International Journal of Multidisciplinary Research and Development

Volume :2, Issue :4, 265-272
April 2015
www.allsubjectjournal.com
e-ISSN: 2349-4182
p-ISSN: 2349-5979
Impact Factor: 3.762

Tom Jacob
Assistant professor, P.G Department of commerce, Christ College, Irinjalakuda, (Kerala) India

Thomas Paul Kattookaran
Associate professor & H.O.D, Research Department of Commerce, St. Thomas College, (Kerala) India

Sreejith VJ
Department of commerce, Christ College, Irinjalakuda, (Kerala) India

Correspondence:
Tom Jacob
Assistant professor, P.G Department of commerce, Christ College, Irinjalakuda, (Kerala) India

Performance of Currency Derivative Market in India

Tom Jacob, Thomas Paul Kattookaran, Sreejith VJ

Abstract
Extensive globalization and liberalization of Indian economy has led to an increase in the quantum of transactions in the foreign exchange market. This has led to a requirement of a broad based, active and liquid forex derivatives market to provide a basket of hedging instruments for effective management of foreign exchange exposures. The study is mainly focused on the market share of currency traded contract in different exchanges in India. Further it attempts mainly to focus on growth and performance of currency derivative market in NSE from its introduction and also analyze product wise classification of currency derivative market like currency futures and options. US Dollar - Indian Rupee (USD-INR), Euro-Indian Rupee (EUR-INR), Japanese Yen-Indian Rupee (JPY-INR) and Pound Sterling-Indian Rupee (GBP-INR) are major currency derivatives, though USDINR, pair was the leader in terms of Volumes, but these currencies added variety in the portfolio. This study can serve as a source of guide for the future study related to currency derivative.

Keywords: Currency, currency derivative, currency futures, currency options & forex

1. Introduction

The daily turnover of the Global Forex market is presently estimated at US$ 3 trillion. Presently the Indian Forex market is the 16th largest Forex market in the world in terms of daily turnover as the BIS Triennial Survey report. As per this report the daily turnover of the Indian Forex market is US$ 34 billion in the year 2007. Besides the OTC derivative segment of the Indian Forex market has also increased significantly since its commencement in the year 2007. During the year 2007-08 the daily turnover of the derivative segment in the Indian Forex market stands at US$ 48 billion.

The growth of the Indian Forex market owes to the tremendous growth of the Indian economy in the last few years. Today India holds a significant position in the Global economic scenario and it is considered to be one of the emerging economies in the World. The steady growth of the Indian economy and diversification of the industrial sectors in India has contributed significantly to the rapid growth of the Indian Forex market. Let us take a watch on the Indian Forex trading scenario since the early days.

The Forex trading history of India dates back to 1978, when Reserve Bank of India took a step towards allowing the banks to undertake intra-day trading in Foreign exchange. It is during the period of 1975-1992 when Reserve Bank of India, officially determined the exchange rate of rupee according to the weighted basket of currencies with the significant business partners of India. But it needs to be mentioned that there are too many restrictions on these banks during this period for trading in the Forex market.

The introduction of the open market policy in the year 1991 and implementation of the new economic policy by the Govt. of India brought a comprehensive change in the Forex market of India. It is during the month of July 1991, that the rupee undergone a twofold downward adjustment and this was in line with inflation differential to ensure competitiveness in exports. Then as per the recommendation of a high level committee set up to review the Balance of Payment position, the Liberalized Exchange Rate Management System or the LERMS was introduced in 1992. The method of dual exchange rate mechanism that was part of the LERMS also came into effect 1993. It is during this time that uniform exchange rate came into effect and that started demand and supply controlled exchange rate regime in Indian. This ultimately progressed towards the current account convertibility that was a part of the Articles of Agreement with the International Monetary Fund.

It was the report and recommendations of the Expert Group on Foreign Exchange, formed to

judge the Forex market in India that actually helped to widen the Forex trading practices in the country. As per the recommendations of the expert committee, Reserve bank of India and the Government took so many significant steps that ultimately gave freedom to the banks in many ways. Apart from the banks corporate bodies were also given certain relaxation that also played an instrumental role in spread of Forex trading in India.

It is during the year 2008 that Indian Forex market has seen a great advancement that took the Indian Forex trading at par with the global Forex markets. It is the introduction of future derivative segment in Forex trading through the National Stock Exchange (NSE) and MCX Stock Exchange (MCX-SX). This step not only increased the Indian Forex market volume too many folds also gave the individual and retail investor a chance to trade at the Forex market, that was till this time remained a forte of the banks and large corporate.

