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A STUDY ON REALTIONSHIP BETWEEN CASH AND DERIVATIVES SEGMENTS OF INDIAN STOCK MARKET

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ABSTRACT

The most desired instrument that allow market participants to manage risk in the modern securities trading are known as derivatives, because it reduce the risk by providing an additional channel to investment with lower trading cost and also facilitates the investors to extend their settlement through the future contract. Volatility is a sharp rise and falls in the market prices within a short period of time. The aim of the study is to examine relationship between cash and derivative segment in Indian stock market and also comparative analysis of both the market. It has been observed that Indian derivatives market has shown very impressive growth in market turnover but the behavior of cash market is very steady over a period of 20 years. It also observed that the strong and positive relationship between derivatives and cash segments at NSE so both the market affected to each other and there is a relationship between derivatives and cash segment. On the other hand there is no relationship between cash and derivatives segments at BSE and both are individually performed and not affected to each other.

Keywords: derivatives segment, cash segments, turnover, BSE, NSE.

1. INTRODUCTION

The financial system plays an important role in the economic development of the country. Healthy financial sector helps to increase the cash flow and create capital that contributes to development of the country. Indian financial market i.e. Stock market is very fluctuated and sharp rise and falls in price of securities so that affect the return on investment, so every single investor are wants to hedge the risk and secured their return on investment. The most desired instrument that allow market participants to manage risk in the modern securities trading are known as derivatives, because it reduce the risk by providing an additional channel to investment with lower trading cost and also facilitates the investors to extend their settlement through the future contract. The stock market is account to be volatile when there is sharp increase and decrease in the market within a short time period.

In the year 1991, the government of India took a major policy reform by liberalizing and globalizing the trade policies. These policies led to change in the financial system bringing new and innovative financial instrument in the Indian financial market. In the year 2000 Indian government launch the derivatives instruments with twin

objective, first hedging the price risk and second, to reduce the fluctuation on price on commodity and capital market. Launched of derivatives in Indian financial market has experience very successful and tremendous growth of market turnover. Very short time period derivatives has takeover the cash market turnover and as compare to cash market derivatives turnover is very progressive. The cash turnover increase in the year 2001-02 13395 billion to year 2018-19 66125billion but as compare to NSE derivatives, cash market growth are slow. The NSE derivatives turnover is 90580billion which was increase in the year 2000-01 2689495184 billion in 2018-19. The behavior of BSE cash and derivatives segments is moderate and fluctuated.

Derivative is a new phenomenon in the market, the study attempts to explore the relationship between cash and derivatives segments in Indian stock market. When derivatives introduced in the year 2000 the cash market turnover reduced, so this study attempts to explore the relationship between cash and derivatives segments in Indian stock market.

The study is divided into six Sections; the current section gives overview about derivatives market. Section 2 represents the wide review of related literature. Section 3 discuss with objective of the study. Section 4 discuss with methodology of the study. Section 5 represents data analysis of the growth of cash and derivatives segments and relationship between cash and derivatives trading in Indian stock market.

2. LITERATURE REVIEW

Gupta (2002) has tried to explore the impact of introduction of index future on stock market volatility and also examine the volatility the relative volatility of spot market and future market. To measure the volatility the study adopted four measures first one based on close to close price, second one is open to open price, and the third is on Parkinson's Extreme Value Estimators and fourth Garman-class measure volatility. The study concluded that overall volatility of the underlying stock market has decline after the introduction of future index.

Raju and Karande (2003) had explained the price discovery and volatility in the context of introduction of future nifty at the national stock exchange in June 2000. To examine the price discovery and volatility the study adopted co-integration and general auto regressive conditional heteroskedasticity (GARCH) econometric model. The major findings are that future market responds to derivatives from equilibrium; price discovery occurs in both the future and the spot market. The study also observed that volatility in spot market has come down after introduction of future stock index.

Bandivadekar and Ghosh (2005) has explore the impact the introduction of future index on volatility of stock market in India employing daily data of SENSEX and Nifty CNX for a period of January 1997 to march 2003. To examine the volatility the study adopted GARCH model. The study found that there is a strong relationship between introduction of derivatives and return volatility. The study concluded that the introduction of derivatives has reduced the volatility of the stock market.

Gupta and Rajkumar (2007) the purpose of this study was to explore the impact of derivatives trading on stock market volatility. The underlying assets are stock future and option, and index future and option. The monthly average data has been collected from SEBI bulletin for the six years start from the June 2000 to 2006. To measure the impact of derivatives on stock market volatility mean, S.D, regression coefficient, t-test was used. The study concludes that the turnover of index future and option and stock future and option have significant impact on stock market volatile.

