

A Study of Indian Derivatives Market and its Current Position in Global Financial Derivatives Market

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Abstract: Derivatives emerged as hedging instruments out of the need to control price risk. Earlier commodity prices were the sole concern of business community, and therefore, the derivatives on commodities were the first ones to emerge. The introduction of derivatives in India can be traced out in 1875, when the Bombay Cotton Trading Association Ltd was set up for futures trading in cotton. At present the markets for derivatives have been growing at a phenomenal pace. This paper traces the growth and current position of Indian derivatives market. Since its inception in June 2000, derivatives market has exhibited exponential growth both in terms of volume and number of contract traded. The market turnover has grown from Rs.24bn in 2000-01 to Rs. 2376tn in 2018-19. The present study is an effort to demonstrate the growth and expansion of derivatives in India during the time period 2010-11 to 2018-19. It also encompasses the scope, history, concept, types and growth of financial derivatives in India and the status of Indian derivatives market vis-à-vis global derivative market.

Keywords: Bombay stock exchange, Derivatives, Forward, futures, Options, National stock exchange, Swaps, World federation of exchanges.

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.

Derivative trading though have well established market in the global scenario, have seen their presence in an organized from

in Indian capital markets only since 2000. NSE was the first to introduce Derivative Segment in India by launching Index derivatives followed by derivatives on Individual stocks and on approved commodity. The latest inclusion of NSE is the commodity derivative in the year 2018 by introducing Bullion Futures. The oldest stock exchange of India BSE also conducts derivative trading. However, the Futures Industry Association (IFA) data shows that NSE has become the world's largest exchange by trading volumes, outpacing US-based CME Group. NSE notched up 6 billion contracts traded volume in 2019, surpassing the CME Group to become the world's largest exchange. In the light of the fact that more and more people are taking part in derivative trading like futures and options and are trading both in capital and commodity markets, there arises an imperative need for us to learn about every aspect of derivatives in detail.

The present study attempts to discuss the whereabouts of derivatives trading by tracing the historical development, types, trends, growth and developments of derivative market in India.

2. Objective 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.

3. Research Methodology

This is a secondary data based study. The data used for this research was obtained from academic journals, Google scholar search engines and various reports like Annual Derivatives Report of World Federation of Exchanges. Statistics regarding derivative market performance was compiled from the site of NSE.

The study is organized into five sections. First section deals with the concept, definition, uses and classification of derivatives. Second section has been devoted to a discussion of evolution and growth of derivatives market in India. Thirdly a discussion on the statistical information (data) collected from secondary sources has been given. Later on the paper discusses

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the status of Indian derivative market in the global derivative market. The last section specifies summary and concluding remarks of the study along with some findings derived from the study.

4. Limitations of the Study

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

5. Concept of Financial Derivatives

Derivatives have been in use for a long time but they still remain a mystery for a vast majority. The commodity derivatives were the earliest entry in the market. Afterwards, in the 1970s derivatives were introduced gradually on a number of underlying assets. These were instruments used by corporations to reduce their exposure to various kinds of risks.

A derivative is a financial product which has derived its value from another financial product or commodity. Thus the derivatives do not have independent existence without underlying product and market. Derivatives are contracts which are written between two parties for easily marketable assets. They are also known as deferred delivery or deferred payment instruments. The exchange traded derivatives are quite liquid and bear low transaction cost. It is also possible to combine them to match specific requirements. In other words, they are easily amenable to financial engineering.

Definition:

The securities contracts (Regulation) Act 1956 defines “derivative” as under section 2 (ac). As per this “Derivative” includes (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 derived its value from the price, or index of prices at underlying securities.”

As such the financial derivatives are financial instrument whose prices or values are derived from the prices of other underlying financial instruments or financial assets. The underlying instruments may be an equity share, stock, bond, debenture, Treasury bill, foreign currency or even another derivative asset.

Uses of Derivatives:

- To control, shift, avoid, reduce, eliminate or manage efficiently various types of risks through hedging, arbitraging, and insuring against them.
- They serve as barometers of future trends in prices which would in turn result in the correction of prices on the spot market.
- Derivative products enhance liquidity and reduce transaction costs in the market for the underlying assets.
- They enable individual investors as well as institutional investors to design strategies for proper asset allocation and portfolio management.
- Derivative market narrow down price spread and integrates price structure at different points of time.

