

Status in Quo of Equity Derivatives Segment of NSE & BSE: A Comparative Study

Shweta Singh¹ & Dr. H.K. Singh²

¹Research Scholar, Faculty of Commerce, Banaras, Hindu University, Varanasi, UP. India. Pin- 221005.

²Professor, Faculty of Commerce, Banaras Hindu, University, Varanasi, UP. India.

Received: July 11, 2018

Accepted: August 28, 2018

ABSTRACT

With the aim to increase return and reduce risk, derivatives are among the prominence innovation in the financial market. Derivatives facilitates investors enjoy huge profits with limited downside. Derivatives market of India has become a central contributor to the financial system. Despite of this, the derivatives market in India has not yet, accomplished its full potential like other developed capital markets. In terms of derivatives trading NSE has emerge as a winner in comparison to BSE. A lot of trading in futures and options segment in Indian stock market has seen and the number of market participants increased phenomenal in a short period. This paper makes an attempt to examine whether there is significant difference between the growth rate of derivatives in terms of no. of contracts traded and turnover in Equity Derivatives Segment of NSE & BSE, to find whether there is strong correlation between them or not and to forecast the total turnover of FO segments of NSE & BSE. The paper consist of Introduction, Literature Review, Objectives, Methodology, and Growth of Equity Derivatives Segment: NSE Vs. BSE, Hypotheses and its testing, Findings & Conclusion, etc.

Keywords: Derivatives, Financial Market, Capital Market, NSE, BSE, Equity Derivatives Segment, etc.

1. Introduction:

All the economic activities or transactions that take place in this uncertain environments of globalization give birth to the different types of financial risks. In order to reduce these financial risks or to manage such risks, various innovative financial instruments have been developed by the endeavors of the financial markets, which are popularly known as financial derivatives. Derivatives are basically instruments used for hedging the risk involved in buying, holding and selling assets whose prices fluctuates. The contract made for hedging the risk of an underlying asset is termed as 'derivative' because it is derived from underlying asset. Thus, the need to hedge the risk of an underlying asset creates a d These are specialized contracts that are designed for a no. of purposes such as enhancing the yield on assets, modifying the payment structure of assets, reduction of funding cost by borrowers. They come up with three important economic functions: Risk Management, Price Discovery & Transactional Efficiency.

1.1 Definitions:

John C. Hull - "A derivative is simple a financial instrument whose value depends on (or derive from) the value of other, more basic underlying variables."

Accounting Standard SFAS133 - "A derivative instrument is a financial derivative or other contract with all three of the following characteristics:

- (i) It has (1) one or more underlyings, and (2) one or more notional amount or payments provisions or both. Those terms determine the amount of the settlement or settlements.
- (ii) It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contract that would be expected to have a similar response to changes in market factors.
- (iii) Its terms require or permit net settlements. It can be readily settled net by a means outside the contract or it provides for delivery of an assets that puts the recipients in a position not substantially different from net settlement."

Section 2(ac) of Securities Contract Regulation Act (SCRA), 1956 - Derivatives:

- (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".

1.2 Major Types of Derivatives:

Those derivatives which are financial in nature are called financial derivatives. They are:

- 1) Forward: It is simplest form of derivative contract which is a customized contract between the buyer and the seller where settlement takes place on a specific date in future at a price agreed today. In this case, the price which is paid/ received by the parties is decided at the time of entering into contract.
- 2) Futures: Futures contract is an agreement between two parties to buy or sell a specified quantity of assets at a specified time and place.
- 3) Options: Options are derivative contract that give the right, but not the obligation to either buy or sell a specific underlying security for a specified price on or before a specific date.
- 4) Swaps: A swap is an agreement between two or more people or parties to exchange sets of cash flows over a period in future.