Mallikarjunappa and afsal (2008) tried to study the impact of derivatives on stock market volatility: A study of Nifty index for 2006 to 2008. To measure the volatility the study adopted GARCH (1, 1) model. The study concluded that introduction of derivatives does not have any stabilizing effects in terms of decreasing volatility has been detected in other studies.

Singh and Kansal (2010) have tried to analyze the impact of derivatives trading on stock market volatility for the period of 1995-96 to 2008-09. To examine the impact of derivatives on stock market volatility this study adopted

paired t-test to show the pre derivatives volatility and post derivatives volatility. The study concluded that stock price volatility has been decrease after introduction of derivatives product in stock market. The study also observed that stock future dominate the derivatives market in India with 57% of total turnover in 2008-09, followed by index future. The introduction of derivatives has significant impact on stock market return and volatility in S&P CNX Nifty has decline after derivatives.

Gahlot, Datta, and Kapil (2010) have examined the impact of derivatives trading on stock market volatility for the period 1997 to 2005. The underlying assets are S&P CNX Nifty and variables are turnover and number of contract. To analyze the results econometric tools ARCH and GARCH model were been used. The study concludes that the volatility in S&P CNX nifty has decline after introduction of S&P CNX nifty future.

Shalini and Ravindra(2014) explored the derivatives market in India and its current position in global market. The time period of this study 2000 to 2014. The variables analyzed for the study is turnover, number of contract. To analyze the current position at global level the world index are been discussed. The study concludes that India has grown in derivative market and eve surpassed its global partners.

Gautam and Kavidayal (2016) have analyzed the scenario of Indian derivatives market as well as global derivatives segments for the period 2010 to 2014. The analyzed the movement in the Bombay stock exchange and national stock exchange and at the global setup world top five Index were studied. It was concluded that in world ranking NSE has 15th rank in 2006, 8th rank in 2008 and 4th rank in 2013. So the Indian derivatives market has grown tremendously over years.

Bindal (2018) attempted to analyze the growth and position of Indian derivatives market and its trading in India. The secondary data has been collected from the books, newspaper and websites for period start from 2009 to 2017. The underlying assets are taken in this study currency future and option and variables are number of contract and turnover. On the basis of data analyzed it was concluded that financial derivatives market has vital role in risk management and economic growth.

3. METHODOLOGY

This study attempts to analyze the relationship between cash and derivatives segments in Indian stock market over a period of 2000-01 to 2018-19. The variables analyzed for the study are derivatives turnover and cash market turnover. To analyze the relationship between cash and derivatives segments in Indian stock market study adopt statistical tools like correlation, standard deviation. To test the results the study used t statistics. The data has been sourced from the database of BSE and NSE.

4. OBJECTIVE OF THE STUDY

To undertake the Comparative analysis of cash and derivatives segments in Indian stock market and relationship between cash and derivatives segments at Indian stock market.

5. DATA ANALYSIS

5.1 Cash and Derivatives Segments at NSE

The comparison of NSE cash and derivatives market both are increase over a period of time. The cash turnover increase in the year 2001-02 13395 billion to year 2018-19 66125billion but as compare to NSE derivatives cash market growth are slow. The NSE derivatives turnover is 90580billion which was increase in the year 2000-01 2689495184 billion in 2018-19. Derivatives are number of time increase

Table 1: NSE Cash and Derivatives Segments

(in Rs. Bn.)

YEAR	CASH SEGMENTS	DERIVATIVES SEGMENTS
2000-01	13395	23
2001-02	5131	1019
2002-03	6179	4398
2003-04	10995	21306
2004-05	11400	25469
2005-06	15695	48241
2006-05	19452	73562
2007-08	35510	130904
2008-09	27520	110104
2009-10	41380	176636
2010-11	35774	292482
2011-12	28108	313497
2012-13	27082	315330
2013-14	28084	382114
2014-15	43296	556064
2015-16	42369	648258
2016-17	50559	943703
2017-18	72348	1649848
2018-19	66125	2019681
Mean	30547	405928
S.D	19068	567104
Correlation	0.89	
T- Statistics	7.957 (Calculated)	
	2.110 (Table)	

Table 1 shows that comparative analysis of cash and derivatives segments and both cash and derivatives increase over a period of time. The correlation between cash and derivatives turnover is $r = 0.89$ which is strong positive correlation between them. There is positive and strong relationship between cash and derivatives at NSE. Both are positively correlated both simultaneously increase over a period of time. The result of t statistics is the shown in the table 1 which is clearly shows that the calculated value is Greater than table value so we reject the null hypothesis and accept alternative hypothesis, there is a relationship between cash and derivatives segments.