Indian Forex market got yet another boost recently when the SEBI and Reserve Bank of India permitted the trade of derivative contract at the leading stock exchanges NSE and MCX for three new currency pairs. In its recent circulars Reserve Bank of India accepting the proposal of SEBI, permitted the trade of INRGBP (Indian Rupee and Great Britain Pound), INREUR (Indian Rupee and Euro) and INRYEN (Indian Rupee and Japanese Yen). This was in addition with the existing pair of currencies that is US$ and INR. From inclusion of these three currency pairs in the Indian Forex circuit the Indian Forex scene is expected to boost even further as these are some of the most widely traded currency pairs in the world.

2. Currency Derivatives

Currency derivative is a contract between two traders agreeing to exchange currency at a fixed price at a future date. Currency derivatives, in simple words, are contracts between the buyer and the seller trading in currencies. According to this contract, both the parties decide to exchange one currency for another on a future date at a price that is set at the beginning.

An exchange traded derivative or over the counter derivative with an underlying reference based on foreign exchange rates and flows. A currency derivative can be structured as a currency option, currency forward, currency future, currency swap, or currency warrant.

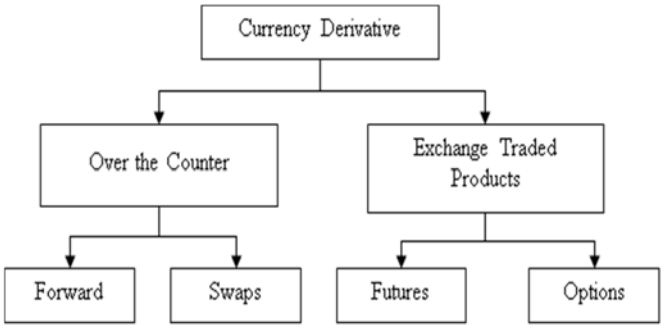

Fig 1: Types of Currency Derivatives

2.1 Over the Counter Contracts: OTC market is usually a telephone and computer linked network of dealers and brokers. OTC Derivatives are private contracts negotiated between parties. Here liquidity as well as counter party risk is lower.

- Currency Forward

It is an agreement between buyer and seller for the purchase and sale of a specific quantity of underlying at a particular price on a specified date. Ninety per cent of currency forward contracts are settled by physical Delivery of underlying.

- Currency Swaps

Swaps are private agreements between two parties to exchange cash flows in the future according to a pre arranged formula. Currency Swaps entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

2.2 Exchange Traded Contracts: Standardized derivative products traded on the official floor of the regulated exchanges with pre-defined maturities. It provides protection and ensures higher liquidity and no counter party risk.

- Currency Futures

It is standardized contract between buyer and seller for the purchase and sale of a specific quantity of currency at a particular price on a specified date. Terms and conditions are specified by the exchange.

- Currency Options

Options are a derivative contract which gives the buyer or holder the right but not the obligation to buy or sell (settle the value for cash) a specified quantity of currency at fixed agreed price called strike or exercise price during a period or particular date in exchange for a payment of premium. There are two types of options;

- *Call Options* - A contract that gives the buyer or holder the right but not the obligation to buy a specified quantity of currency at fixed agreed price called strike or exercise price during a period or on a particular date in exchange for a payment of premium. Those who expect rise in price of underlying buy Call Options.
- *Put Options* - A contract that gives the buyer or holder the right but not the obligation to sell a specified quantity of currency at fixed agreed price called strike or exercise price during a period or on a particular date in exchange for a payment of premium. Those who expect fall in price of underlying buy Put Options.

3. Objectives of the study

- To know the conceptual frame work and participants of Currency Derivative market in India.
- To analyze the structure, composition and growth of Currency Derivative market in India.
- To evaluate the market share of currency traded contract in different exchanges in India.
- To examine the role and growth of Currency Derivative market in NSE compared to other stock exchange.
- To examine the product wise classification of Currency Derivative market and trend of its performance in NSE
- To find out the correlation between USD-INR futures with other currency futures and options traded in NSE.

4. Research Methodology

This study is mainly based on secondary data. Number of derivative contracts traded and its turnover in India are collected from Indian securities Market Review, Annual report of SEBI & Handbook of statistics on Indian Economy and other business journals etc. Data related to product wise business growth of derivatives market are collected from official websites of NSE&BSE. Published books of eminent authors, magazine articles, journals, reports of financial institutions and other organizations have been reviewed to understand conceptual aspects and importance of derivative trading. To analyze and interpret data different descriptive statistical tools like percentage analysis, compounded annual growth rate (CAGR), correlation matrix analysis, charts and diagrams etc are used.