NSE and BSE are the two major stock exchange of India where derivatives trading takes place on a large scale. In recent years, the derivatives segment has shown the highest growth among all the segments of financial market in India and has become a central contributor to the dynamic state of the financial system. NSE & BSE has been limited to an only few products of derivatives in comparison to variety of derivatives products prevailing across many developed capital markets. But it has been seen that the derivatives turnover on the NSE has exceed its equity market turnover. It also emerge as a winner in derivative trading in comparison to BSE.

2. Literature Review:

- 1) Ashutosh Vashishtha and Satish Kumar (2010) in their research paper “Development of Financial Derivatives Market in India- A Case Study” studied the historical roots of derivative trading, regulation and policy developments, types of derivative products, trend and growth, future prospects and challenges of derivative market in India and concluded that there is an increasing sense that the equity derivatives market is playing a significant role in sculpturing price discovery. Factors like increased volatility in financial asset prices; development of more sophisticated risk management tools; growing integration of national financial markets with international markets; innovations in financial engineering; and wider choices of risk management strategies to economic agents have been driving the growth of financial derivatives worldwide and have also fuelled its growth here in India.
- 2) Viral Acharya and Matt Richardson (2009) “Derivatives – The Ultimate Financial Innovation”: In this article should review that the derivatives background and the ultimate financial innovation of derivatives market. And also the procedures of cost – benefit analysis of derivatives.
- 3) Edmund Parker (2008) “Overview and introduction to equity derivatives”: This review deals with over all Equity derivatives traded in stock exchanges. Size and history of equity derivatives market briefly described the author. They briefly discuss on equity derivatives market constitution, tax benefit, transaction process should be also trading methods on stock market.
- 4) Gary Gorton and K. Geert Rouwenhorst (2005), in their research paper titled “Facts and Fantasies about Commodity Futures” have construct an equally-weighted index of commodity futures monthly returns over the period between July of 1959 and December of 2004 so that to study simple properties of commodity futures as an asset class. The paper found that the fully-collateralized commodity futures have historically offered the same return and sharpe ratio as equities, whereas the risk premium on commodity futures is essentially the same as equities, commodity futures returns are negatively correlated with equity returns and bond returns. The paper also reveals the negative correlation between commodity futures and the other asset classes is due, in significant part, to different behavior over the business cycle. In addition, commodity futures are positively correlated with inflation, changes in expected inflation and unexpected inflation.
- 5) Avadhani (2000) stated that a derivative, an innovative financial instrument, emerged to protect against the risks generated in the past, as the history of financial markets is repleted with crises). Events like the Black Monday of October 1987, the US bond debacle of 1994, the collapse of the fixed exchange rate system in 1971 and the steep fall in the Nikkei in 1989 occurred because of very high degree of volatility of financial markets and their unpredictability. The reason behind the frequent occurrence of such disasters is increased global integration of markets.
- 6) Sahoo (1997) put his opinion as “Derivatives products initially emerged, as hedging devices against fluctuation in commodity prices and the commodity-linked derivatives remained the sole form of

such products for many years. The legal framework for derivatives trading is a critical part of overall regulatory framework of derivative markets”.

3. Objectives:

1. To review the business growth profile of financial derivatives segment of NSE & BSE.
2. To reveal the state of correlation between the growth rate of variables between FO segments of NSE & BSE.
3. To test whether there is a significant difference between the growth rate of different variables of FO segments of NSE & BSE.
4. To find the future forecast of total turnover of FO segments of NSE & BSE.

4. Methodology:

4.1 Data Collection-

The study is totally based on secondary data which has been collected from the sources like websites of NSE, BSE and SEBI, other websites of that field, reputed books and journals on derivatives, published research papers and previous researches conducted in that field.

4.2 Presentation of Data-

The information or data so collected will be presented in the standard format in a comparative and analytical way using tables, diagrams and graphs.

4.3 Analysis of Data-

Statistical tools used for the analysis are Paired Samples Statistics, Paired Samples Correlation, Paired Samples t-test and graphs.

5. Hypotheses:

Hypothesis 1:

Null Hypothesis (**Ho**): There is no significant difference between the turnover values of FO segment of NSE to BSE.