Chart 1: NSE Derivatives Segments

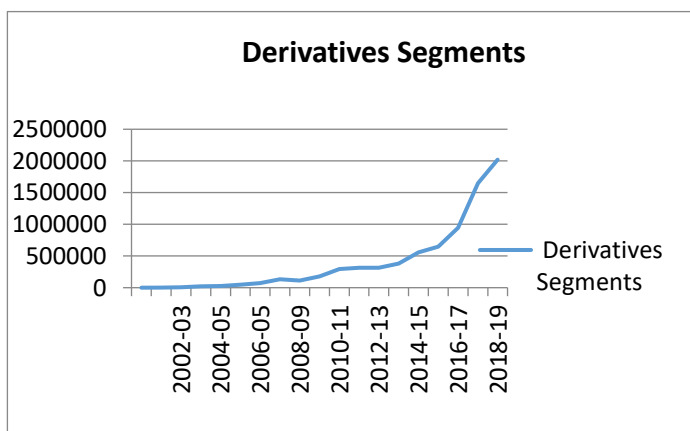


Chart 2: NSE Cash Segments

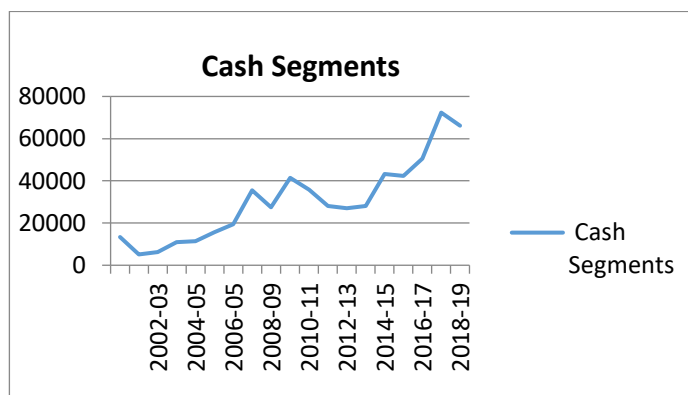


Chart 1 and 2 shows the NSE Derivatives and Cash segments it is clearly shows that the growth of derivatives segments is very high as compare to cash segment at NSE. The growth of cash segment is very slowly and moderate. On the other hand the growth of derivatives segments is tremendous and turnover manifold time increase. So as compare to derivatives segments the cash market behavior is constant and moderate. In the year 2000 when the derivatives introduce the trader of the cash market are shifted their trading in derivatives market so in the year 2000-01 cash segments falls and derivatives market turnover continues increase.

5.2 Cash and Derivatives Segments at BSE

Table 2 shows that, cash and derivatives segment at BSE. It clearly shows that the cash market is fluctuated over a period of time. In the year 2000-01 the cash market 1000032crores and as compare to cash derivatives are very less 1673crores. Over the years the derivatives account the growth of market turnover but it also fluctuated over a 20years time period. The behavior of cash market is moderate and slowly growth. So both the market is independently increase or decrease.

Table 2: Cash and Derivatives Segments at BSE

(in Rs.Cr.)

YEAR	BSE CASH SEGMENT	BSE DERIVATIVES SEGMENTS
2000-01	1000032.62	1673
2001-02	307297.77	1922
2002-03	314073.13	2478
2003-04	502618.38	12452
2004-05	518715.65	16112
2005-06	816084.7	9
2006-05	956189.11	59006
2007-08	1578855.41	242308.41
2008-09	1100073.77	11774.83
2009-10	1378809.32	234.06
2010-11	1105026.89	154.33
2011-12	667497.58	808475.99
2012-13	548774.44	7163576.66
2013-14	521664.2	9219434.32
2014-15	854844.29	20362241.42
2015-16	740088.59	4475008.32
2016-17	998260.58	6939.29
2017-18	1082968.21	3262.66
2018-19	661375.77	44.15
Mean	789046.0337	2230898.015
S.D	343862.6476	5148443.228
Correlation	-0.14	
T-Statistics	-0.5829 (Calculated)	
	2.110 (Table)	

The table 2 shows that BSE cash and derivatives segments. It clearly shows that BSE cash and derivatives are individually perform and the growth of cash and derivatives turnover is much fluctuated over a 20years time period. The correlation between cash segments and derivatives segments is negative and weak $r = -0.14$. There is weak and negative correlation shows that there no relationship between cash and derivatives segment at BSE and both are

separately perform. The result of t statistics shown in table 2 and the calculated value is less than table value so we accept null hypothesis that there is no relationship between cash and derivatives trading in BSE market.

