Dynamics of USD/INR Forwards in the Indian Foreign Exchange Market[$]

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The study is an attempt to understand dynamics of USD/INR forward market through primary data (questionnaire). It is observed that forward contracts play an important role in addressing the exchange rate risk. It is noticed that qualitative attributes like market sentiments, expectations, political stability and financial news play a vital role in determination of forward premia apart from quantitative factors viz., Interest Rate Differential, Crude Price, Net Intervention of RBI, lagged values of forward premia and Turnover in the foreign exchange market. The findings of the survey have policy implications since forward premia affect all sectors of the economy.

Key words: Foreign Exchange Market, Forward Premia, Forward Market

1. Introdution

Forward markets are very significant in determining foreign currency prices through the interaction of fundamentals viz., interest rates, inflationary expectations, balance of payments and similar other macro economic factors. If a foreign currency is available at a cheaper rate in the spot market than in the forward market, it implies that it is quoted at '*premium*' (i.e., foreign currency is 'stronger' than the home currency in the forward market and vice versa). On the other hand, if the currency is costlier in the spot market than in the forward market, it is quoted at '*discount*'. If spot and forward rates are equal, the currency is said to be at '*par*'.

Extensive research work has been documented in literature on the themes of exchange rate determination, spot & forward markets and efficient market hypothesis as applicable to currency markets both in India and abroad. As per the 'Interest Rate Parity theory', when interest rate in India is higher than that of in the USA, USD commands premium over INR in the forward market. Interest rate differential, other things being equal, will be the main factor in determination of forward premia especially when two countries have free market economies.

In the international finance, Parity theory has many variants viz., Covered Interest Parity (CIP), Uncovered Interest Parity (UIP), Real Interest Parity (RIP) and Purchasing Power Parity (PPP). These parity theories integrate the relationship of forward premia, exchange rates, inflation and interest rates in the international financial markets. As one would expect findings of the research are of a mixed nature, some studies validated these theories, while others rejected them.

Reddy (2008) found conclusive evidence for UIP conditions in respect of forward premia of 3 & 6 months' tenor, in the Indian foreign exchange market. Similarly, Bhatti & Moosa (1995) and Lothian & Wu (2011) validated UIP theory in the foreign exchange markets. Hakkio (1980) validated UIP hypothesis in case of Canada, Switzerland and the UK. However, research findings of Sharma & Mitra (2006), Frankel & Poonawala (2006) could not find supporting evidence for UIP.

George & Mallik (2009), Shah & Patnaik (2005), and Varma (1997) concluded that CIP conditions were non-existent in the foreign exchange markets. Whereas, some authors viz., Taylor (1991), Skinner & Mason (2007) found that CIP conditions hold good in advanced markets such as European Union countries, the UK and Norway. Batten & Szilagyi (2006) found that CIP conditions existed till 2000 and disappeared later in respect of USD/JPY due to introduction of electronic trading platforms and transparent real time pricing systems in the markets.

As exchange rate is an output derived out of market behaviour, merely concluding that exchange rate follows a random walk would mean that the market forces behind this rate are erratic. This is a conclusion to be contested and to be answered both at theoretical and at empirical level. On the other hand, over dependence on macro theories that it can explain and forecast exchange rates near-accurately at all time horizons is also not completely acceptable. Meese & Rogoff (1983) found that forecasts based on the monetary approach to exchange rate determination could not out-perform the random walk forecasts; the macro models lost their allure subsequently. In the short-run, as per the recent studies, particularly after the introduction of on-line trading systems that made the tick-by-tick (high frequency) data available, have shown that macroeconomic fundamentals are barely useful in predicting the rate movement (see Sarno & Taylor, 2001, for the survey).

In this context, present study is an attempt is made to identify *qualitative factors* that influence USD/INR forward premia with the help of primary information collected from the market practitioners. As more than 96% of India's foreign exchange turnover is denominated in the USD according to the Bank for International Settlements (BIS) Central Banks' Triennial Survey, 2010, focus of the present study is on USD/INR forward premia.