- It facilitates the process of diversification.
- Encourage competition

Classification of Derivatives:

There are various types of financial derivatives based on their different properties like, plain. Simple or straight forward, composite, joint or hybrid, synthetic, leveraged, mildly leveraged, customized or OTC traded, standardized or organized exchange traded, regulated and unregulated etc. are available in the market.

There are many ways in which the derivatives can be categorized based on the markets where they trade; based on the underlying asset and based on the product feature etc. some ways of classification are following:

A. *Financial and Non-financial derivatives*

a) Financial derivatives are derivatives which are of financial nature. They are following:

- Forwards
- Futures
- Options
- Swaps

b) Non-financial derivatives

Those derivatives which are not of financial nature are called non-financial derivatives. They are following:

- Commodities
- Metals
- Weather
- Others

B. *On the basis of market where they trade*

On the basis of this classification, the derivatives can be classified into three categories namely; OTC traded derivatives and exchange-traded derivatives.

a) OTC traded derivatives: These are the derivative contracts which are traded directly between two parties, without going through an exchange or other intermediary. The OTC derivative market is the largest market for derivatives and largely unregulated with respect to disclosure of information between parties.

They are the following:

- Swaps
- Forward rate agreements
- Exotic options
- Other exotic derivative

b) Exchange-traded derivatives: These are derivative instruments that are traded via specialized derivatives exchange or other exchanges. A derivatives exchange is a market where individuals’ trade standardized contracts that have been defined by the exchange. Derivative exchange act as an intermediary to all related transactions and takes initial margin from both sides of the trade to act as a guarantee. They may be the following:

- Futures
- Options
- Interest rate
- Index product
- Convertible

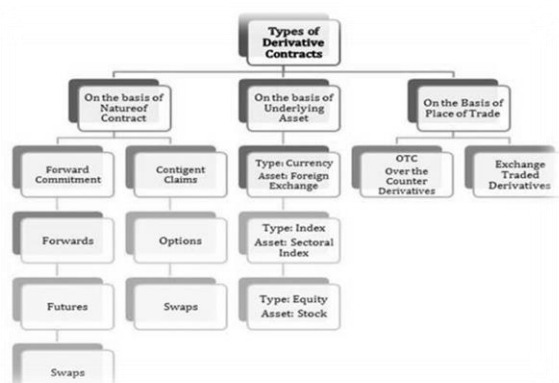


Fig. 1. Types of derivative contracts

1) Forward contract

A forward contract is an agreement entered into between the buyer and seller in order to exchange the commodity or instrument for cash at a predetermined future date at a price agreed upon today. Such predetermined price is called 'forward price'.

2) Futures contract

The futures contracts are almost similar to forward contracts, but differing in some characteristics. Futures contracts are otherwise known as exchange traded forwards. In other words, futures contracts are standardized, exchange traded and are subject to rules and regulations of the exchange. The quantity and grade of commodity in each contract is also predetermined.

3) Options contract

An option is a particular type of a contract between two parties where one person gives the other person the right to buy or sell a specific asset at a specified price within a specified time period. In theory, an option can be written on almost any type of underlying security. Equity (stock) is the most common, but there are also several types of non-equity options, based on securities such as bonds, foreign currency, indices or commodities such as gold or oil.

4) Swaps contract

Swap is an agreement between two or more parties to exchange a stream of future cash flow with another stream of cash flow with different characteristics. Swaps are useful in avoiding the problems of unfavorable fluctuation in the FOREX market. The parties that agree to the swap are known as counter parties. The two commonly used swaps are interest rate swaps and currency swaps.

