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ANALYSIS OF EQUITY DERIVATIVE MARKET IN INDIA (NSE)

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Abstract: The term Derivative is an investment instrument whose value is get from the worth of an underling asset. There has been a marvelous growth of derivative market since current years. The main focus of this paper is on comparative analysis of derivative turnover and cash turnover in India. 'Karl Pearson Correlation coefficient' method has been used to discover the relationship between derivative market turnover and cash market. During 2016-2021 data has collected from NSE. This result shows that derivative turnover and total turnover and cash turnover have a positive relationship.

Keyword: cash turnover, derivative turnover, correlation

1. INTRODUCTION

Derivative is a protection in which price is based on 'one or more' underlying assets. Derivative is agreement between two or more than two parties whose worth is predict by variation in the underlying asset. The general 'underlying assets' include bonds, stocks, commodities, interest rates, currencies, etc. Derivatives are of two kinds:

- Financial derivatives
- Commodity derivatives.

In 'financial derivatives' ('underlying assets' are bond currencies and interest bearing securities and in commodities derivatives 'underling assets' are wheat, gold, silver and all agriculture commodities. The scope of the study is limited only to financial derivative).

Major Players in the Financial Derivatives Trading

There are main three major players in the financial derivatives trading:

1. **Hedgers**: Hedgers are agent who uses derivatives to shrink the risk that they face from potential movements in a market variable and they want to avoid disclosure to adverse movements in the value of an asset. Mass of the member in derivatives market fit in this category.

2. **Speculators**: Speculators are agent who purchase/sale the assets only to sale/purchase them back profitably at a later point in time. They want to presume risk. They use derivatives to gamble on the future way of the cost of an asset and obtain a position in order to create a quick profit. They can boost both the potential gain and potential loss with usage of derivatives in a approximate venture.

3. Arbitrageurs: Arbitrageurs are agents who simultaneously purchase and sale the same (or different, but related) assets in an attempt to profit from unrealistic price degree of difference. They attempt to make return by locking in a riskless trading by concurrently entering into transaction in two or more markets.

History of Derivative Market in India

Derivative Market in India has been in existence in one form or the other for a long time. In 1875, 'the Bombay cotton trade association' started prospect trading way reverse then. The government of India disqualified options trading and cash settlement.

In 1995, the introduction of financial derivative trading in India was spread on options in securities laws regulation. It provides for withdrawal of prohibition on choice in securities.

Derivative trading started in India in June, 2000 after SEBI established the final approval for this effect in may, 2001 on the suggestion of 'L.C.Gupta' committee. SEBI allowed the derivative segments in 2 stock exchanges NSE and BSE and their clearing house/ corporation to commence trading and settlement in approval derivative contracts.

Cr. whereas the value of the NSE cash markets was only Rs. 5055913Cr. through. If one compares the trading figures

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of NSE and BSE, performance of BSE is not encouraging both in terms of volumes and numbers of bond traded in all types of product category. Along with all the products deal on NSE in 'F& O segment', 'single stock futures' also known as 'equity futures', are most admired in terms of number and volumes of bond traded, followed by index futures with turnover shares of 52 percent and 31 percent, respectively.

REVIEW LITERATURE

Sharma, Rajput and Agnih (2011) studied the relationship between Cash and Derivative Segment in Indian Stock Market during the recent global recession Derivative instruments was largely criticized on account of their speculative nature. Since introduction of Derivatives segment in the year 2000, it has led both interactions between the Spot and Derivative segment in Indian stock market, and concern by regulators in controlling any possible harmful influences of this new trading segment.

Maheshwari (2012) studied whether the introduction of equity derivatives has any impact on the market prices of underlying stocks. Inclusion of a stock in the list of underlying for derivative trading is commonly believed to be a positive happening.

Sahu (2012) found the impact of equity derivatives trading on spot market volatility, particularly the effect of equity derivatives introduction on spot market volatility in Indian stock market by using daily returns of seventy Three companies from April 01, 1998 to March 31, 2008 excluding holidays when there were no transactions. The GARCH (1, 1) model that captures the heteroscedasticity in returns has been applied to study market volatility.

Alford, Boatsman (2014) examined empirically e prediction of long-terms tock return volatility they found: that historical volatility can be to predict five-year monthly volatility, returns should be measured either weekly or monthly, and the historical period should be approximately five year.