The current study is divided into *five* sections. The *second* section presents an overview on the foreign exchange forward market in India. The *third* section explains nature of data. The *fourth* section discusses the findings from survey on forward market. The *fifth* section concludes the study.

2. Indian Forward Market – An Overview

As per the Triennial Central Bank Survey conducted by Bank for International Settlements (BIS) in 2010, India was ranked at 15 in the world in terms of foreign exchange turnover; and stood at 16th position in terms of turnover in derivatives segment. Indian foreign exchange market is mainly concentrated in Mumbai and its share is nearly 80% in the entire turnover. As per the Survey, the maturity profile of outright forward contracts in India as well as in the world is shown in Table 2.1.

Table 2.1 *Tenor of Forward Contract***s**

Tenor of outright forward contracts	**India (%)**	**World (%)**
Up to 7 days	29	46
More than 7 days and up to 1 year	49	52
Beyond 1 year	22	2
Total	**100**	**100**

Source*: Triennial Central Bank survey conducted by BIS in 2010*

It is evident from the Table 2.1 that share of outright forwards up to 7 days' tenor is comparatively on the lower side in India as against the global level, perhaps due to the fact that the market participants in India have to submit proof of underlying exposure before due date of the forward contract. It is noticed that the per cent of outright forwards with a tenor of more than one year in India is higher than that of world figures because of growing share of capital flows viz., Foreign Direct Investment (FDI), Foreign Institutional Inflows (FIIs), External Commercial Borrowings (ECB) and Foreign Currency Non-Resident Bank (FCNR-B) deposits in the Indian Balance of Payments (BoP) since 2003-04. Foreign investors are interested to invest in India since they perceive that India is an Emerging Market Economy (EME) offering superior growth opportunities when compared to Advanced Economies (AEs). The size and level of operations of the Indian foreign exchange market during the last decade are shown in Table 2.2.

Table 2.2 Turnover In Indian Foreign Exchange Market (in USD billion)

Description	**2011-12**	**2010-11**	**2009-10**	**2008-09**	**2005-06**	**2000-01**
Daily average turnover in spot market	27.43 (50)	26.70 (49)	20.37 (50)	21.42 (45)	8.92 (51)	2.71 (47)
Daily average turnover in outright forward & swap markets	27.15 (50)	27.59 (51)	20.33 (50)	26.18 (55)	8.58 (49)	2.99 (53)
Daily average Turnover in foreign exchange market	54.58 (100)	54.30 (100)	40.70 (100)	47.60 (100)	17.50 (100)	5.70 (100)
Total Annual turnover	**13918**	**13791**	**10355**	**12092**	**4404**	**1434**

Note*: Figures in Brackets Indicate Market Share In % Terms*
Source*: RBI's Report on Currency & Finance – Various Issues*

It is clear from Table 2.2 that there was a spectacular growth in the total annual turnover of the Indian foreign exchange market i.e., from USD 1434 billion to USD 13918 billion (CAGR @ 23%) between 2000-01 and 2011-12. This indicates 'increased trade openness and globalization of Indian firms' during the period. Daily average turnover also witnessed similar kind of growth (increased to almost 10 times) during the period under review indicating deep, liquid and efficient market conditions in the market. Though the total turnover declined during 2009-10 due to Global Financial Crisis and consequent uncertainty in the international financial markets, turnover in forward/swap markets, however, increased (from USD 23.85 billion to USD 26.18 billion) between 2007-08 and 2008-09 on account of 'cover operations' undertaken by the market participants. The total turnover in the market bounced back during 2010-11 and further increased to USD 13918 billion during 2011-12 reflecting 'growing India's foreign trade and renewed interest of FIIs in the Indian economy'. Table 2.3 portrays the foreign exchange market scenario in terms of indicated parameters between 2000-01 and 2011-12.