5. Limitations

- Study is mainly based on secondary data and concentrate on one stock exchange.

6. Participants of Currency Derivative market

This classification is based upon the objective and characteristics of each participant in the market.

Hedgers: These are traders who enter in to derivative contracts to reduce risks normally encountered in their business operation or in holding of investment. They want to safeguard their existing position. It is Similar to insurance .example: suppose an Indian exporter will get the dollars after 2 months and in order to reduce risk arising out of fall in exchange rate, he enters in to Currency Derivative market either by selling USD-INR futures or USD-INR put options. Similarly an Indian importer who has to make payment in the near future in dollars may enter in to Currency Derivative market either by buying USD-INR futures or USD-INR call options to reduce the risk of higher exchange rate in the coming days.

Speculators: These are risk seeking traders who predict the direction of market movements. They convert their prediction skills into cash .They Add Liquidity to the market. They simply predict the movements of exchange rate using some data and calculations and arrive at an investment decision which may create either gain or loss to them. Example: A person expecting the exchange rate to reduce may sell USD-INR futures or USD-INR put options. Similarly person expecting exchange rate to higher rates may buy USD-INR futures or USD-INR call options. Here the objective is to make quick profit not to reduce risk or exploit mispricing.

Arbitrageurs: Those who buy in the market where price is cheaper & sells them in the markets where price is higher exploit mispricing between markets for same products. Example: if the present exchange rate between USD and INR is RS 60 but in USD-INR future for 2 month is 66 then arbitrageurs may exploit these mispricing by selling USD-INR futures at 66. So he will buy one dollar at 60 now and sells the same at 66 on maturity.

7. Performance of Currency Derivatives Market in India

Study starts with analysis of Currency Derivatives performance of four main stock exchanges and goes to a detailed explanation on the products traded on NSE.

Table 1: Exchange wise performance in Currency Derivative segment in India

Exchange wise performance in currency derivative segment in India								
Year	MCX-SX		USE		BSE		NSE	
	No of contracts	Turnover (Rs in Mn)	No of contracts	Turnover (Rs in Mn)	No of contracts	Turnover (Rs in Mn)	No of contracts	Turnover (Rs in Mn)
2008-09	29847569	1488260	-	-	-	-	32672768	1622724
2009-10	408166278	19446540	-	-	-	-	378606983	17826080
2010-11	903185639	41940170	167772367	7625010	-	-	749602075	34497877
2011-12	770325229	37324460	315395543	14889780	-	-	973344132	46749898
2012-13	597310776	33031790	23766846	1328610	-	-	959243448	52744647
2013-14	398584890	24224100	47479296	3016200	39157195	2443120	660192530	40125134

Source: compiled from SEBI Annual Report & ISMR

Table 2: Proportion of share of each Exchange in total Currency Derivative

Proportion of share of each exchange in total currency derivative								
Year	MCX-SX		USE		BSE		NSE	
	No of contracts	Turn over	No of contracts	Turn over	No of contracts	Turn over	No of contracts	Turn over
2008-09	47.74	47.84	0.00	0.00	0.00	0.00	52.26	52.16
2009-10	51.88	52.17	0.00	0.00	0.00	0.00	48.12	47.83
2010-11	49.61	49.89	9.22	9.07	0.00	0.00	41.17	41.04
2011-12	37.41	37.72	15.32	15.05	0.00	0.00	47.27	47.24
2012-13	37.80	37.92	1.50	1.53	0.00	0.00	60.70	60.55
2013-14	34.80	34.70	4.15	4.32	3.42	3.50	57.64	57.48

Source: compiled from SEBI Annual Report & ISMR

Table 1 depicts the performance of total currency derivative and the Table 2 shows the performance of individual exchanges in India. The numbers of traded contracts and turnover in the MCX-SX have been increased by more than 13 and 16 times respectively whereas Proportion of share of MCX-SX exchange in total currency derivative has decreased by average 5 % during the last 5 years. Similarly in case of USE, trend is decreasing and fluctuating. USE has recorded a double figure Proportion of 15 % to total currency derivative in India in 2011-12 and now it has came down to 4 % .It is clear from the above tables that Currency segment in BSE is weak and wants to grow more to reach into an average potential as compared to others and only the last year has shown a considerable data in BSE and previous years have shown merely negligible figures. The number of traded contracts and turnover in this NSE has been increased by more than 20 and 24 times respectively. NSE could maintain a Proportion of more than 45 % in every year except in 2010-11 where it was 41 % and it could reach at a record level of 60 % in the year in 12-13.As a whole NSE is the exchange showcasing an awesome performance in Currency Derivative segment .It discloses the strength and magnitude of NSE in contributing major part to the economic development of the country. Hence it is very essential to go through a detailed analysis of Currency Derivative in NSE.

