Report
of
the Internal Working Group
on
Currency Futures

Reserve Bank of India

Central Office

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Chapter 1

Introduction

1. 01 Globalisation and integration of financial markets, coupled with the progressively increasing cross-border flow of funds, have transformed the intensity of market risk, which, in turn, has made the issues relating to hedging of such risk exposures very critical. The economic agents in India currently have a menu of over-the-counter (OTC) products, such as forwards, swaps and options, available to them for hedging their currency risk and the markets for these are quite deep and liquid. However, in the context of growing integration of the Indian economy with the rest of the world, as also the continued development of financial markets, a need has been felt to make available a wider choice of hedging instruments to the market participants to enable them to cope better with their currency risk exposures. While in some countries, exchange-traded derivative products, like currency futures and options on currency futures are already available for hedging of currency exposures, a closer examination reveals that these are mainly countries that have fully convertible capital accounts. In India as well, currency futures have so far not been allowed in view of the imperatives of the controls on the capital account. However, in the context of the increased capital account liberalisation, wider hedging opportunities could strengthen economic agents' ability to cope with market-induced currency movements. International experiences, albeit of select countries like South Africa and South Korea, suggest that currency futures could coexist with the OTC currency markets as well as capital controls. A few emerging market economies have set up currency futures exchanges onshore, even though they retained some controls on the capital account. The latest country to introduce currency futures is South Africa. It allowed its securities exchange, Johannesburg Stock Exchange (JSE) to trade the Rand futures since June 2007, with the objective of further developing South Africa’s financial markets and of improving liquidity in the currency market. However, in order to keep things in proper perspective, it must be noted that currency futures usually operate in markets which are fully convertible.

1.02 India has been experiencing heightened cross-border flows in recent times with globalization and relaxations in the rules governing external transactions. The flows have been strong on both current and capital accounts. There has also been some increase in volatility in exchange rates due to global imbalances and changing dimensions of the capital flows. According to the Bank for International Settlements (BIS) Triennial Central Bank Survey 2007, the share of India with daily turnover at USD 34 billion (daily average) has increased from 0.3 per cent in 2004 to 0.9 per cent in 2007. The depth in the domestic foreign exchange market is validated by the BIS survey data.

1.03 Currently, hedging of foreign exchange risk is possible only on the OTC market using forwards, currency swaps and options. Currency and interest rate swaps are permissible for hedging long - term exposures. The use of these products is subject to certain requirements as laid down in terms of FEMA Notification 25, which normally permits hedging of transactions backed by underlying exposures. However, as part of capital account liberalization and simplification of procedures, resident individuals and Small and Medium Enterprises (SME) sector have been granted flexibility in hedging their underlying or anticipated exposures without going through the rigors of complex documentation formalities. Commodity hedging in overseas exchanges has been permitted to hedge exposure to commodity price risk in the international markets. The rules have been relaxed to cover domestic exposures as well in the case of select base metals and Aviation Turbine Fuel (ATF) for domestic airline companies, as the domestic commodity exchanges are not able to offer the volume and depth required. The domestic oil marketing and refining companies have also been allowed to hedge their commodity price risk to the extent of 50 per cent of their inventory in the international markets.

1.04 The Committee on Fuller Capital Account Convertibility (FCAC) has observed that internationally, many investors use futures rather than the cash market to manage the duration of their portfolio or asset allocation because of the low upfront payments and quick transactions. Entities also trade in futures with the hope of making profit out of speculation or arbitrage opportunity between the futures market and the underlying market. By having wide spread membership and bringing together a large number of interested parties, the futures market provides liquidity, making transactions possible and providing immediate information on prices. Since futures, like any other derivatives are linked to the underlying cash market, its availability improves trading volumes in the cash market as it provides an arrangement for handling risk. Speculative activity also tends to shift risk to a more controlled and organized market, away from the underlying cash market. Accordingly, the Committee has recommended that currency futures may be introduced subject to risks being contained through proper trading mechanism, structure of contracts and regulatory environment. In recognition of the perceived need for currency futures to enhance the menu of tools available for hedging currency exposure and considering the recommendations of the Committee on FCAC, Reserve Bank of India in the Annual Policy Statement for the Year 2007-08 proposed to set up a Working Group on Currency Futures to study the international experience and suggest a suitable framework to operationalise the proposal, in line with the current legal and regulatory framework (Para 144).