Chart 3: BSE Derivatives Segments

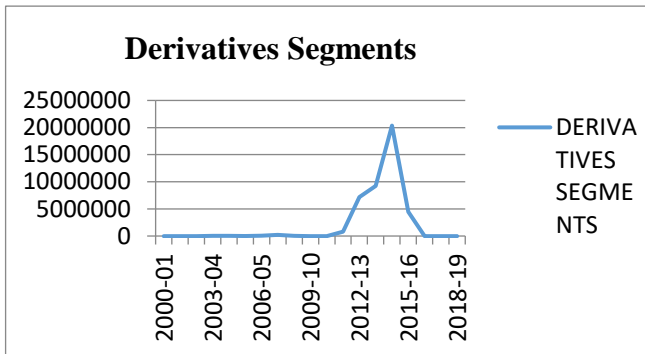
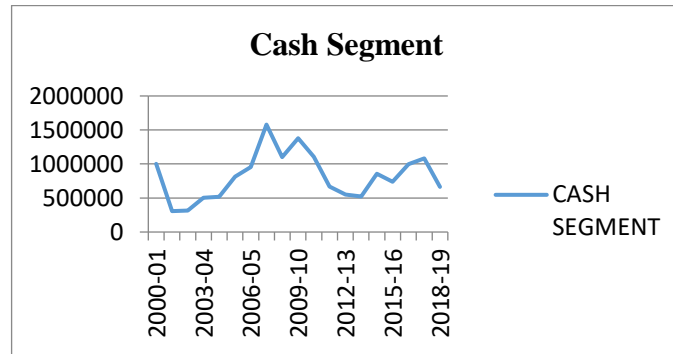


Chart 4: Cash Segments



The chart 3 and 4 shows that BSE cash and derivatives segments. It is clearly shows that Cash and derivatives segments at BSE are fluctuated over a period of time. The behavior of cash market is slowly growth with wide fluctuation over a period of time. The derivatives behavior is also moderate and slowly growth. But both are separately functioning and there is relationship between them.

6. CONCLUSION

Derivatives product have emerged over the time to meet the various needs of the different types of investors. Financial derivatives have a significance place among the financial instrument due to innovative features and risk management tools. The most desired instrument that allow market participants to manage risk in the modern securities trading are known as derivatives, because it reduce the risk by providing an additional channel to investment with lower trading cost and also facilitates the investors to extend their settlement through the future contract.

In India the introduction of derivatives is very successful and manifold increase in market turnover. When government of India launched the derivatives in stock market the participant or traders of the stock market have shifted their trading in derivatives market so turnover and participants at derivatives market is increase over a period of time. This study also shows the growth of cash segment in Indian stock market. The overall behavior of stock market is slowly growing and fluctuated. When we compare the derivatives segments with cash market as compare to cash segment the derivatives market turnover growing manifold times over a period of time but the behavior of cash segment is increase but slowly and steady increase over a period of time.

The cash and derivatives segment at NSE both are increase over a period of time. The cash market turnover in the year 2000-01 13395 billion which was increase 66125 billion in the year 2018-19 and Derivatives turnover in the year 2000-01 23 billion which was increase 2019681 billion in the year 2018-19. As compare to cash segment the derivatives increase manifold times and behavior of cash market is very moderate. The correlation between cash and derivatives segment $r = 0.89$ which is strong positive correlation indicate that both are interrelated and affect each other. So relationship between cash and derivatives is positive and strong and derivatives affect the cash market trading.

The relationship between cash and derivatives segment at NSE is weak and negative. The value correlation between cash and derivatives segment $r = -0.14$ which is very weak correlation between them. This result indicates that BSE cash and derivatives segments are not related to each other and they are not affected to each other, both are individually performed. So in BSE the derivatives trading are not affected to cash market trading. When we compare the cash and derivatives segments at BSE the growth of cash segment is steadily increase and widely fluctuated over a period of time. The derivatives segment at BSE also fluctuated over a period of time.

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