6. Evolution of Derivative Market in India

Derivative trading commenced in India in June 2000 after SEBI granted the final approval to this effect in May 2000 on the recommendations of the L. C. Gupta committee. Initially, SEBI approved trading in index futures contracts based on various stock market indices such as S&P CNX, Nifty and Sensex. Subsequently, index-based trading was permitted in options as well as individual securities. Stock futures (SF) and stock options (SO) were permitted only in 32 scrips in BSE and NSE respectively to begin with, in November 2001. But from January 2003 onwards, SFs and SOs were permitted in 62 scrips on NSE and 52 scrips on BSE. The minimum contract size for

derivatives trading earlier was Rs. 2 lakhs, which was then reduced to 1 lakh in 2003. In June 2003, NSE introduced Interest Rate Futures which were subsequently banned due to pricing issues. Table 1 shows the chronological development of the Indian derivative market.

Table 1
Development of Derivative market in India

Date	Progress
14 December 1995	NSE asked SEBI for permission to trade index futures.
18 November 1996	SEBI setup L.C. Gupta Committee to draft a policy framework for index futures.
11 May 1998	L.C. Gupta Committee submitted report.
7 July 1999	RBI gave permission for OTC forward rate agreements (FRAs) and interest rate swaps.
24 May 2000	SIMEX chose Nifty for trading futures and options on an Indian index.
25 May 2000	SEBI gave permission to NSE and BSE to do index futures trading.
9 June 2000	Trading on BSE Sensex futures commenced at BSE.
12 June 2000	Trading of Nifty futures commenced at NSE.
31 August 2000	Trading of futures and options on Nifty to commence at SIMEX.
June 2001	Trading of Equity Index Options at NSE
July 2001	Trading of Stock Options at NSE
November 2002	Trading of Single Stock Futures at BSE
June 2003	Trading of Interest Rate Futures at NSE
September 2004	Weekly Options at BSE
January 2008	Trading of Mini Index Futures and Options at NSE
August 2008	Trading of Currency Futures at NSE
October 2008	Trading of Currency Futures at BSE
December 2008	S&P CNX futures & options at NSE
August 2009	Launch of interest rate futures at NSE
December 2009	BSE's new derivatives rate to lower transaction costs for all
February 2010	Launch of currency future on additional currency pairs at NSE
April 2010	Financial derivatives exchange award of the year by Asian Banker to NSE
July 2010	Commencement trading of S&P CNX Nifty futures on CME at NSE
October 2010	Introduction of European style stock option at NSE
October 2010	Introduction of Currency options on USD INR by NSE
July 2011	Commencement of 91 day GOI trading Bill futures by NSE
August 2011	Launch of derivative on Global Indices at NSE
September 2011	Launch of derivative on CNX PSE & CNX infrastructure Indices at NSE
30 March 2012	BSE launched trading in BRICSMART indices derivatives
29 November 2013	BSE launched currency derivative segment
12 October 2018	NSE started commodity derivative trading with the launch of bullion futures

7. Growth of Indian Derivative Market

In India, derivatives instruments are available for stocks, currency, bonds, and commodities. The National Stock Exchange, the Bombay Stock Exchange, and the Multi Commodity Exchange are the main exchanges which facilitate derivatives trading. While MCX purely deals with commodities, NSE and BSE deal exclusively in stocks. However, trade in various currency derivatives is carried out in all three exchanges.

Table 2
Business growth in stock futures and stock options for the period 2010-11 to 2019-20

Year	Stock Futures		Stock Options	
	No. of contracts	Turnover (₹ Cr.)	No. of contracts	Premium Turnover (₹ Cr.)
2010-11	186041459	5495756.70	32508393	20474.97
2011-12	158344617	4074670.73	36494371	19612.93
2012-13	147711691	4223872.02	66778193	34288.56
2013-14	170414186	4949281.72	80174431	46428.41
2014-15	237604741	8291766.27	91479209	61732.59
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	200823338	11556910.13	157116033	168853.20

Source: NSE

Table 3
Business growth in index futures and index options for the period 2010-11 to 2019-20

Year	Index Futures		Index Options	
	No. of contracts	Turnover (₹ Cr.)	No. of contracts	Premium Turnover (₹ Cr.)
2010-11	165023653	4356754.53	650638557	192637.87
2011-12	146188740	3577998.41	864017736	253068.22
2012-13	96100385	2527130.76	820877149	184383.24
2013-14	105252983	3083103.23	928565175	244090.71
2014-15	129303044	4107215.20	1378642863	265315.63
2015-16	140538674	4557113.64	1623528486	351221.01
2016-17	66535070	4335940.78	1067244916	350021.53
2017-18	57674584	4810454.34	1515034222	460653.71
2018-19	69824522	5568914.47	2652457487	654099.95
2019-20	68119133	4953312.37	3551516858	743057.36

