatory foundation for derivatives in the late 1990s. Scholars such as Hull (2009) and Chance (2008) emphasize the efficiency and utility of derivatives in financial systems.

Futures are standardized agreements to buy or sell at a future date, traded on regulated exchanges. Options give the right but not the obligation to buy or sell an asset. Index-based derivatives are preferred for their liquidity and simplicity. Over-the-counter derivatives, while flexible, pose higher credit risk.

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**4. Research Methodology**

The study adopts a quantitative approach using secondary data from the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). Time-series data from 2000 to 2015 was analyzed. Key metrics included the number of contracts, turnover value, and growth trends. Data from World Federation of Exchanges (WFE) was used for international comparisons.

A comparative analysis of Sensex and Nifty futures and options was conducted. The study also included global benchmarks such as the Chicago Board Options Exchange (CBOE) and Korea Exchange (KRX) to contextualize India's performance.

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## 5. Data Analysis

**Table 1 Growth of Turnover and No. of Contracts (Index Future)**

| Year | Index Futures | | | | | |
|---|---|---|---|---|---|---|
| | No. of contracts | | | Turnover (Cr.) | | |
| | | Increase | % of Increase | | Increase | % of Increase |
| 2000-01 | 90580 | | | 2365 | | |
| 2001-02 | 1025588 | 935008 | 1032.245529 | 21483 | 19118 | 808.372093 |
| 2002-03 | 2126763 | 1101175 | 107.3701135 | 43952 | 22469 | 104.5896756 |
| 2003-04 | 17191668 | 15064905 | 708.3490262 | 554446 | 510494 | 1161.480706 |
| 2004-05 | 21635449 | 4443781 | 25.84845752 | 772147 | 217701 | 39.26459926 |
| 2005-06 | 58537886 | 36902437 | 170.5646922 | 1513755 | 741608 | 96.04492409 |
| 2006-07 | 81487424 | 22949538 | 39.20458966 | 2539574 | 1025819 | 67.7665144 |
| 2007-08 | 156598579 | 75111155 | 92.17514963 | 3820667.27 | 1281093.27 | 50.44520341 |
| 2008-09 | 210428103 | 53829524 | 34.37420974 | 3570111.4 | -250555.87 | -6.557908666 |
| 2009-10 | 178306889 | -32121214 | -15.2646978 | 3934388.67 | 364277.27 | 10.2035267 |
| 2010-11 | 165023653 | -13283236 | -7.44964823 | 4356754.53 | 422365.86 | 10.73523476 |
| 2011-12 | 146188740 | -18834913 | -11.41346265 | 3577998.41 | -778756.12 | -17.87468435 |
| 2012-13 | 96100385 | -50088355 | -34.26279958 | 2527130.76 | -1050867.65 | -29.37026599 |
| 2013-14 | 105252983 | 9152598 | 9.523997224 | 3083103.23 | 555972.47 | 22.00014652 |
| 2014-15 | 129303044 | 24050061 | 22.84976664 | 4107215.2 | 1024111.97 | 33.21692119 |

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**Table 2 Growth of Turnover and No. of Contracts (Stock Future)**

| Year | Stock Futures | | | | | |
|---|---|---|---|---|---|---|
| | No. of contracts | | | Turnover (Cr.) | | |
| | | Increase | % of Increase | | Increase | % of Increase |
| 2001-02 | 1957856 | | | 51515 | | |
| 2002-03 | 10676843 | 8718987 | 445.333416 | 286533 | **235018** | **456.21275** |
| 2003-04 | 32368842 | 21691999 | 203.168661 | 1305939 | **1019406** | **355.77263** |
| 2004-05 | 47043066 | 14674224 | 45.3344114 | 1484056 | **178117** | **13.638998** |
| 2005-06 | 80905493 | 33862427 | 71.9817603 | 2791697 | **1307641** | **88.112645** |
| 2006-07 | 104955401 | 24049908 | 29.7259273 | 3830967 | **1039270** | **37.227178** |
| 2007-08 | 203587952 | 98632551 | 93.9756793 | 7548563.23 | **3717596** | **97.040675** |
| 2008-09 | 221577980 | 17990028 | 8.8364895 | 3479642.12 | **-4068921** | **-53.903253** |
| 2009-10 | 145591240 | -75986740 | -34.293453 | 5195246.64 | **1715605** | **49.304051** |
| 2010-11 | 186041459 | 40450219 | 27.7834154 | 5495756.7 | **300510.1** | **5.7843271** |
| 2011-12 | 158344617 | -27696842 | -14.887457 | 4074670.73 | **-1421086** | **-25.857876** |
| 2012-13 | 147711691 | -10632926 | -6.7150537 | 4223872.02 | **149201.3** | **3.6616772** |
| 2013-14 | 170414186 | 22702495 | 15.3694639 | 4949281.72 | **725409.7** | **17.174045** |
| 2014-15 | 237604741 | 67190555 | 39.4277945 | 8291766.27 | **3342485** | **67.53474** |