Alternative Hypothesis (**Ha**): There is a significant difference between the turnover values of FO segment of NSE to BSE.

Hypothesis 2:

Null Hypothesis (**Ho**): There is no strong correlation between the turnover values of FO segment of NSE to BSE.

Alternative Hypothesis (**Ha**): There is a strong correlation between the turnover values of FO segment of NSE to BSE.

Hypothesis 3:

Null Hypothesis (**Ho**): There is no significant difference between the growth rates of turnover values of FO segment of NSE to BSE.

Alternative Hypothesis (**Ha**): There is a significant difference between the growth rates of turnover values of FO segment of NSE to BSE

Hypothesis 4:

Null Hypothesis (**Ho**): There is no strong correlation between the growth rates of turnover values of FO segment of NSE to BSE

Alternative Hypothesis (**Ha**): There is a strong correlation between the growth rates of turnover values of FO segment of NSE to BSE

6. Growth of Equity Derivatives Segment:

NSE also known as **The National Stock Exchange of India Limited** is the leading stock exchange of India, located in Mumbai. The NSE was established in 1992 as the first electronic exchange and the first exchange in the country to provide a modern, fully automated screen-based electronic trading system which offered easy trading facility to the investors all over the country. The **Bombay Stock Exchange (BSE)**, established in 1875 is Asia's first stock exchange and world's 10th largest stock exchange located at Dalal Street, Mumbai (formerly Bombay). It emerged to be the world's fastest stock exchange, with a median trade speed of 6 microseconds.

On June 12, 2000, The National Stock Exchange of India Limited (NSE) commenced trading in derivatives with the launch of index futures on June 12, 2000 and Index Options on June 4, 2001. The Bombay Stock Exchange created history on June 9, 2000 by launching the first Exchange-traded Index Derivative Contract in India i.e. futures on the capital market benchmark index - the BSE Sensex and commenced trading in

Index Options on Sensex on June 1, 2001. NSE also was the first exchange to launch trading in options on individual securities from 2nd July, 2001. Stock Options were introduced by BSE on 31 stocks on July 9, 2001 and Single Stock Futures were launched on November 9, 2002. Today, National Stock Exchange of India Limited (NSE) have moved ahead with a varied product offering in all segments of derivatives. Currently, the Exchange provides trading in Futures and Options contracts on 9 major indices and over more than 100 securities. NSE is now one of the prominent exchanges amongst all emerging markets, in terms of financial derivatives turnover.

6.1 Business Growth Profile of FO Segment of NSE & BSE In Terms of Turnover in Crore (cr.): A Comparison

Below are the tables and graphs which provides the detail of comparative growth rate profile of FO segment of NSE & BSE in terms of turnover.

Table 1

Year	NSE		BSE	
	Index Futures	Growth Rate	Index Futures	Growth Rate
2003-04	554446		3082.63	
2004-05	772147	39.26	13599.66	341017
2005-06	1513755	96.04	5	-99.96
2006-07	2539576	67.77	55490.86	1109717
2007-08	3820667.3	50.45	234660.2	322.88
2008-09	3570111.4	-6.56	11757.22	-94.99
2009-10	3934388.7	10.2	96	-99.18
2010-11	4356754.5	10.74	154	60.41
2011-12	3577998.4	-17.87	178448.8	115775.9
2012-13	2527130.8	-29.37	122429.8	-31.39
2013-14	3083103.2	22.09	63493.84	-48.14
2014-15	4107215.2	33.2	48632.35	-23.4
2015-16	4557113.6	10.95	13097.16	-73.06
2016-17	4335941	-4.85	2266.86	-84.95
2017-18	4810454	10.94	3217.51	-81.89

Source: Compiled from NSE & BSE websites.