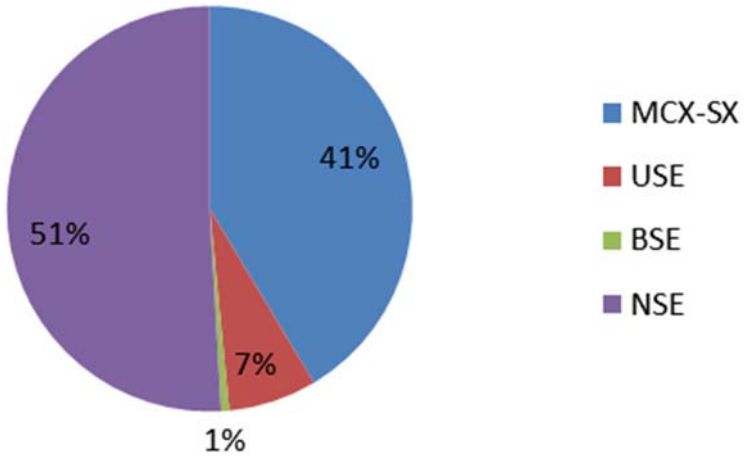

Fig 2: Proportion of Share of Each Exchange in Total Currency Derivative

Table 3: Total exchange wise performance in India

Total exchange wise performance in India				
Year	**No of contracts**	**Growth in contracts (in %)**	**Turnover (Rs in Mn)**	**Growth in turnover (in %)**
2008-09	62520337		3110984	
2009-10	786773261	1158.43	37272620	1098.10
2010-11	1820560081	131.40	84063057	125.54
2011-12	2059064904	13.10	98964138	17.73
2012-13	1580321070	-23.25	87105047	-11.98
2013-14	1145413911	-27.52	69808554	-19.86

Source: compiled from SEBI Annual Report & ISMR

Table 4: CAGR analysis of total Exchange wise performance in India

CAGR analysis of total exchange wise performance in India		
Year	**No of contracts**	**Turnover (Rs in Mn)**
2008-09	62520337	3110984
2013-14	1145413911	69808554
CAGR	78.89	86.30

Source: Table 1

Table 3 and 4 show total exchange wise performance of Currency Derivative in India. The total numbers of traded contracts and turnover have been increased by 18 and 22 times respectively during the last 6 years .Similarly the average consolidated growth rate of contracts and turnover were 246%. In India, the Currency Derivatives market has recorded an impressive CAGR of 79 per cent, in terms of annual numbers of traded contracts, and 86.30 per cent in terms of annual turnover in the last six years.

Table 5: Performance of Currency Derivative in NSE

Performance of Currency Derivative in NSE				
Year	**Number of contracts**	**% Growth in contracts**	**Turnover (Rs in Mn)**	**% Growth in turnover**
2008-09	32672768	-	1622724	-
2009-10	378606983	1058.78	17826080	998.53
2010-11	749602075	97.99	34497877	93.52
2011-12	973344132	29.85	46749898	35.52
2012-13	959243448	-1.45	52744647	12.82
2013-14	660192530	-31.18	40125134	-23.93

Source: compiled from ISMR

The growth in the currency Derivative segment in terms of number of contracts and turnover on NSE is given in Table 5. Currency Futures was introduced in august 2008 and it was the only one derivative product in India till October 29 2010 when currency options were introduced. The number of traded contracts and turnover in this segment has been increased by more than 20 times and average 2000 % from the inception to last year. Figures for number of contracts treaded and turnover have shown an increase up to 2011-12 and decreasing trend up to 2013-14. Despite of negative growth rate in last two years, C.D segment has shown an average growth rate of 230 % over the 5 years.

Table 6: CAGR analysis of Currency Derivative in NSE

CAGR analysis of Currency Derivative in NSE						
Year	**Currency Futures**		**Currency Options**		**Total**	
	Number of contracts	**Turnover**	**Number of contracts**	**Turnover**	**Number of contracts**	**Turnover**
2008-09/ 2010-11*	32672768	1622724	37420147	1707856	32672768	1622724
2013-14	478301579	29408859	181890951	10716275	660192530	40125134
CAGR	71.04	78.50	69.40	84.44	82.43	89.95

Source: Table 5

Table 6 shows the CAGR analysis of Currency Derivative in NSE, the Currency Derivatives market has recorded an impressive CAGR of 82.43 per cent, in terms of annual turnover and 89.95 per cent in terms of number of contracts traded, in the last six years. While considering Product wise growth, Currency Futures has shown a tremendous CAGR of 71.04 per cent in terms of annual turnover and 78.50 per cent in terms of number of contracts traded in the last 6 years. Currency Options has shown a reasonable CAGR of 69.40 per cent in terms of annual turnover and 84.44 per cent in terms of number of contracts traded in the last 4 years.