Table 2.3 *Indian Foreign Exchange Market – Some Benchmarks*

Sl. No.	**Description**	**2011-12**	**2010-11**	**2005-06**	**2000-01**
1	Annual turnover (in USD billion)	13918	13791	4404	1434
2	Inter-bank turnover (in USD billion)	11191 (80)	10121 (73)	3187 (72)	1153 (80)
3	Merchant turnover (in USD billion)	2727 (20)	3670 (27)	1217 (28)	281 (20)

4	BoP of India (Gross flows i.e., Dr + Cr items) (in USD billion)	2028	1883	664	258
5	Foreign currency assets of India at end March of the year (in USD billion)	260	274	145	40
6	Item 2/3	4.1	2.7	2.6	4.1
7	Item 1/4	6.9	7.4	6.6	5.6
8	Item 1/5	54	50	30	36

Source: RBI's Hand Book of Statistics on Indian Economy
Note*: Figures in Parenthesis Indicate Share in % Terms*

As already indicated, total annual turnover in the Indian foreign exchange market exhibited phenomenal growth by increasing almost 10 times during the period from 2000-01 to 2011-12. However, the shares of inter-bank turnover and merchant turnover in the total turnover remained *flat* during the period, albeit their proportions changed during the course of the period. It can be observed that India's foreign currency assets rose by 6.5 times during the period from 2000-01 to 2011-12; similarly, gross flows in BoP jumped by almost 8 times during the same period reflecting external orientation of the Indian economy. Further, it is noticed that the total market turnover in terms of foreign currency assets (item 8 in table 2.3) and the BoP (item 7 in Table 2.3) also rose sharply during the period displaying *vibrant* market conditions.

3. Nature of Data

For this study, we have collected primary information from the market practitioners with the help of a structured mailed questionnaire. The questionnaire is constructed by using Likert Scale. We could collect information from 211 market practitioners. Random sampling technique was used to select the respondents.

4. Empirical Results Based on Primary Survey

Primary data on the Indian foreign exchange forward market have been interpreted in the following paragraphs. Each paragraph contains a question/statement (of the survey), followed by views (of the respondents) and analysis.

Forward market helps in mitigating exchange rate risk of corporates with external commercial borrowings apart from exporters/importers and Foreign Institutional Investors (FIIs).

Table 4.1 *Importance of Forward Markets*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	198 (93.84%)	10 (4.74%)	3 (1.42%)

It is evident from Table 4.1 that there is a *near unanimity* (94%) among the respondents on this view. Participants in the market book forward contracts mainly to *cover exchange rate risk* that stems from exports, imports, overseas borrowings and investments. Hence, it can be stated that forward contracts come very *handy* to mitigate the exchange rate risk in foreign currency transactions. The most widely used derivative instruments are the forwards and swaps in the Indian foreign exchange market (Goyal, 2010).

*Indian Foreign Exchange Market has the Following Characteristics***.**

Table 4.2 *Characteristics of Indian Forex Market*

Characteristics	a) Yes	b) No	c) Can't say
Deep (i.e., Transactions with huge volumes)	113 (53.55%)	75(35.55%)	23(10.90%)
Liquid (i.e., continuous & large no. of transactions)	158 (74.88%)	41(19.43%)	12(5.69%)
Efficient (i.e., low bid - ask spreads in foreign exchange quotes)	131 (62.09%)	41 (19.43%)	39 (18.48%)

It is apparent from Table 4.2 that 75% of the respondents agreed that the Indian foreign exchange market is *liquid*. Similarly, majority of the respondents voted for market characteristics such as '*depth*' (54%) and '*efficiency*' (62%); however, it is observed from the responses that 18% of the participants could not take a *definite view* on market efficiency. It implies that the Indian foreign exchange market has been evolving and low bid–ask spreads may not be an 'everyday phenomenon'.