Table 2

Year	NSE		Stock(Equity)	BSE	
	Stock Futures	Growth Rate		Futures	Growth Rate
2003-04	1305939			1680.34	
2004-05	1484056	13.64		212.85	-87.33
2005-06	2791697	88.11		0.49	-99.76
2006-07	3830967	37.23		3515.5	717349
2007-08	7548563.2	97.04		7609.24	116.45
2008-09	3479642.1	-53.9		8.49	-99.88
2009-10	5195246.6	49.3		0.3	-96.46
2010-11	5495756.7	5.78		0	-100
2011-12	4074670.7	-25.86		10215.7	
2012-13	4223872	3.66		3420.07	-66.52
2013-14	4949281.7	17.17		54599.42	1496.44
2014-15	8291766.3	67.53		9794.26	-82.06

2015-16	7828606	-5.57	1349.59	-86.22
2016-17	11129587	42.17	203.08	-84.95
2017-18	15597520	40.14	36.76	-81.89

Source: Compiled from NSE & BSE websites.

Table 3

Year	NSE		BSE	
	Index Options	Growth Rate	Index Options	Growth Rate
2003-04	52816		0	
2004-05	121943	130.88	2297.23	
2005-06	338469	177.56	3.2	-99.86
2006-07	791906	133.97	0.06	-98.12
2007-08	1362111	72	38.66	64333.33
2008-09	3731502	173.95	9.12	-76.4
2009-10	8027964	115.14	137.76	1410.52
2010-11	18365366	128.77	0.25	-99.81
2011-12	22720032	23.71	618342.4	2.47E+08
2012-13	22781574	0.27	7027482	1036.5
2013-14	27767341	21.89	9055201	28.85
2014-15	39922663	43.78	20129227	122.29
2015-16	48951931	22.62	4386249	-78.2
2016-17	72797288	48.71	4469.35	-99.89
2017-18	1.35E+08	85.33	8.21	-99.81

Source: Compiled from NSE & BSE websites.

Table 4

Year	NSE		BSE	
	Stock Options	Growth Rate	Stock(Equity) Options	Growth Rate
2003-04	217207		258.84	
2004-05	168836	-22.27	2.58	-99
2005-06	180253	6.76	0.09	-96.51
2006-07	193795	7.51	0.2	122.22
2007-08	359136.6	85.32	0.35	75
2008-09	229226.8	-36.17	0	-100
2009-10	506065.2	120.77	0	
2010-11	1030344	103.6	0	
2011-12	977031.1	-5.17	1469.09	
2012-13	2000427	104.75	10246.32	597.46
2013-14	2409489	36.23	46130.69	350.21
2014-15	3282552	36.23	175088.3	279.54
2015-16	3488174	6.26	74312.69	-57.55
2016-17	6107486	75.1	0	-100
2017-18	9655009	58.08	0.18	

Source: Compiled from NSE & BSE websites.

6.2 Graphical Representation:

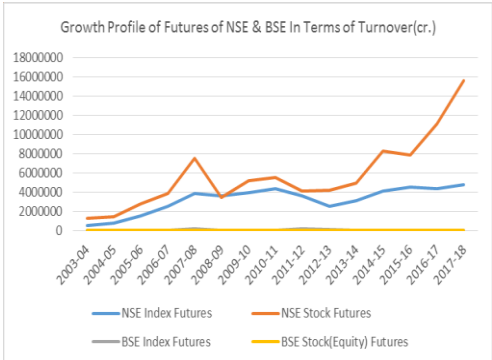


Figure 1: Growth profile of futures of NSE & BSE in terms of turnover(cr.)