Table 7: Currency Futures performance in NSE

Currency Futures performance in NSE				
Year	**No of contracts**	**Growth in contracts (in %)**	**Turnover (Rs in Mn)**	**Growth in turnover (in %)**
2008-09	32672768	-	1622724	-
2009-10	378606983	1058.78	17826080	998.53
2010-11	712181928	88.11	32790021	83.94
2011-12	701371974	-1.52	33784888	3.03
2012-13	684159263	-2.45	37651053	11.44
2013-14	478301579	-30.09	29408859	-21.89

Source: compiled from ISMR

Table 8: Proportion of product wise performance in total currency derivative of NSE

Proportion of product wise performance in total currency derivative of NSE				
Year	**Currency futures**		**Currency/USD-INR options***	
	No of contracts	**Turnover**	**No of contracts**	**Turnover**
2008-09	100.00	100.00	-	-
2009-10	100.00	100.00	-	-
2010-11	95.01	95.05	4.99	4.95
2011-12	72.06	72.27	27.94	27.73
2012-13	71.32	71.38	28.68	28.62
2013-14	72.45	73.29	27.55	26.71

Source: Table 5, 7 & 16 *USD-INR Options is the only one Currency Options in NSE

Currency Futures performance in NSEis depicted in Table 8; Currency Futures was introduced in august 2008. After an impressive start in the latter half of 2008, the Currency futures on the NSE witnessed exponential growth during 2009-10 and continued to flourish in the first-half of 2010-11 Currency Futures contracts have grown by 15 times and 1364 % similarly turnover by 18 times and 1712 % respectively from 2008 – 09 to 2013 -14.Currency Futures have shown a tremendous growth in the first 2 years, but after that, in the last 3 years growth rate found to be negative. Its average growth rate for the last 5 years was 222 % for number of contracts and 215 % for turnover. Since Currency Options were introduced in October 2010, Currency Futures were continued to be the cent per cent contributor to Currency derivative segment in NSE. After that its proportion to total currency derivative found to decrease from 100 percent now it is 73 %. Above table says that there was only one Currency Derivative product titled Currency Futures up to 2010 where Currency Options has been introduced in NSE .Due to such reason, in 2008-09 and 2009-10 Currency futures was cent per cent contributor to the total currency derivative of NSE .In 2010-11, it was reduced to 95 per cent and in the remaining 3 years it was fluctuating between 71 to73 per cent .Now it is 73 per cent.

8. Analysis of product wise Currency Future performance in NSE

This analysis is carried out using Tables from 7 to 14, tools like correlation, percentage, Compounded Annual Growth Rate (CAGR), average, proportion and times analysis. Figures which has a fraction more than 0.50 is rounded off to one.

Table 9: Performances of USD-INR Futures

Year	**Performance of USD-INR Futures**			
	Number of contracts	**Growth in contracts (in %)**	**Turnover (Rs in Mn)**	**Growth in turnover (in %)**
2008-09	32672768	-	1622724	-
2009-10	372495580	1040.08	17443161	974.93
2010-11	691678302	85.69	31544673	80.84
2011-12	676249054	-2.23	32126143	1.84
2012-13	667275855	-1.33	36438256	13.42
2013-14	441717870	-33.80	26405596	-27.53

Source: compiled from ISMR

Table 9 reveals the performance of USD-INR Futures in NSE. A USD-INR future was introduced in 2008. USD-INR futures contracts have grown by 13 times and 1252 % similarly turnover by 16 times and 1527 % respectively from the inception to the last year. It has shown an average yearly growth rate of 218 % in terms of number of contracts traded and 208 % in terms of turnover. USD-INR Futures accounted a commendable CAGR of 68 per cent for number of contracts traded and 75 per cent for turnover. The performance of USD-INR Futures is not inspiring one as we compare the growth rate, it shows a constant negative growth rate during the past 5 years .Starting with a positive and impressive growth rate of 1040 per cent in 2008-09 now it was come down to a negative growth rate of 34 per cent .It says dark side of USD-INR

Futures in NSE. In spite of the same, it could contribute around more than 90 % to total currency futures in NSE .it was 100 per cent in 2008-09 and now it is contribute 95 percent to the total currency futures in NSE.