Indian foreign exchange market has matured in terms of depth, liquidity and efficiency especially after introduction of market determined exchange rate regime in March 1993 and gradual liberalization of inflows and outflows in foreign currency. This is evident from its higher turnover and lower bid-ask spreads. In India, the normal spot market quote has an average spread of 'half a paisa' while swap quotes are available with a spread of 'one to two paise' per USD. The bid-ask spreads of USD/INR have almost *converged* with those of other convertible currencies in the international market. On some occasions, in fact, the bid-ask spread of USD/INR was *lower* than that of some major currencies (Mohan, 2007). Low bid-ask spreads on exchange rates reflect higher liquidity and efficiency, lower volatility and less of information asymmetry in the

market. Bid-ask spreads will decrease gradually as the number and size of transactions increase in the market. Efficiency in the foreign exchange markets can be established when forward premium acts as an unbiased predictor of future spot rates, reflecting informational efficiency [(Hakkio (1980); Phillips and Mcfarland (1997), Smoluk et al. (1998) and Newbold et al. (1998); Chaboud and Wright (2005); and Della et al. (2007)].

Forward Premia Influence Future USD/INR Spot Rate.

Table 4.3 *Influence of Forward Premia on Spot Rate*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	130 (61.61%)	61 (28.91%)	20 (9.48%)

It is clear from Table 4.3 that 62% voted in favour of this view. As per the Uncovered Interest Parity theory, forward premia influence future exchange rates as the expectations of market participants are 'self-fulfilling' in nature (Lewis, 1995). Hence, it is inferred that 'expectations' and forward rate do play a major role in determination of future USD/INR spot rate. This is supported by a research study conducted by Misra and Behera (2006), wherein bi-directional causality was observed between spot and forward rates of USD/INR.

Forward market is driven more by fundamentals viz., interest rate differential, inflation differential and Balance of Payments. Hence, it is less volatile due to time lag effect in accessing information related to some of these macro-economic variables.

Table 4.4 *Impact of Fundamentals on Forward Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	153 (72.51%)	34 (16.11%)	24 (11.37%)

It is noticed that market participants don't have instant access to information on some of the macro-economic variables; for instance, data on WPI is available on monthly basis to the market. Data on BoP is published on quarterly basis. It can be seen from the Table 4.4 that 73% of the respondents agreed with the view that the *fundamentals and their lagged values will have a distinct impact on the forward rates*. This view was supported by the findings of the research study conducted by Srikanth & Kishore (2013) that lagged values of forward premia, interest rate differential and turnover in the foreign exchange market had a significant impact in determining forward premia during the period December 1998 through March 2011.

During the last decade, Euro and Chinese Yuan have emerged as strong contenders to USD and getting considerable attention in the markets. Euro and Chinese Yuan may replace USD in the Indian foreign exchange market during the next decade.

Table 4.5 *Indian Forex Market – Role of Usd*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	16 (7.58%)	147 (69.71%)	48 (22.75%)

It is observed from Table 4.5 that 70% of the respondents refuted that USD would be replaced either by Euro or by Chinese Yuan during the next decade in the Indian foreign exchange market. As more than 96% of India's foreign exchange turnover is denominated in the USD according to the Bank for International Settlements (BIS) Central Banks' Triennial Survey 2010, this view appears to be *realistic*.

Forward contracts are usually delivered on the due date. This indicates a lower level of participation of speculators in the Indian forward market.