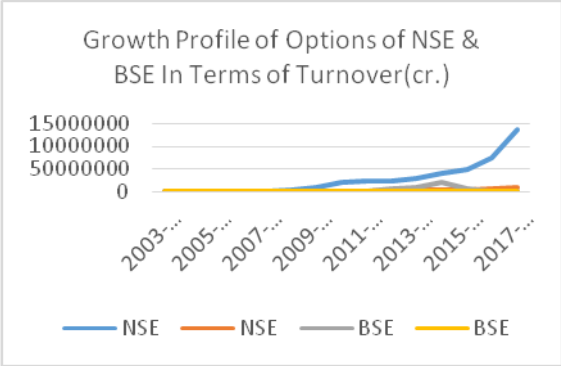


Figure 2: Growth profile of options of NSE & BSE in terms of turnover

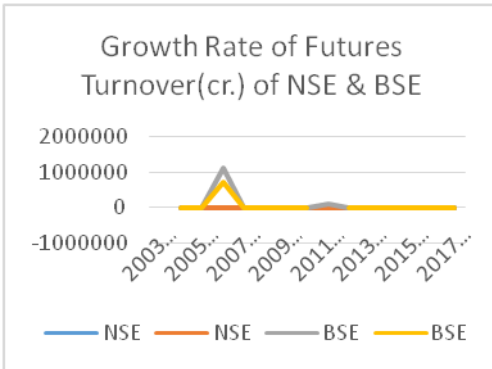


Figure 3: Growth rate of futures turnover (cr.) of NSE & BSE

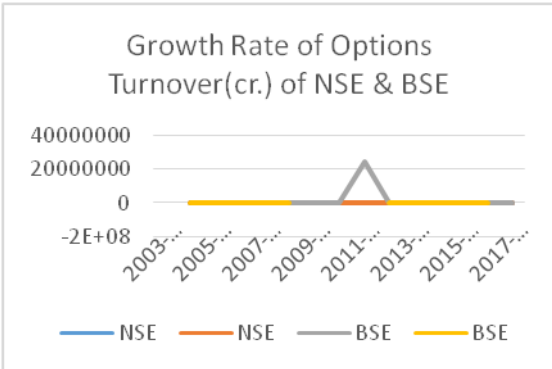


Figure 4: Growth rate of options turnover (cr.) of NSE & BSE

The above graphs reveals that the NSE index futures/options and NSE stock Futures/ is much larger than the BSE index futures/options and BSE stock futures/options in terms of total turnover and their growth rates.

7. Testing of Hypotheses:

Table-5
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Index Futures Turnover NSE	3204053.4820	15	1355686.48873	350036.74624
	Index Futures Turnover BSE	50028.7907	15	72875.03105	18816.25211
Pair 2	Stock Futures Turnover NSE	5815144.7520	15	3794281.54395	979679.28204
	Stock Futures Turnover BSE	6176.4060	15	13876.63481	3582.93170
Pair 3	Index Options Turnover NSE	26843652.1287	15	36751328.80920	9489152.29527
	Index Options Turnover BSE	2748230.9187	15	5624549.94468	1452252.55104
Pair 4	Stock Options Turnover NSE	2053668.7427	15	2707221.17818	699001.50251
	Stock Options Turnover BSE	20500.6247	15	47890.81435	12365.35509

Table-6
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Growth Rate Of Index Futures Turnover NSE	20.9279	14	34.04637	9.09928
	Growth Rate Of Index Futures Turnover BSE	87541.4686	14	295815.36184	79059.98098
Pair 2	Growth Rate Of Stock Futures Turnover NSE	30.9462	13	40.78479	11.31166

Pair 3	Growth Rate Of Stock Futures Turnover BSE	55236.6769	13	198940.46747	55176.15817
	Growth Rate Of Index Options Turnover NSE	80.5923	13	60.16929	16.68796
	Growth Rate Of Index Options Turnover BSE	19031009.4923	13	68597368.36057	19025486.84507
	Growth Rate Of Stock Options Turnover NSE	29.9720	10	46.52311	14.71190
Pair 4	Growth Rate Of Stock Options Turnover BSE	97.1370	10	241.84064	76.47672

The above table reveals that the FO segment of NSE is better than FO segment of BSE in case of turnover value but in case of their growth rate the mean values of BSE is better than NSE because of the high degree of fluctuations (positive & negative) in turnover values.