Source: NSE

The derivatives products available in stock are stock options and stock futures. Similarly, there are derivative products for indices like index futures and options. Further commodity derivatives comprise of commodities futures. Currency derivatives instruments in India include currency futures and options in 4 major currency pairs. These pairs are USD-INR, JPY-INR, and EUR-INR.

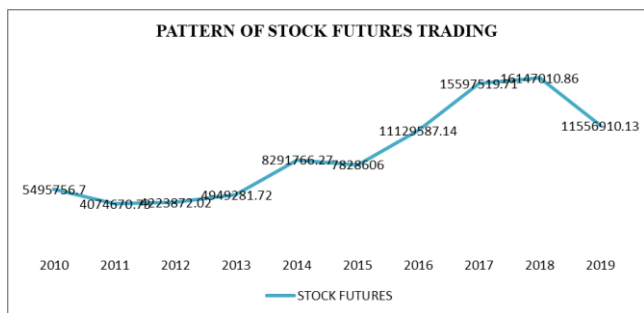


Fig. 1. Performance of Stock Futures in NSE

Here the graph shows the pattern of performance of Stock Futures in the NSE. It appears that the trend was downward during the period from 2010 to 2013. From the year 2015 onwards, there is a continuous hike in the turnover of Stock Futures trading which lasted for almost four years. In the year 2019, the trading is recorded comparatively lower.

The pattern of performance of Stock Options is such that there were some fluctuations in the turnover in the period 2010 to 2013. Afterwards it is showing very unpredictable rise for the next two years. Then again there was deep fall in the year 2016. But the market was able to recover itself in the next year itself. However, similar to stock futures, stock option trading is also depicting a downfall during the previous year.

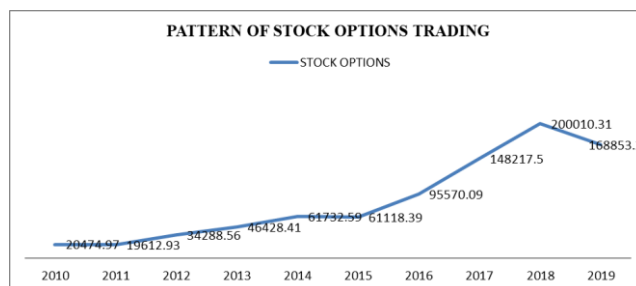


Fig. 2. Performance of Stock Options in NSE

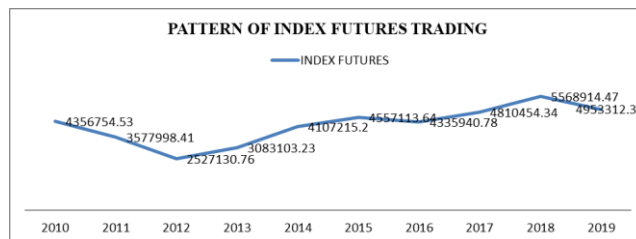


Fig. 3. Performance of Index Futures in NSE

The Index Futures trading is showing an unpredictable pattern of trading wherein ups and downs are very frequently appearing on every alternative year. It is to be noted that as compared to the past years the turnover was recorded highest in the year 2018. Again 2019 is showing a downfall in Index Futures trading also.

The trading performance of Index Options is doing extremely well in the past 10 years. It is only derivative product which is having such strong and steady rise in the turnover. In the recent years the only downfall in the turnover was in 2015 that too very minor one.