1.05 Accordingly, an Internal Working Group was set up with the following **terms of reference**:

a) To study the product specifications, regulatory frameworks and international experience in respect of currency futures.

b) To study the current legal and regulatory framework in India and suggest changes, if any.

c) To suggest a suitable framework for introduction of currency futures, which could include suggestions on contract design, specifications, maturities/ deliveries (months), settlement, expiries, margins, minimum price fluctuations (tick size), accounting norms, etc.

d) To examine the infrastructure requirements for introduction of currency futures.

e) To make suggestions about the entity/entities which would serve as the Exchange.

f) To study the constraints if any, imposed by Foreign Exchange Management Act (FEMA), 1999 on the functioning of prospective currency futures exchange.

g) To assess the likely impact of currency futures trading on the prices in the spot and forward markets as also on the effectiveness of intervention (if any) by Reserve Bank of India.

h) To understand the liquidity implications for the spot market, if any.

i) To examine the desirability of banks becoming members on the Exchange.

j) To analyse the risks and benefits of allowing brokers on the Exchange and their regulation.

1.06 The constitution of the Internal Working Group was as follows:

1. Shri. Salim Gangadharan, Chief General Manager, Foreign Exchange Department, Chairman

2. Dr. (Shri.) Mridul Saggar, Director, Financial Markets Department, Member

3. Smt. Sumitra Sarangi, General Manager, Monetary Policy Department, Member

4. Shri. G. Ramesh, Deputy General Manager, Dept of Banking Operations and Development, Member

5. Shri. Andrew Joseph, Deputy Legal Advisor, Legal Department, Member

6. Shri. Indranil Chakraborty, Assistant General Manager, Department of External Investments and Operations, Member

Work Plan of the Group

1.07 The Group held preliminary meetings internally and adopted its work plan. It invited presentations from a wide cross section of market participants which included existing securities and commodities exchanges in India, Foreign Exchange Dealers' Association of India (FEDAI), Fixed Income Money Market and Derivatives Association of India (FIMMDA), Authorized Dealers, clearing and settlement agencies, the Chicago Mercantile Exchange (CME), brokers, legal experts, etc. which were followed by extensive discussions (list at Annex). Each entity presented its views and perspectives on the desirability of currency futures, pre-requisites for introduction, product specifics and institutional and legal framework that are required for setting up of futures exchanges. International experiences, including emerging market economies were also analyzed and are presented in Annex 1. Based on the discussions with market participants and the experiences drawn from international exchanges, the Group has explored various options

for the currency futures, analyzing the pros and cons of each option in the Indian context. The Group has thereafter presented the menu of alternative proposals along with different options, in two specific meetings, to the Technical Advisory Committee (TAC) for Money, Foreign Exchange and Government Securities Markets for its expert views. In these meetings, the various issues related to introduction of currency futures were deliberated in great detail and the TAC provided its specific views on the different alternatives presented for each issue. The list of members of the TAC is provided in Annex 2. The draft report was placed on the website of the Reserve Bank for public comments. These comments were again presented to the TAC for their expert views. The Group has immensely benefited from the comments of the market participants and deliberations of the TAC and their expert views have been duly taken into account while finalizing the Report.

Acknowledgments

1.08 The Group wishes to place on record its gratitude to all those who provided their views to the Group through presentations, discussions or correspondence. This Report has immensely benefited from deliberations with market participants and others. The Internal Group gratefully acknowledges the contributions of Smt. Rekha Warriar, General Manger, Smt. Vanitha K. Venugopal, Deputy General Manager, and Shri. Sujoy Banerjee, Assistant General Manager, all attached to the Foreign Exchange Department, Central Office, Reserve Bank of India who actively participated in the deliberations of the Group and made valuable contribution to the preparation of the Report.