Table 4.6 *Speculation in the Indian Forward Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	116 (54.98%)	65 (30.81%)	30 (14.22%)

It can be noticed from Table 4.6 that 55% of the respondents agreed with the view that the presence of speculators in the Indian forward market is on the lower side; however 31% of respondents have not ruled out the possibility of speculation in the market and 14% of the people could not take any stance in this regard. This shows that speculative transactions *do exist* in the Indian foreign exchange forward market at a considerable level. As the transactions driven by speculation add liquidity to the market by way of better price discovery, RBI has allowed 'free booking and cancellation' of forward contracts, albeit with certain restrictions. As participants in the market have to submit documentary evidence to Authorised Dealers before expiry of each forward contract, this prevents speculative transactions in the market to a great extent. In view of excessive volatility in the Indian foreign exchange market, RBI directed that the 'delivery in forward contracts' is mandatory since December 16, 2011 with a view to discouraging speculative transactions. In case of cancelled forward contracts, the same are allowed to be

re-booked only after fulfilling certain conditions, unlike in the past as per the RBI's Master Circular No. 5/2014-15 dated July 1, 2014.

India achieved full integration in its financial market segments viz., equity market, money market, foreign exchange market and government securities market.

Table 4.7 *Integration of Indian Financial Markets*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	21 (9.95%)	161 (76.30%)	29 (13.74%)

It is observed from Table 4.7 that 76% of the respondents did not agree with this view. Hence, it is deduced that India is yet to achieve *full integration* in all of its financial market segments. The research studies undertaken by Jain and Murthy (2005), Bhat and Virmani (2005) and George and Mallik (2009) corroborated this view. So the policy makers may think of more reform initiatives such as further widening of the base of participants, introduction of new instruments, development of institutional infrastructure in the Indian financial markets to *achieve market integration* further.

Full Capital Account Convertibility (FCAC) implies that all investors will have complete freedom in making capital investments across the borders and interest rate differentials determine forward premia. FCAC regime may be introduced in the Indian foreign exchange market by 2020.

Table 4.8 *Fcac Regime in India*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	85 (40.28%)	36 (17.06%)	90 (42.65%)

The results of sample survey are *mixed.* Around 60% of the respondents either remain *indecisive* (43%) or *disagree* (17%) with the above view. Hence, it may be inferred from the survey results that the existing system i.e., Partial Capital Account Convertibility might be continued along with Current Account Convertibility in India. It is suggested that the policy makers may strive for the *'interest parity conditions'* in the Indian foreign exchange market while framing any guidelines in future.

Among foreign exchange market participants, NRIs/Foreign investors engage in arbitrage activities significantly.

Table 4.9 *Indian Forex Market – Role Of Arbitrageurs*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	108 (51.18%)	66 (31.28%)	37 (17.54%)

It is observed that the Forward Premium acts as a bridge between domestic and foreign interest rates through Covered Interest Arbitrage (Verma, 1997). Though 51% of the respondents agreed with the general perception that NRIs/foreign investors engage in arbitrage activities, around one third of respondents (31%) disagreed with this view as per Table 4.9. NRIs mainly consist of two classes: i) professionals, academicians and international civil servants, who are very rich and ii) migrant workers, who are not that rich. It is noticed that the latter class of NRIs are influenced by yields (interest rate differentials) and the former by depreciation of INR (Seshan, 2012). NRIs/foreign investors bring in foreign currency into India for domestic maintenance, savings and investments. The motivating factors for these inflows seem to be the *strong macro-economic scenario* in India rather than interest arbitrage alone. Jalan (2003) endorses this view and states that there has been no evidence that capital moves from the US to the Europe or elsewhere merely on account of interest rate differential.

The frequency of buy–sell operations of foreign investors in equity, money and Govt. securities market may affect forward premia.

Table 4.10 *Effect of Fiis on Forward Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	145 (68.72%)	41 (19.43%)	25 (11.85%)

It is obvious from Table 4.10 that 69% agreed that portfolio flows do affect forward premia. It is observed that portfolio flows, with sudden and huge volumes, from foreign investors have an impact on the foreign exchange market in general and forward premia in particular (Verma and Prakash, 2011). It is noticed that portfolio flows are invested in the Indian financial markets for a short period *with a view to maximising returns* (Srikanth & Kishore, 2012).