Gope(2014) analyzed that Financial derivatives are used by a number of entities such as corporations, commercial banks, institutional investors and individuals to reduce risk or "lay off" various risks or for speculating purpose. Though financial derivative market in India is not a very old one, in spite of that the country has emerged as a large and active derivative market in the global scenario. National Stock Exchange (NSE) of India ranked after CME group and Eurex in the world in 2012. The findings of this study indicate the ever increasing demand of Indian financial derivative market in comparison to Indian cash market.

Scholes (2014) found no empirical evidence that supports the conjectures that derivative contracts can lead to massive failures and create systemic risk.

METHODOLOGY OF THE STUDY

3.1. Objective

- To find the cash turnover and derivative turnover.
- To analyze the relationship between derivative turnover and cash turnover.

3.2. Data base: Data is based on NSE stock exchange from 2016-2021

3.3. Data sources: Secondary data is collect from website of NSE SEBI handbook.

3.4 Research technique: The gather data has been examined with the aid of suitable tables, graphs and charts to draw the inference. "Karl Pearson Correlation Coefficient" methods were used to discover the relationship between cash market turnover and derivative market.

3.5 Scope: - This study is limited to only the financial derivatives.

- *Calculation of % change in Cash & derivative Turnover is*

  *Current Year turnover –Previous year turnover/ Current year turnover *100.*

- *Calculation of total turnover is*

  Derivative turnover + Cash turnover.

- *Calculation of % Total market cash turnover and total market derivative turnover*

  *Total market cash turnover/total turnover *100*

  *Total market derivative turnover/ total turnover *100*

4. Data Analysis

4.1 Comparative study between Cash and Derivative market (F & O segment) of NSE

4.2 With future and option segment

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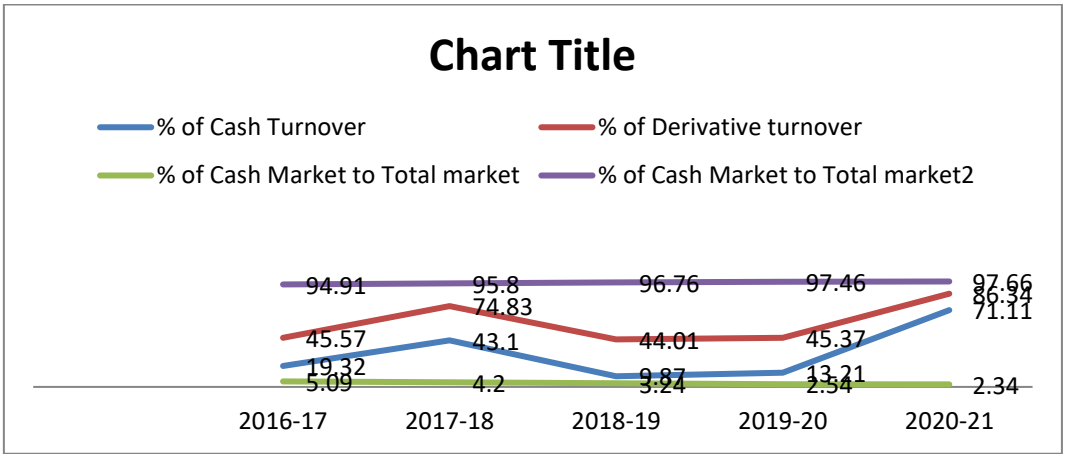
Table 1: Trading volume of Cash market & Derivative Market

Financial Year	*Cash Market Turnover (Rs. In Core*	*% of Change in Cash Market*	*Derivative Market Turnover (Rs. In Core*	*% of Change in Derivative Market*	*Total Turnover (Rs. In Core*	*% of Cash Market to Total Market*	*% of Derivative Market to Total Market*
2016-2017	5055913	19	94370302	45.57	99426215	5.09	94.91
2017-2018	7234826	43.10	164984859	74.83	172219685	4.20	95.80
2018-2019	7949004	9.87	237590974	44.01	245539978	3.24	96.76
2019-2020	8998811	13.21	345391355	45.37	354390166	2.54	97.46
2020-2021	15397908	71.11	643618108	86.34	659016016	2.34	97.66