Chapter 2

The Evolution and Mechanics of Currency Futures

The Origin

2.01 The origin of futures can be traced back to 1851 when the Chicago Board of Trade (CBOT) introduced standardized forward contracts which were being traded in non-standard bilateral form for the preceding three years. In comparison, the birth of currency futures is of a recent origin and was a sequel to the breakdown of the Bretton Woods system. The resultant currency volatility provided a business opportunity for launching futures contracts in foreign currencies. The Chicago Mercantile Exchange (CME) first conceived the idea of a currency futures exchange and it launched the same in 1972 amidst considerable skepticism, since traditionally futures market had traded agricultural commodities and not financial instruments. The CME commissioned Professor Milton Friedman to write a paper on currency futures in order to gain credibility in the market. Prof. Milton Friedman stated: "*Changes in the international financial structure will create a great expansion in the demand for foreign cover. It is highly desirable that this demand be met by as broad, as deep, as resilient a futures market in foreign currencies as possible in order to facilitate foreign trade and investment. Such a wider market is almost certain to develop in response to the demand. The major open question is where. The U.S. is a natural place and it is very much in the interests of the U.S. that it should develop here.*" The CBOT saw this as a competitive challenge, as also an opportunity to launch other financial futures and proposed trading options and futures on stocks.

The Rationale

2.02 The rationale for establishing currency futures market is manifold. Both residents and non-residents are exposed to currency risk when residents purchase foreign currency assets and non-residents purchase domestic currency assets. If the exchange rate remains unchanged from the time of the purchase of the asset to its sale, no gains and losses are made out of currency exposures. But if domestic currency depreciates (appreciates) against the foreign currency, the exposure would result in gain (loss) for residents purchasing foreign assets and loss (gain) for non-residents purchasing domestic asset. In this backdrop, unpredicted movements in exchange rates expose investors to currency risks. Currency futures enable them to hedge these risks. Nominal exchange rates are often random walks with or without drift, while real exchange rates over long-run are mean reverting. As such, it is possible that over a long-run, the incentive to hedge currency risk may not be large. However, financial planning horizon is much smaller than the long-run, which is typically inter-generational in the context of exchange rates. As such, there is a strong need to hedge currency risk and this need has grown manifold with fast growth in cross-border trade and investments flows. The argument for hedging currency risks appear to be natural in case of assets, and applies equally to trade in goods and services, which result in income flows with leads and lags and get converted into different currencies at the market rates. Empirically, changes in exchange rate are found to have very low correlations with foreign equity and bond returns. This in theory should lower portfolio risk. Therefore, sometimes argument is advanced against the need for hedging currency risks. But there is strong empirical evidence to suggest that hedging reduces the volatility of returns and indeed considering the episodic nature of currency returns, there are strong arguments to use instruments to hedge currency risks.

2.03 Currency risks could be hedged mainly through forwards, futures, swaps and options. Each of these instruments has its role in managing the currency risk. The main advantage of currency futures over its closest substitute product, viz., forwards which are traded over-the-counter (OTC) lies in price transparency, elimination of counterparty credit risk and greater reach in terms of easy accessibility to all. Currency futures are expected to bring about better price discovery and also possibly lower transaction costs. Apart from pure hedgers, currency futures also invite arbitrageurs, speculators and noise traders who may take a bet on exchange rate movements without an underlying or an economic exposure as a motivation for trading[1]. Advantages and disadvantages of currency futures are further elucidated later in this Report in paragraphs 2.07-2.08

2.04 From an economy-wide perspective, currency futures contribute to hedging of risks and help traders and investors in undertaking their economic activity. There is a large body of empirical evidence which suggests that exchange rate volatility has an adverse impact on foreign trade. Since there are first order gains from trade which contribute to output growth and consumer welfare, currency futures can potentially have an important impact on real economy. Gains from international risk sharing through trade in assets could be of relatively smaller magnitude than gains from trade. However, in a dynamic setting these investments could still significantly impact capital formation in an economy and as such currency futures could be seen as a facilitator in promoting investment and aggregate demand in the economy, thus promoting growth.

[1] Arbitrageurs play an important role of trying to profit from exchange rate differentials, say in spot and forward market or in futures and forward market or through more complicated carry. Such activity brings about convergence in prices and a better price discovery across markets. Speculators, in contrast, hope to profit purely from fluctuations in currency prices over time without buying an underlying asset for its regular income streams. Speculators are essential for providing liquidity to the market and unless they rig the market or overwhelmingly move the rates they may actually help in a more efficient price discovery. Noise traders act as compulsive traders and may trade in currency futures without any specific information of the currency movements. If the efficient market hypothesis holds, noise traders add to liquidity in the market without necessarily distorting valuations.