Table 5
Business growth in currency futures and options for the period 2010-11 to 2019-20

Year	Currency Futures		Currency Options	
	No. of contracts	Turnover (₹ Cr.)	No. of contracts	Premium Turnover (₹ Cr.)
2010-11	71,21,81,928	32,79,002.13	3,74,20,147	946.70
2011-12	70,13,71,974	33,78,488.92	27,19,72,158	7,100.69
2012-13	68,41,59,263	37,65,105.33	27,50,84,185	10,109.99
2013-14	47,83,01,579	29,40,885.92	18,18,90,951	7,297.15
2014-15	35,55,88,963	22,47,992.34	12,50,75,731	3,164.45
2015-16	40,97,59,364	27,49,332.96	26,38,23,800	6,059.00
2016-17	36,26,15,931	24,89,778.94	34,98,35,508	7,153.09
2017-18	39,04,33,137	25,95,685.67	37,45,30,592	7,572.55
2018-19	65,00,24,870	46,54,927.35	54,83,59,351	14,615.62
2019-20	48,82,53,490	36,37,685.99	53,25,38,010	9,716.59

Source: NSE

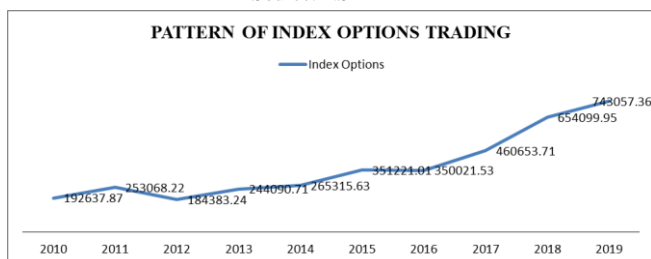


Fig. 4. Performance of Index Options in NSE

Table 4
Business growth in commodity futures for the period 2018 to 2020

Year	Commodity Futures	
	No. of contracts	Turnover (₹ Cr.)
2018-19	46,899	3,443.82
2019-20	1,38,196	6,056.45

Source: NSE

Commodity trading in NSE was introduced in October 2018 with the launch of Bullion futures. Before that NSE only dealt with stock derivatives as well as currency derivatives.

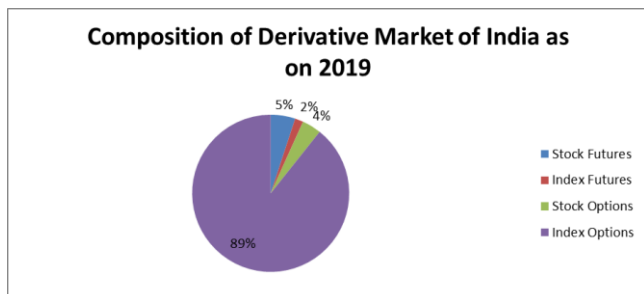


Fig. 5. Composition of Derivative Market of India

Thus, it is evident from the statistics compiled from NSE, regarding the derivatives that the major portion of the derivative market accounts for Index Options. Only 5%, 4% and 2% constitute stock futures, Stock Options and Index Futures. As of now Index Futures are the least developed segment of the Indian Derivative Market.

In the case of Currency Future there has been a high degree of fluctuation in the volume of trading in every alternative year starting from 2014 onwards. The size of variation is also huge. But in the case of Currency Options, apart from the slight downfall in the period ranging from 2013 to 2015, there has always been a rising trend. However, the previous year was not better for Currency Options as well.

8. Status of Indian Derivative Market in the Global Derivative Market

The World Federation of Exchanges presents an annual report which reveals the current status of global derivatives market. The report is prepared based on a survey of derivatives market. The members of WFE, its affiliates and other renowned exchanges voluntarily submit their data to this survey. The report is named as WFE IOMA Derivatives Report. This provides a detailed analysis of separate derivatives instruments along with their volume of trading, turnover and other important details. The latest report published by World Federation of Exchange was on 10th April 2019.

A. Analyses of India's Position in the Global Derivative Market

Here, in this study, in order to understand the present status of derivative market of India with regard to global derivatives market, the position of Derivative Market of India for the last four years, in respect to the trading volume of different derivative products has been compiled from the various editions of the WFE IOMA Derivative Reports. Derivative Market of India comprises of renowned exchanges like National Stock Exchange, Bombay Stock Exchange Limited as well as Multi Commodity Exchange of India.