Table-7
Paired Samples Test

	Paired Differences					t	df	Sig. (2- tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Index Futures Turnover NSE – Index Futures BSE Stock Options Turnover NSE – Index Options BSE Stock Options Turnover NSE – Stock Options BSE	3154024.69133	1351491.15935	348953.51685	2405593.83370	3902455.54897	9.039	14	.000
Pair 2 Stock Futures Turnover NSE – Stock Futures BSE Index Options Turnover NSE – Index Options BSE Index Options Turnover NSE – Index Options BSE	5808968.34600	3795142.49463	979901.57855	3707288.48487	7910648.20713	5.928	14	.000
Pair 3 Index Options Turnover NSE – Index Options BSE Stock Options Turnover NSE – Index Options BSE Stock Options Turnover NSE – Index Options BSE	24095421.21000	36524782.41854	9430658.26872	3868670.89694	44322171.52306	2.555	14	.023
Pair 4 Stock Options Turnover NSE – Stock Options BSE Index Options Turnover NSE – Index Options BSE	2033168.11800	2698777.71660	696821.41010	538634.83376	3527701.40224	2.918	14	.011

Table-8
Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Growth Rate Of Index Futures Turnover NSE – Growth Rate Of Index Futures Turnover BSE	87520.54071	295803.01021	79056.67987	258312.11399	83271.03256	-1.107	13	.288
	Growth Rate Of Stock Futures Turnover NSE – Growth Rate Of Stock Futures Turnover BSE	55205.73077	198938.58662	55175.63652	175423.11550	65011.65396	-1.001	12	.337

P	Growth Rate Of Index Options	-			-				
ai	Turnover NSE – Growth Rate Of Index Options	19030928.	68597385.4	19025491.	60483914.0	22422056.	-1.000	12	.337
r	Turnover BSE	90000	5273	58558	5739	25739			
3	Turnover BSE								
P	Growth Rate Of Stock Options								
ai	Turnover NSE – Growth Rate Of Stock Options	-67.16500	217.06580	68.64223	-222.44452	88.11452	-.978	9	.353
r	Turnover BSE								
4	Turnover BSE								

Analysis: In table 7, the values of t are 9.039, 5.928, 2.555 and 2.918, at df=14 and p= .000, .000, .023 and .011. Hence it can be concluded that the proposed null Hypothesis 1 is rejected and concluded that there is a significant difference between the turnover values of FO segment of NSE to BSE. But in case of their growth rates (Table-8), p values are larger than 0.05, therefore the null hypothesis 3 is accepted and concluded that there is no significant differences between the growth rates of turnover values of FO segment of NSE to BSE.

Table 9
Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Index Futures Turnover NSE & Index Futures Turnover BSE	15	.084	.765
Pair 2 Stock Futures Turnover NSE & Stock Futures Turnover BSE	15	-.060	.831
Pair 3 Index Options Turnover NSE & Index Options Turnover BSE	15	.117	.679
Pair 4 Stock Options Turnover NSE & Stock Options Turnover BSE	15	.185	.509

Table 10
Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Growth Rate Of Index Futures Turnover NSE & Growth Rate Of Index Futures Turnover BSE	14	.363	.202
Pair 2 Growth Rate Of Stock Futures Turnover NSE & Growth Rate Of Stock Futures Turnover BSE	13	.046	.881
Pair 3 Growth Rate Of Index Options Turnover NSE & Growth Rate Of Index Options Turnover BSE	13	-.284	.347
Pair 4 Growth Rate Of Stock Options Turnover NSE & Growth Rate Of Stock Options Turnover BSE	10	.601	.066

The above table also shows that there is no strong correlation between all the pairs. Thus, the proposed Null Hypotheses (Hypothesis 2 & Hypothesis 4) is accepted.