 

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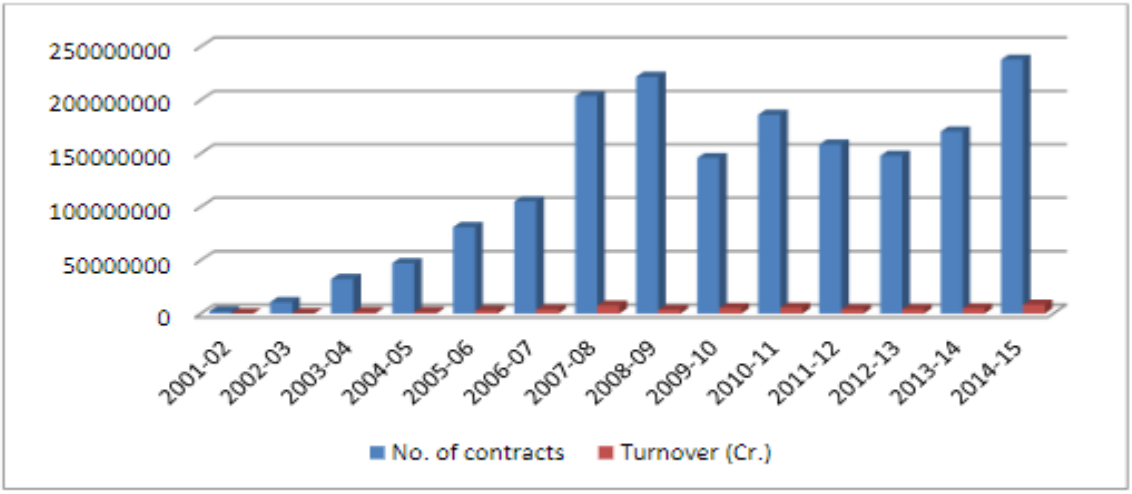


**Figure 2 Growth of Turnover and No. of Contracts (Stock Future)**

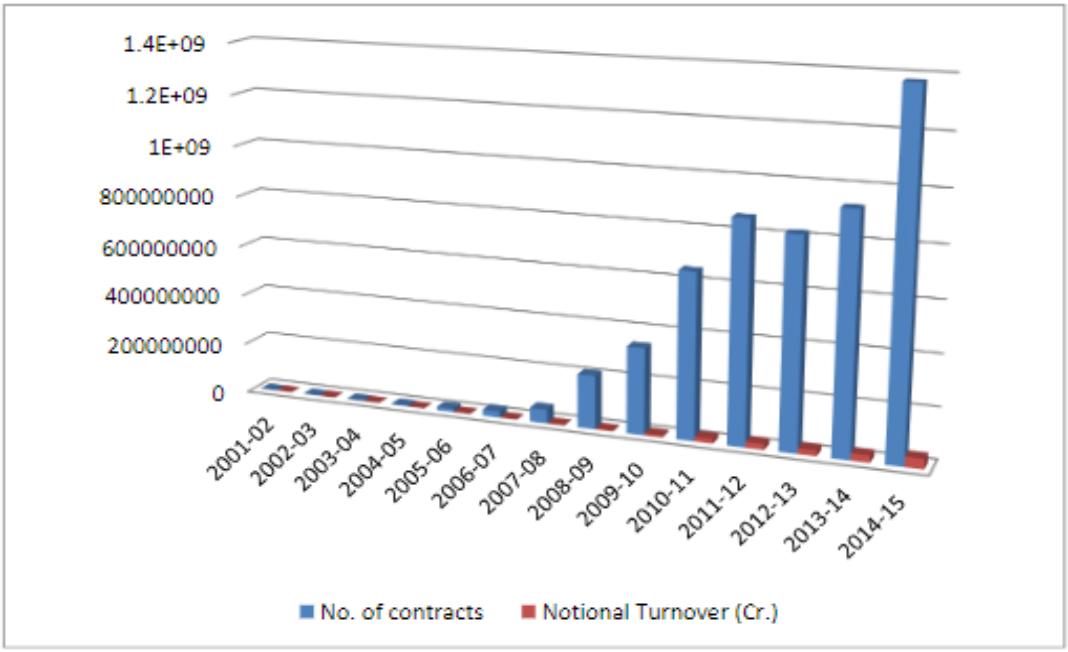


**Figure 3 Growth of Turnover and No. of Contracts (Index Option)**

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**Table 3 Growth of Turnover and No. of Contracts (Index Option)**