Table 10: Performance of EUR-INR Futures

Year	Performance of EUR-INR Futures			
	Number of contracts	Growth in contracts (in %)	Turnover (Rs in Mn)	Growth in turnover (in %)
2008-09	-	-	-	-
2009-10	5709979	-	358783	-
2010-11	15326870	168.42	920467	156.55
2011-12	15626184	1.95	1017017	10.49
2012-13	8632609	-44.76	612752	-39.75
2013-14	16162016	87.22	1320595	115.52

Source: compiled from ISMR

Table 10 shows the performance of EUR-INR Futures in NSE. A EUR-INR future was introduced in 2009. USD-INR futures contracts have grown by 3 times and 183 % similarly turnover by 4 times and 268 % respectively during the last 6 years. It has shown an average yearly growth rate of 53 % for number of contracts traded and 60 % for turnover. EUR-INR Futures accounted a CAGR of 30 per cent in terms of number of contracts traded and 38 per cent in terms of turnover. EUR-INR future has shown a growth rate of above 150 per cent in the year 2010-11 but it was reduced to a single figure in the next year and in the next year it recorded a negative growth rate of 40 per cent. Even though it has come back to its strength in 2013-14 where it showed a average triple figure growth rate. It could contribute only three per cent to total currency futures in NSE in the years of introduction. Now it is improved to 4 per cent.

Table 11: Performance of JPY-INR Futures

Year	Performance of JPY-INR Futures			
	Number of contracts	Growth in contracts (in %)	Turnover (Rs in Mn)	Growth in turnover (in %)
2008-09				
2009-10	199419		9990	
2010-11	2755184	1281.61	151171	1413.22
2011-12	4488227	62.90	266408	76.23
2012-13	4731070	5.41	298296	11.97
2013-14	8413475	77.83	504252	69.04

Source: compiled from ISMR

The performance of JPY-INR Futures in NSE is shown in Table 11. JPY-INR future was introduced in 2009. JPY-INR futures contracts have grown by 42 times and 4119 % similarly turnover by 50 times and 4947 % respectively from the inception to the last year. It has shown an average yearly growth rate of 357 % in terms of number of contracts traded and 392 % in terms of turnover. JPY-INR Futures accounted a record of CAGR of 155 per cent for number of contracts traded and 166 per cent for turnover. JPY-INR future has shown a growth rate of above 1250 per cent in the year 2010-11 but it was reduced to a double figure of more than 70 in the next year and in the next year it recorded a growth rate of 11 per cent. Even though, it has come back to its strength in 2013-14 where it showed a figure growth rate above 70 per cent. It could contribute only one per cent to total currency futures in NSE in the years of introduction. Now it is improved to above 1 per cent

Table 12: Performance of GBP-INR Futures

Year	Performance of GBP-INR Futures			
	Number of contracts	Growth in contracts (in %)	Turnover (Rs in Mn)	Growth in turnover (in %)
2008-09	-	-		-
2009-10	202005	-	14146	-
2010-11	2421572	1098.77	173710	1127.98
2011-12	5008509	106.83	375320	116.06
2012-13	3519729	-29.73	301749	-19.60
2013-14	12008218	241.17	1178416	290.53

Source: compiled from ISMR

Table 12 results the performance of GBP-INR Futures in NSE. GBP-INR future was introduced in 2009. GBP-INR futures contracts have grown by 59 times and 5844 % similarly turnover by 83 times and 8230 % respectively from the inception to the last year. It has shown an average yearly growth rate of 354 % in terms of number of contracts traded and 379 % in terms of turnover. GBP-INR Futures accounted a record of CAGR of 178 per cent for number of contracts traded and 202 per cent for turnover. GBP-INR future has shown a growth rate of above 1100 per cent in the year 2010-11 but it was reduced to a triple figure of more than 105 in the next year and in the next year it recorded negative a growth rate of above 20 per cent. Even though, it has come back to its potential in 2013-14 where it exhibited growth rate above 250 per cent. It could contribute only less than 1 per cent to total currency futures in NSE in the years of introduction.