Source: Compiled from data available from SEBI handbook or NSE website

Chart 1: show percentage change in derivative and cash turn over



Source: Compiled from data available from SEBI handbook or NSE website

This table shows the Cash Market turnover of NSE in 2016-17 was 5% of total market. Derivatives market turnover was 95% of total market. . In other words, the cash market kept its monopoly in the first year of the introduction of derivatives but the monopoly changed after that. In 2017-18 percentage of cash market decreased by 1% .During 2018-19 and 2019-20 the percentage of cash market turnover to total market turnover remained constant at 3% and derivative market turnover to total market turnover was also constant at 97% derivative and cash turnover. In 2016-2017 percentage of derivative turnover was 19.32%. In year 2017-18 it was increased 43%.In 2018-19, 2019-20 and 2020-21 it was going upward 10%,13% and 71% respectively. The percentage change in cash turnover during 2016-17 was 19% at 2017-18 it was increased 43 and in period 2010-11 after 2011-12 it was declined 10%, 13% and miner after that again increased in 2020-21 with 71%.

4.2 Relationship between cash market turnover and derivative turnover of NSE

- Correlation coefficients are used to measure the relationship between two variables.
- Values of correlation always range between -1 (strong negative relationship) and +1 (strong positive relationship). Values at or close to zero imply a weak or no linear relationship.

Table 2: Relationship between cash market turnover and derivative turnover of NSE

Relationship	*Cash Turnover*	*Derivative Turnover*	*Total Turnover*
Cash Turnover	1	0.9899	0.9902
Derivative Turnover	0.9899	1	0.9999
Total Turnover	0.9902	0.9999	1

Sources: author's own work

Table 2 show the relationship between cash market turnover & derivative turnover of NSE. There is positive relation

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between each other. It is (.9899). Cash turnover and total turnover has also positive relationship value of 0.9902 Derivative turnover and total turnover is 0.9999 when the cash turnover going upward and derivative is downward

Table 5 Business Growth of Futures and Options Segment of NSE

Financial Year	*Index Future*		*Stock Futures*		*Index Option*		*Stock Options*		*Total amount*
	volume	*%*	*volume*	*%*	*volume*	*%*	*volume*	*%*	
2016-17	4335940.78	4.59	11129587.14	11.79	7,27,97,287.69	77.14	61,07,485.87	6.47	94370301.48
2017-18	4810454.34	2.91	15597519.71	9.45	13,49,21,876.45	81.77	96,55,008.56	5.85	164984859.1
2018-19	5568914.47	2.34	16147010.86	6.79	20,33,02,404.91	85.56	1,25,82,374.84	5.29	237600705.1
2019-20	6701072.45	1.94	14919550.78	4.31	31,14,47,325.44	90.17	1,23,23,406.79	3.56	345391355.5
2020-21	9047645.65	1.42	18098365.39	2.84	58,29,32,348.76	91.65	2,59,20,020.59	4.07	635998380.4

Source: Compiled data available from NSE website.

Out of the four equity derivatives, the use of index option is maximum in both the stock exchanges NSE and BSE. This table shows the business growth of futures and options segment of NSE. Maximum prefer index option of NSF. Total turnover in 2016-17 is 94370301.48 but it increased 2016 to 2021.In 2016-17 percentage of index future is 4.59% & index option is77.14%.after that index future is going downward and future option is going upward.

In 2016-17 Percentage of Stock futures is11.79% and stock option is 6.47%Both stock futures and stock going downward in next year's.

FINDING

- In NSE cash turnover and derivative turnover have a positive relationship it is 0.9899. The analysis shows strong relationship when cash turnover and derivative turnover is increased.
- Derivative turnover and total turnover have a positive relationship it is 0.9999 it has also a strong relationship.
- Cash turnover and total turnover have also positive relationship it is a 0.9902.It means all have positive relationship between them but there is more strong relationship between derivative turnover & Total turnover.
- In NSE, Within F & O Segment Index Option has maximum volume of percentage as compare to index future, option future and stock option.

CONCLUSION

This study shows the relationship between cash turnover, derivative turnover and total turnover of NSE all have a positive relationship with each other. In NSE, cash market turnover and derivative turnover have a positive relationship when the both, cash turnover and derivative turnover change with same direction like in 2017-18 both are going downward and in 2018 to 2021 going upward.

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