| Year | Index Option | | | | | |
|---|---|---|---|---|---|---|
| | No. of contracts | | | Notional Turnover (Cr.) | | |
| | | Increase | % Of Increase | | Increase | % Of Increase |
| 2001-02 | 175900 | | | 3765 | | |
| 2002-03 | 442241 | 266341 | 151.416146 | 9246 | 5481 | 145.577689 |
| 2003-04 | 1732414 | 1290173 | 291.735276 | 52816 | 43570 | 471.230803 |
| 2004-05 | 3293558 | 1561144 | 90.113795 | 121943 | 69127 | 130.882687 |
| 2005-06 | 12935116 | 9641558 | 292.739888 | 338469 | 216526 | 177.563288 |
| 2006-07 | 25157438 | 12222322 | 94.4894657 | 791906 | 453437 | 133.967069 |
| 2007-08 | 55366038 | 30208600 | 120.078205 | 1362111 | 570204.9 | 72.0041116 |
| 2008-09 | 212088444 | 156722406 | 283.065958 | 3731502 | 2369391 | 173.949933 |
| 2009-10 | 341379523 | 129291079 | 60.9609258 | 8027964 | 4296462 | 115.140299 |
| 2010-11 | 650638557 | 309259034 | 90.5909737 | 18365366 | 10337402 | 128.76741 |
| 2011-12 | 864017736 | 213379179 | 32.795348 | 22720032 | 4354666 | 23.7112941 |
| 2012-13 | 820877149 | -43140587 | -4.993021 | 22781574 | 61542.5 | 0.2708733 |
| 2013-14 | 928565175 | 107688026 | 13.1186532 | 27767341 | 4985767 | 21.8850861 |
| 2014-15 | 1378642863 | 450077688 | 48.4702313 | 39922663 | 12155322 | 43.7756072 |


**Figure 4 Growth of Turnover and No. of Contracts (Stock Option)**

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Table 4 Growth of Turnover and No. of Contracts (Stock Option).

| Year | Stock Option | | | | | |
|---|---|---|---|---|---|---|
| | No. of contracts | | | Notional Turnover (Cr.) | | |
| | | Increase | % of Increase | | Increase | % of Increase |
| 2001-02 | 1037529 | | | 25163 | | |
| 2002-03 | 3523062 | 2485533 | 239.56275 | 100131 | 74968 | 297.9295 |
| 2003-04 | 5583071 | 2060009 | 58.4721189 | 217207 | 117076 | 116.922831 |
| 2004-05 | 5045112 | -537959 | -9.63553929 | 168836 | -48371 | -22.26954 |
| 2005-06 | 5240776 | 195664 | 3.87828853 | 180253 | 11417 | 6.76218342 |
| 2006-07 | 5283310 | 42534 | 0.81159737 | 193795 | 13542 | 7.51277371 |
| 2007-08 | 9460631 | 4177321 | 79.0663618 | 359136.6 | 165341.6 | 85.3177585 |
| 2008-09 | 13295970 | 3835339 | 40.5399915 | 229226.8 | -129910 | -36.172798 |
| 2009-10 | 14016270 | 720300 | 5.417431 | 506065.2 | 276838.4 | 120.770502 |
| 2010-11 | 32508393 | 18492123 | 131.933268 | 1030344 | 524279 | 103.599111 |
| 2011-12 | 36494371 | 3985978 | 12.2613812 | 977031.1 | -53313.1 | -5.174298 |
| 2012-13 | 66778193 | 30283822 | 82.9821728 | 2000427 | 1023396 | 104.745502 |
| 2013-14 | 80174431 | 13396238 | 20.0607974 | 2409489 | 409061.3 | 20.4486972 |
| 2014-15 | 91479209 | 11304778 | 14.1002285 | 3282552 | 873063.6 | 36.2343929 |

 

**Table 5 Top 10 Exchanges by Number of Stock Index Options Contracts Traded in 2013**

| Sl No. | Exchange | Millions of contracts traded | Notional value (bn USD) |
|---|---|---|---|
| 1 | NSE India | 930 | 4665 |
| 2 | Korea Exchange | 580 | 67895 |
| 3 | Eurex | 317 | 13758 |
| 4 | BSE Limited | 250 | 1269 |
| 5 | CBOE | 230 | 37335 |
| 6 | TAIFEX | 110 | 1486 |
| 7 | CME Group | 92 | 10229 |
| 8 | JPX Group (Osaka SE) | 57 | NA |
| 9 | Tel-Aviv SE | 48 | 1672 |
| 10 | Moscow Exchange | 42 | 118 |
| | Others | 121 | 6396 |
| | **TOTAL** | **2777** | **144823** |