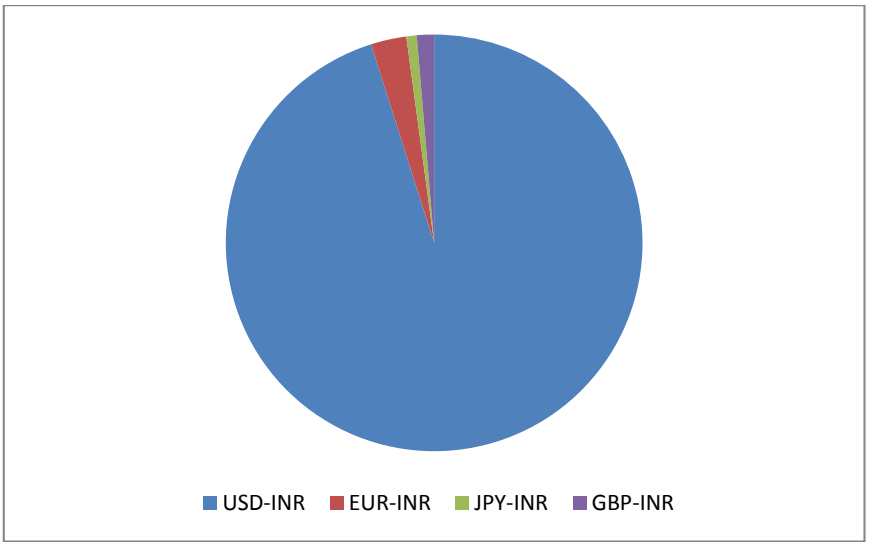

Fig 3: Product wise Currency Future Performance in NSE

Table 13: Proportion of product wise currency Futures in total currency futures of NSE

Proportion of product wise currency futures in total currency futures of NSE								
Year	**USD-INR**		**EUR-INR**		**JPY-INR**		**GBP-INR**	
	No of contracts	**Turn over**	**No of contracts**	**Turn over**	**No of contracts**	**Turn over**	**No of contracts**	**Turn over**
2008-09	100.00	100.00	-	-	-	-	-	-
2009-10	98.39	97.85	1.51	2.01	0.05	0.06	0.05	0.08
2010-11	97.12	96.20	2.15	2.81	0.39	0.46	0.34	0.53
2011-12	96.42	95.09	2.23	3.01	0.64	0.79	0.71	1.11
2012-13	97.53	96.78	1.26	1.63	0.69	0.79	0.51	0.80
2013-14	92.35	89.79	3.38	4.49	1.76	1.71	2.51	4.01

Source: compiled from ISMR

Table 14: Product wise CAGR analysis of Currency Futures

Product wise CAGR analysis of currency futures			
Particulars	**Year**		**CAGR**
	2008-09/20009-10*	**2013-14**	
USD-INR			
Number of contracts traded	32672768	441717870	68.34
Turnover (in Mn)	1622724	26405596	74.70
EUR-INR			
Number of contracts traded	5709979	16162016	29.71
Turnover (in Mn)	358783	1320595	38.51
JPY-INR			
Number of contracts traded	199419	8413475	154.86
Turnover (in Mn)	9990	504252	166.54
GBP-INR			
Number of contracts traded	202005	12008218	177.67
Turnover (in Mn)	14146	1178416	202.11

Source: Table 7 & 9 to 12

Table 15: Correlation Matrix between USD-INR futures and other currency futures

Correlation Matrix between USD-INR futures and other currency futures			
USD-INR	EUR-INR	JPY-INR	GBP-INR
Number of contracts	0.40	0.08	-0.15
Turnover	0.31	0.42	0.08

Source: Table 9 to 12

Table 15 analyses Correlation Matrix between USD-INR futures and other currency futures. The correlation value between number of contracts as well as turnover of USD-INR and that of EUR –INR indicates lesser degree of positive correlation. The correlation value between number of contracts as well as turnover of USD-INR and that of JPY –INR also indicates lesser degree of positive correlation. The correlation value between number of contracts of USD-INR and that of GBP –INR indicates higher degree of negative correlation. The correlation value between turnover of USD-INR and that of GBP –INR indicates lesser degree positive correlation.

Table 16: Currency Options/USD-INR Options performance in NSE

Currency Options/USD-INR options * performance in NSE				
Year	**No of contracts**	**Growth in contracts (in %)**	**Turnover**	**Growth in turnover**

			(in Rs Mn)	(in %)
2010-11	37420147	-	1707856	-
2011-12	271972158	626.81	12965010	659.14
2012-13	275084185	1.14	15093594	16.42
2013-14	181890951	-33.88	10716275	-29.00

Source: compiled from ISMR

The Table 16 presents Currency Options performance in NSE; Currency Options was introduced in October 2010.Currency Futures contracts have grown by 4.85 times and 386 % similarly turnover by 6.27 times and 528 % respectively from 2008 – 09 to 2013 -14.Currency Options have shown a spectacular growth in the first 2 years, but after that, in the last year growth rate found to be negative. Its average growth rate for the last 3 years was 221 % for number of contracts and 235 % for turnover. Contribution of Currency Options to total C.D segment has whizzed from 4 % in 2010-11 to 26 % in 2013-14, even though last year contribution has been decreased by 6.67 %. Table 6 says that Currency Options has shared around 5 per cent towards the currency derivative of NSE in the introduced year and in the remaining 3 years it was fluctuating between 26 to 28 per cent .Now it is 27 per cent.