Volatility in exchange rates/forward premia is of high policy relevance because it is often seen as an impediment to trade and welfare (e.g. Rose, 2000). Since portfolio investments, in general, are not deployed for a longer tenor, hot money flows from FIIs may be monitored closely. Further, given the recent volatility in the USD/INR exchange rate, policy makers may place enough *checks and balances* (viz., strict compliance of Know Your Customer norms, full disclosure standards regarding FIIs) over destabilizing speculative transactions in order to maintain *stability* in the financial markets.

Forward premia are influenced by a large no. of forces, both quantitative and qualitative. The following table portrays some of the qualitative attributes.

Table 4.11 *Role of Qualitative Forces in Forward Market*

Non- Quantitative factors	a) Yes	b) No	c) Can't say
i) Political stability	179 (84.83%)	14 (6.64%)	18 (8.53%)
ii) Market sentiments, rumours & expectations	189 (89.57%)	14 (6.64%)	8 (3.79%)
iii) Force majure events viz., Tsunami, terrorism, etc.	133 (63.03%)	42 (19.91%)	36 (17.06%)
iv) Financial news (Rating of Indian economy by S&P, Moody's)	171 (81.04%)	17 (8.06%)	23 (10.90%)

It is evident from Table 4.11 that most of the respondents agreed that qualitative attributes like market sentiments, expectations, political stability and financial news play a major role in determination of forward premia. The research studies conducted by Sharma and Mitra (2006), Kumar and Mukherjee (2007) also supported this view. However, it may be inferred from the survey results that *force majure* events have a lesser impact on forward premia in comparison with other factors. Ajay Shah and Ila Patnaik (2005) highlighted that forward market in India consists of exporters and importers who are free to hegde or not to hedge depending on their expectations about currency movements, which affects forward premia. Exchange rate volatility is determined by strong seasonal patterns, arrival of the news and revelation of private information (Bauwens, 2005).

Currency Futures were introduced in the Indian foreign exchange market in August, 2008. As they have lower counter party risk and higher ease in execution, they are likely to overtake forward contracts in the next 5 years.

Table 4.12 *Forward Market Vs Futures Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	63 (29.86%)	82 (38.86%)	66 (31.28%)

According to the results furnished in Table 4.12, 39% of the respondents felt that 'futures' might not replace 'forward contracts' as the latter are 'Over The Counter (OTC) contracts' and offer *tailor made solutions* to the market participants. However, 31% of the respondents are *indecisive* in this regard since both the products (i.e., Forwards and Futures) are equipped with *unique* advantages/properties that suit risk profile of the participants. Volumes in Futures & Options segment in India increased from Rs. 3.12 lakh crores in 2008-09 to Rs.84.06 lakh crores in 2010-11. This explosive growth in Futures segment is primarily due to 'Mark to Market facility' (cash settlement), speculative nature of transactions (non-requirement of production of underlying exposure) and freedom 'to cancel & re-book' the contracts (see, RBI Annual Report, 2010-11, Appendix Table No. 13, pp.182; and pp.47). Further, it is observed that the turnover in the forward market (outright forwards and swaps) stood at USD 27.15 billion (equivalent to around Rs.1.50 lakh crore) during the year 2011-12. Hence, it is inferred that both forwards and futures may continue to retain their respective market shares in future. So the policy makers may devise guidelines to *deepen* the forward and futures markets further.

Volumes in MIFOR (Mumbai Inter-bank Forward Offer Rate), Non Deliverable Forward markets (NDF) and Currency Futures affect the forward premia.

Table 4.13 *Impact of Other Markets on Forward Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	137 (64.93%)	37 (17.54%)	37 (17.54%)

It is evident from Table 4.13 that 65% of the respondents felt that the volumes in foreign exchange derivatives viz., Mumbai Inter-bank Forward Offer Rate (MIFOR), Non-Deliverable Forward (NDF) contracts and Currency futures affect the forward premia. Misra and Behera (2006) suggested that NDF market might be regularly monitored to keep track of the pressures operating on the INR (Covered Interest Arbitrage).