Table 6
Analysis of India's position in Stock Futures trading

Year	Position	Exchange	Volume
2015	2 nd	National Stock Exchange of India	257 370 023
2016	2 nd	National Stock Exchange of India	172 712 809
2017	2 nd	National Stock Exchange of India	201 923 887
2018	2 nd	National Stock Exchange of India	252 932 988

Source: Compiled from WFE IOMA Derivatives Report

Here, the statistics shows that India was able to maintain a more or less steady market for the Stock Futures. In fact, the trading volume has been increasing from year to year with a high margin.

Table 7
Analysis of India's position in Stock Options trading

Year	Position	Exchange	Volume
2015	9 th	National Stock Exchange of India	85 404 647
2016	9 th	National Stock Exchange of India	88 815 026
2017	8 th	National Stock Exchange of India	116 497 267
2018	8 th	National Stock Exchange of India	170 098 254

Source: Compiled from WFE IOMA Derivatives Report

The data regarding Stock Option trading depicts that India was able to maintain a strong and steady position in the Stock Options trading. The margin of trading volume is very high in the previous year as compared to past years.

Table 8
Analysis of India's position in Index Futures trading

Year	Position	Exchange	Volume
2015	6 th	National Stock Exchange of India	165 005 113
2016	8 th	National Stock Exchange of India	74 873 789
2017	Nil	Nil	Nil
2018	Nil	Nil	Nil

Source: Compiled from WFE IOMA Derivatives Report

According to the statistical records, Index Futures is the poorest performing segment of the Derivative Market of India in the recent years. Care should be taken to improve it.

Table 9
Analysis of India's position in Index Options trading

Year	Position	Exchange	Volume
2015	1 st	National Stock Exchange of India	1 893 555 261
2016	1 st	National Stock Exchange of India	1 034 997 570
2017	1 st	National Stock Exchange of India	1 362 724 693
2018	1 st	National Stock Exchange of India	2 214 848 247

Source: Compiled from WFE IOMA Derivatives Report

Index Option is the most promising segment of Indian Derivative Market so far now. The volume of trade in this segment is attractively increasing over the past years.

9. Findings

- 1) India has been doing exceptionally well in Index Options trading with a volume of 3,55,15,16,858 contracts being entered in the financial year 2019-20 which is 89,90,59,371 greater in number as compared to the previous year.
- 2) The trading prospectus of Indian derivative market in Currency futures as well as options is also remarkable.
- 3) Derivative Instrument which is being traded second mostly is the Stock Futures with a no. of contracts of 20,08,23,338. However, this is showing a negative trend as compared to the previous year as there is a decline in the volume of trade by 5,47,10,531 contracts.
- 4) Stock Option trading in Indian derivative market is also depicting a declining trend as there is a decrease in volume of trade by 2,98,70,509 in comparison with the previous year.
- 5) The trading volume of Index futures is showing an unpredictable pattern.
- 6) Commodity futures, being in their introductory stages in the NSE are showing a greater volume of trading.
- 7) In the global arena, the Indian derivative market is having the 1st position in the Index Options contracts traded; 2nd position in the Stock futures contracts and 8th position in Stock Options traded.
- 8) However, in the case of Index futures trading India has so far not able to place any of its Derivative Markets in the list of top 10 exchanges.
- 9) In the global financial market, with regard to Currency

futures and options India has been able to acquire topmost positions by the major exchanges of NSE and BSE.

- 10) Multi Commodity Exchange of India is having 8th position in the ranking of world exchanges in respect to commodity futures and options contracts traded in the year 2018-19.

10. 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.

11. Summary and Conclusion

Derivatives act like double-edged sword. On the one hand, derivatives if used effectively provides many benefit to the society like dissemination of information and bringing out liquidity and helping out in diversification as well as portfolio management. On the other hand, when used with in discretion, they may cause unimaginable miseries. Therefore, with the increased trading in derivatives, it is opined that there should be proper and well established regulatory system in order to check the misuses. Most of the derivative transaction does not keep proper accounting records which make the audit of such transactions a difficult task. Derivative transaction with proper disclosures and control can act as a catalyst in the growth of Indian economy. The government shall introduce efficient regulatory system specifically meant for derivative market which shall be investors friendly as well.

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