Table 17: Correlation Matrix between USD-INR futures and USD-INR options

Correlation Matrix between USD-INR futures and USD-INR options	
USD-INR futures	USD-INR options
Number of contracts	-0.02
Turnover	0.31

Source: Table 7 &16

The correlation value between number of contracts of USD-INR futures and that of USD-INR options indicates higher degree of negative correlation. The correlation value between turnover of USD-INR futures and that of USD-INR options indicates lower degree of positive correlation.

9. Findings

- National Stock Exchange is the leading stock exchange with more than 51 per cent contribution to the total Currency Derivative trade in India. MCX, USE and BSE contribute 41 %, 7% and 1% respectively.
- In NSE, the Currency Derivatives market has recorded an impressive CAGR of 82.43 per cent, in terms of annual turnover and 89.95 per cent in terms of number of contracts traded, in the last six years.
- Currency Futures share almost 73 per cent to the total Currency Derivative trade in NSE by showing a commendable CAGR of more than 75 per cent
- Among four Currency Futures products (USD-INR, EUR-INR, JPY-INR & GBP-INR) in NSE, USD-INR futures account for around 95 per cent contribution to the total Currency Futures trade by showing an impressive CAGR of above 70 per cent.
- Numbers of contracts of USD-INR futures and that of EUR-INR, & JPY-INR futures have shown a lesser degree of positive correlation whereas turnover of USD-INR futures and that of GBP-INR futures has shown a higher degree of negative correlation.
- USD-INR Options is the only one Currency Options in NSE so far and it contributes around 27 per cent to the total Currency Derivative trade in NSE by showing a record CAGR of more than 80 per cent.
- Number of contracts of USD-INR futures and that of USD-INR options indicates higher degree of negative correlation while turnover of USD-INR futures and that of USD-INR options shows lower degree of positive correlation.

10. Conclusion

Volatility in financial asset price, integration of financial market internationally, sophisticated risk management tools, innovations in financial engineering and choices at risk management strategies have been driving the growth of currency derivatives worldwide, also in India. It is widely believed that the most significant mile stone in the financial innovation is achieved with the issuance and trading of currency derivatives. Derivatives are standard risk management tool that enables risk sharing and facilitates the efficient allocation of capital to productive investment activities. Finally we can say there is big significance and contribution of currency derivatives to financial system. It is here that derivative instruments are of utmost utility.

11. References

1. Ashutosh Vashishtha and Satish Kumar, " Development of Financial Derivatives Market in India - A Case Study" International Research Journal of Finance and Economics ,ISSN 1450-2887 ,Issue 37 (2010) , Page no:15 -29
2. Dr. Himanshu Barot & Dr. Nilesh B. Gajjar," Role and Growth of Financial Derivative in the Indian Capital Market", International Journal for Research in Management and Pharmacy (IJRMP) ,ISSN: 2320-0901,Vol. 2, Issue 6, June 2013, Page no: 1 – 23
3. Dr S. Priya and Dr R. Rathiha, "Derivatives Market in India: A Success Story" Facts For You , June 2014, Page no:09 – 12
4. S. Kevin, Security analysis and portfolio management, New Delhi, PHI Learning Private Ltd., 2009.
5. S.S.S. Kumar, Financial derivatives, 2nd edition, New Delhi, PHI Learning Private Ltd., 2008,
6. S.L. Gupta, Financial derivatives, , 6th edition, New Delhi, PHI Learning Private Ltd., 2009.
7. Bishnupriya Mishra and Sathya Swaroop Debasish , Financial derivatives, 1st edition , New Delhi, Excel Books,2012.
8. SEBI bulletin, July 2014, volume no 12 and number 7
9. Handbook (09-10 & 10-11). "Handbook of Statistics on the Indian Economy", RBI
10. "Report on currency and finance", 2014 RBI
11. "Handbook on Capital Market Regulation (2008), published by SEBI
12. "Handbook of Statistics on the Indian Securities Market" (2009, 2010, 2011, 2012&2013) published by SEBI
13. "Indian Securities Market Review" (1999-13), National Stock Exchang
14. www.rbi.org.in, 14 December 2014.
15. www.sebi.org.in, 22 December 2014
16. www.nseindia.com, 29 December 2014