8. Forecast of Total Turnover of FO Segments of NSE & BSE:

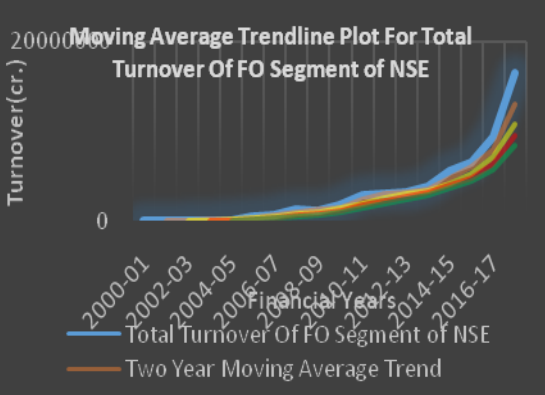
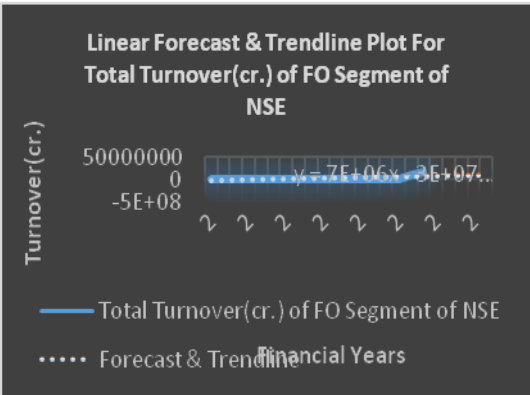


Figure 5: Linear forecast & trend line plot for total turnover of FO segment of NSE. Figure 6: Moving average trend line plot for total turnover of FO segment of NSE.

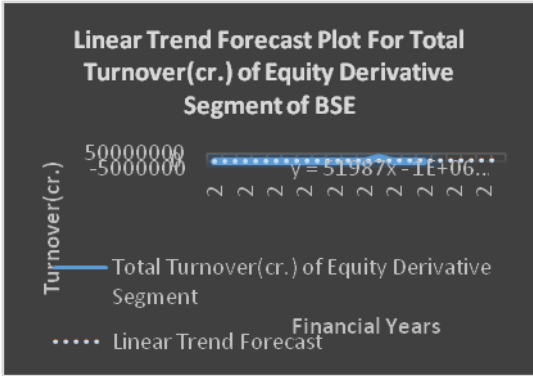


Figure 5: Linear forecast & trend line plot for total turnover of FO segment of NSE

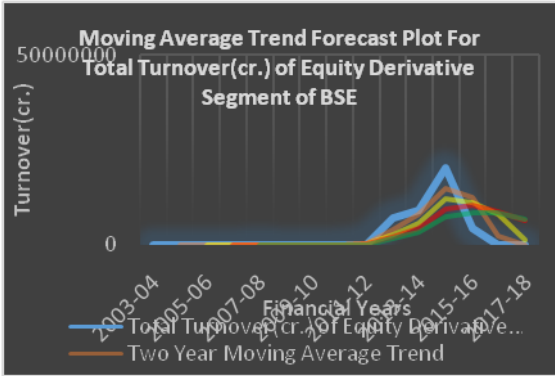


Figure 6: Moving average trend line plot for total turnover of FO segment of NSE.

The above graphs shows that the linear trend future forecast and moving averages trend forecast of total turnover (cr.) of FO segment of NSE & BSE. In case of FO segment of NSE, the value of R^2 is 0.675 which shows that there is a strong chance of following the same trend line by the total turnover and the regression equation for the same is $y = 7E+06x - 3E+07$. In case of FO segment of BSE, the value of R^2 is 0.1674 which shows that there is a very less chance of following the same trend line by the total turnover due to its over fluctuating nature and the regression equation for the trend is $y = 51987x - 1E+06$.