As India mainly depends on oil imports, majority of Indian oil companies book forwards to mitigate their exchange rate risk; and the same will affect forward premia.

Table 4.14 *Impact of Crude Oil Price on Forward Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	168 (79.62%)	24 (11.38%)	19 (9%)

It can be observed from Table 4.14 that 80% of the responses are in favour of this view. As India, on an average, imports 80% of its oil requirement and the same accounts for nearly 30% of the total import bill, oil companies resort to booking of

forward contracts in large scale; and this will have an impact on the forward premia (George and Mallik, 2009; Srikanth and Kishore, 2013).

Given India's vulnerability to international oil price shocks and consequent inflationary conditions, the regulatory authorities may evaluate the impact of escalation in crude prices on the Indian economy in general and exchange rates/forward premia in particular. In case of extreme volatile conditions, the monetary authorities may think of *novel* solutions in this regard. For example, RBI sold USD *directly* to the 'Oil Marketing Companies' (OMCs) when these companies faced acute shortage of US Dollars during the Global Financial Crisis; this move evened out the mismatches in demand and supply conditions in the market to some extent.

The world may move to a single currency regime by 2030, thereby making forward market irrelevant.

Table 4.15 *Relevance of Forward Market in Future*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	10 (4.74%)	156 (73.93%)	45 (21.33%)

Japanese Yen, Chinese Yuan, Pound Sterling, Euro and USD are major convertible currencies of the world. However, the USD is likely to *retain its dominant position* in the international financial markets in the near future. The results reveal that 74% of the respondents voted against single currency regime by 2030. Hence, it is understood that forward market would continue to be an *essential* segment of financial markets.

Indian foreign exchange market–both spot and forward segments–experienced volatility during the East Asian currency crisis (1997-98), Pokhran nuclear blasts (1998), Kargil war (1999) and recent global financial meltdown (2008). RBI played a proactive role by using its policy instruments like direct intervention during these periods.

Table 4.16 *Role of Rbi in Indian Forex Market*

Response	a) Yes	b) No	c) Can't say
No. of responses (in percentage)	199 (94.31%)	9 (4.27%)	3 (1.42%)

This view is affirmed by 94% of the respondents of the survey as per Table 4.16. Hence, it is inferred from the results that RBI played a proactive role through direct intervention in the market during the times of crises as cited above. Besides, RBI resorted to administrative and regulatory measures and advised the participants through press statements/moral suasion to bring in *orderly* conditions in the foreign exchange market (Refer Report on 'Currency and Finance', RBI, 2008-09, pp. 191-292). Hence, it is suggested that RBI may continue to adopt these strategic initiatives in future also.

5. Conclusion

It is construed from the questionnaire survey results that forward contracts play an important role in addressing the exchange rate risk. Majority of the respondents accepted that Indian foreign exchange market has been evolving as a deep, liquid and efficient market over the years. Further, they expressed that 'expectations' and 'forward rate' do influence future USD/INR spot rate. The results indicate that the market fundamentals and their lagged values have a visible impact on forward premia. The respondents felt that NRIs/foreign investors are driven not just by 'interest arbitrage opportunities' but by 'strong India specific growth avenues'. It is found that surge in portfolio flows from FIIs have an impact on the foreign exchange market in general and on the forward premia, in particular. Most of the people agreed that qualitative attributes like market sentiments, expectations, political stability and financial news play a vital role in determination of forward premia. It is felt that forwards and futures would continue to retain their respective market shares in the Indian foreign exchange market since both of them have *unique* features in minimizing the exchange rate risk. It is evident from the responses that international oil price has a marked impact on the movement of forward premia due to India's heavy reliance on oil imports. Further, the survey results reveal that multi-currency regime and forward market would co-exist in future. There is a unanimous view that RBI played a proactive role in bringing down volatility in the Indian markets during the financial crises in the past.

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