*Source: Compiled from WFE/IOMA Derivatives Market Survey 2013*

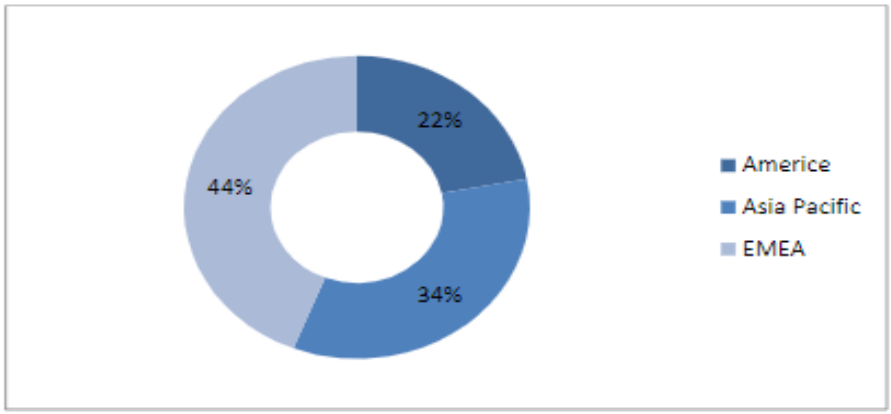


**Figure 7 Region wise derivatives transactions**
*Source: WFE/IOMA Derivatives Market Survey 2013*

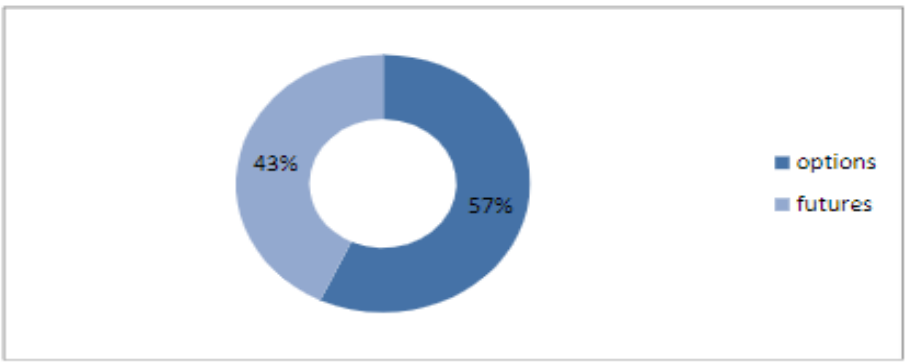


**Figure 8 Product wise derivatives transactions**
*Source: WFE/IOMA Derivatives Market Survey 2013*

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**Table 6 Top 10 exchanges by number of stock index futures contracts traded in 2013**

| Sl No. | Exchange | Millions of Contracts traded | Notional Value (bn USD) |
|---|---|---|---|
| 1 | CME Group | 574 | 46792 |
| 2 | Eurex | 327 | 18711 |
| 3 | Moscow Exchange | 268 | 751 |
| 4 | JPX Group (Osaka SE) | 265 | 7497 |
| 5 | CFFEX | 193 | 22908 |
| 6 | NSE India | 102 | 502 |
| 7 | SGX | 100 | NA |
| 8 | Liffe | 82 | 6285 |
| 9 | BM&FBOVESPA | 74 | 851 |
| 10 | HKEX | 51 | 4666 |
| | Others | 297 | 17708 |
| | **TOTAL** | **2333** | **126671** |