Findings:

The study finds that:

1. The turnover value of index futures of NSE is better than the turnover value of index futures of BSE, and there is a weak relationship between two variables and statically there is a significant difference between them.
2. The turnover value of stock futures of NSE was better than turnover value of stock futures of BSE, and they had a weak relationship and statistically there was a significant difference between them.
3. The turnover value of index options of NSE was better than the turnover value of index option of BSE and they had a weak relationship, and statistically there was a significant difference between them.
4. The turnover value of equity options of NSE was better than the turnover value of equity option of BSE and they had a weak relationship, and statistically there was a significant difference between them.
5. The growth rate of turnover value of index futures of BSE is better than the growth rate of turnover value of index futures of NSE, but statically there is no significant difference between them and there is a weak relationship between two variables.
6. The growth rate of turnover value of stock futures of BSE is better than the growth rate of turnover value of stock futures of NSE but statically there is no significant difference between them and there is a weak relationship between two variables.
7. The growth rate of turnover value of index option of BSE is better than the growth rate of turnover value of index option of NSE but statically there is no significant difference between them and there is a weak relationship between two variables.
8. The growth rate of turnover value of equity option of BSE is better than the growth rate of turnover value of equity option of NSE but statically there is no significant difference between them and there is a moderate relationship between two variables.
9. There is a strong chance of following the same trend line by the total turnover in FO segment of NSE.
10. There is a very less chance of following the same trend line by the total turnover of FO segment of BSE due to its over fluctuating nature.

Conclusion:

On the basis of above discussion and data analysis, it is clear that the each and every product of FO segment of both NSE & BSE has shown the tremendous growth since their inception in case of turnover. But the growth of FO segment of BSE is approx. negligible in front of FO segment of NSE. But yearly growth pattern in FO segment of both NSE & BSE has shown a rise in some year and a fall in the other years proving the inconsistency in the growth rate of turnover. The NSE has been performing well in comparative to BSE but there is always scope for further improvement. NSE occupy approx. 70% of total market share of derivatives turnover and in contrast BSE is almost non-existent in the derivatives space, with a market share of less

than 0.1%. At last but not the least, it is concluded that the overall performance of both the exchange needs to be improved but BSE on a greater extent.

References:

1. Acharia and Richardson (2009) "Derivatives – The Ultimate Financial Innovation", published by onlinelibrary.wiley.com.
2. Barot, "Role and Growth of Financial Derivatives in the Indian Capital Market", International Journal for Research in Management and Pharmacy, Vol. 2, Issue 6 (2013), ISSN: 2320-0901.
3. Gakhar, "Derivatives Market in India : Evolution, Trading Mechanism and Future Prospects", International Journal of Marketing Financial Services & Management Research, Vol. 2, No. 3 (2013), ISSN:2277-3622.
4. Gorton and Rouwenhorst (2005) "Facts and Fantasies about Commodity Futures", Working Paper 10595, <http://www.nber.org/papers/w10595>, 2004.
5. Hull, John C. (2006). "Options, Futures and Other Derivatives" (6th ed.).
6. Kevin. S, (2015) "Commodity and Financial Derivatives" (Second Edition), Derivatives: An Overview.
7. Koorse, "An Analysis of Financial Derivatives and its Growth Rate in India", EPRA International Journal of Economics and Business Review, Vol. 3, Issue 7 (2015), e- ISSN: 2347-9671.
8. Parker (2008) "Overview and introduction to equity derivatives" December 22, 2016, www.slidex.tips.
9. Vashishtha and Kumar (2010), "Development of Financial Derivatives Market in India- A Case Study" published by International Research Journal of Finance and Economics, ISSN 1450-2887 Issue 37 (2010).
10. https://www.researchgate.net/publication/306040023_EVOLUTIONAND_FUTURE_PROSPECTS_OF_INDIAN_DERIVATIVE_MARKET
11. <https://www.bseindia.com/markets/Derivatives/DeriReports/introduction.aspx?expandable=6>
12. <https://www.nseindia.com/products/content/derivatives/equities/fo.htm>.
13. https://en.wikipedia.org/wiki/National_Stock_Exchange_of_India
14. https://en.wikipedia.org/wiki/Bombay_Stock_Exchange
15. <https://www.nse-india.com/products/content/derivatives/equities/products.htm>
16. <https://www.nse-india.com/products/content/derivatives/equities/products.htm>
17. It's BSE vs NSE. And the winner is... - Rediff.com www.rediff.com › Business
18. www.iosrjournals.org
19. www.nseindia.com
20. www.bseindia.com