*Source: Compiled from WFE/IOMA Derivatives Market Survey 2013*

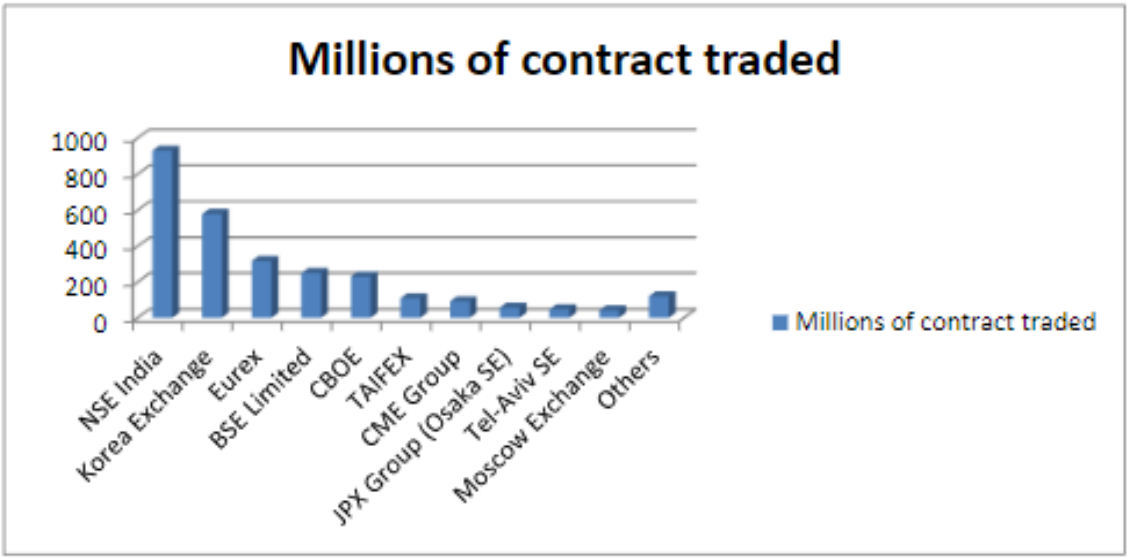


**Figure 5 Top 10 exchanges by number of stock index options contracts traded in 2013**

**Index Futures**:

- 2001-02: 1,025,588 contracts, Rs. 21,483 Cr turnover
- 2003-04: 17,191,668 contracts, Rs. 554,446 Cr
- 2005-06: 58,537,886 contracts, Rs. 1,513,755 Cr
- 2014-15: 129,303,044 contracts, Rs. 4,107,215 Cr
  Growth from 2001-02 to 2014-15: 126x in contracts, 191x in turnover.

**Stock Futures**:

- 2001-02: 1,957,856 contracts, Rs. 51,515 Cr turnover
- 2003-04: 32,368,842 contracts, Rs. 1,305,939 Cr
- 2005-06: 80,905,493 contracts, Rs. 2,791,697 Cr
- 2014-15: 237,604,741 contracts, Rs. 8,291,766 Cr
  Growth: 121x in contracts, 161x in turnover.

**Index Options**:

- 2001-02: 175,900 contracts, Rs. 3,765 Cr turnover
- 2003-04: 1,732,414 contracts, Rs. 52,816 Cr
- 2005-06: 12,935,116 contracts, Rs. 338,469 Cr
- 2014-15: 1,378,642,863 contracts, Rs. 39,922,663 Cr
  Growth: 7,837x in contracts, 10,603x in turnover.

**Stock Options**:

- 2001-02: 1,037,529 contracts, Rs. 25,163 Cr turnover
- 2003-04: 5,583,071 contracts, Rs. 217,207 Cr
- 2005-06: 5,240,776 contracts, Rs. 180,253 Cr

- 2014-15: 91,479,209 contracts, Rs. 3,282,552 Cr
  Growth: 88x in contracts, 130x in turnover.

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**6. Global Comparison**

According to the World Federation of Exchanges:

- 2013: Global Stock Index Options contracts = 2,777 million; NSE India = 930 million (~33.5% market share).
- Global Stock Index Futures contracts = 2,333 million; India ranked sixth in volume.

Asian markets, including Korea and Japan, showed growth, but India's market, supported by SEBI and exchange-led innovation, expanded more aggressively in both volume and notional value.

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**7. Limitations**

- Limited range of derivative products compared to global markets.
- Low participation from retail investors.
- Operational risks and limited liquidity in less popular contracts.
- High margin requirements that restrict small investors.
- Market manipulation and insider trading risks.

Addressing these limitations through reforms and investor education is essential to maintain growth and stability.

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**8. Conclusion**

India’s derivatives market has transitioned from nascent stages in the early 2000s to becoming a global leader in equity derivatives. Futures and options are increasingly used for hedging and speculation. The sharp increase in turnover and contract volume indicates strong market confidence.

Regulatory efforts by SEBI and technological infrastructure by NSE and BSE have contributed to this growth. Going forward, a broader product range, better infrastructure, and retail inclusion can propel India’s derivatives market further.

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**References**


- Hull, J. (2009). Options, Futures and Other Derivatives.
- SEBI Annual Reports (2000-2015)
- NSE & BSE Historical Data
- WFE Global Derivatives Statistics (2013)
- Chance, D. (2008). Analysis of Derivatives for Risk Management