The Basics[2]

2.05 A futures contract is a standardized contract, traded on an exchange, to buy or sell a certain underlying asset or an instrument at a certain date in the future, at a specified price. Where the underlying asset happens to be a commodity, the futures contract is termed as 'commodity futures' whereas in cases where the underlying happens to be a financial asset or instrument, the resultant futures contract is referred to as 'financial futures'. A currency futures contract, also called an FX future, is a type of financial futures contract where the underlying is an exchange rate. In other words, it is a futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the last trading date. The buyer or seller in a futures market locks into an exchange rate for a specific value date or delivery date. In other words, currency futures are used primarily as a price setting mechanism rather than for physical exchange of currencies. The future date is called the delivery date or final settlement date. The pre-set price is termed as future price, while the price of the underlying asset on the delivery date is termed as the settlement price. The future price normally converges towards the spot price on the settlement date. The futures contract gives the holder the right to buy or sell, in contrast to the option contract which gives the holder the right, but not the obligation to buy or sell the underlying. Thus, both the parties of the futures contract must fulfill their contractual obligations on the settlement date. However, such contracts do provide options to deliver the underlying asset or settle the difference in cash. The holder of a contract could exit from his commitment prior to the settlement date by either selling a long position or buying back a short position (offset or reverse trade). The futures contracts are exchange traded derivatives and the exchange's clearing house acts as counterparty to all contracts, sets margin requirements, etc.

[2] Understanding Futures by Robert W Kolb

Types of Futures

2.06 Many types of futures contracts, mirroring the underlying assets – forex, bonds, interest rates, index, stocks, commodities, etc are available in exchanges. While trading in commodities began in the 18th century, the contracts on financial instruments were introduced in the 70's.

Advantages of Futures

2.07 The exchange traded currency futures offer different advantages over OTC market. The advantages are:

i) Transparency and efficient price discovery. The market brings together divergent categories of buyers and sellers.
ii) Elimination of counterparty credit risk.
iii) Access to all types of market participants.
iv) Standardized products.
v) Transparent trading platform.

Disadvantages of Futures

2.08 The futures are also disadvantageous in a few areas when compared to OTC market. The major disadvantages are:

i) Standardization – it is not possible to obtain a perfect hedge in terms of amount and timing.
ii) Cost –forwards have no upfront cost, while margining requirements may effectively drive the cost of hedging in futures up.
iii) Small lots- not possible to hedge small exposures generally.

Participants

2.09 Traditionally, the futures market meets the needs of the three distinct sets of market users - those who wish to discover price information, those who wish to speculate and those who wish to hedge. Though speculation may not be a socially useful activity, the three types of users contribute to price discovery and hedging as well as add to liquidity. A speculator is a trader who enters the futures market, with no initial risk in pursuit of profit, thereby accepting an increase in risk. A hedger is a trader with a pre-existing risk who enters the futures market to reduce or eliminate his currency exposure. There is a category of speculators called scalpers who have an extremely short horizon view – ranging from a few seconds to a few minutes. Since they are not looking for huge profits, they manage to generate a large volume of trades and contribute to increase in liquidity. Day traders take a far sighted approach to the market attempting to profit from the price movements that may take place over the course of a trading day. Position trader maintains positions overnight, weeks or months.

Pricing

2.10 In the foreign exchange market, every price or exchange rate is a relative price. Fundamental factors influence the exchange rates between two currencies. Interest rate parity theorem explains how the forward/ futures exchange rate is essentially determined on the cost of carry model. In addition in the long run the exchange rates are expected to follow Purchasing Power Parity (PPP). In the futures market, there are situations where the price of a currency for future delivery may be higher than the spot price, which is known as contango and where the future price is lower than the spot price, the phenomenon is known as backwardation.

2.11 Theoretically, if risk neutral speculators are available in sufficient numbers, their profit seeking activity will drive the futures price toward equality with the expected future spot price. The same process is expected to occur in the forward segment of forex markets. The linkages among interest rates, exchange rates, expected inflation rates emphasize the fundamental relationship between futures and forward prices on one hand and the expected future currency value on the other. The efficiency of forex futures markets has been researched and found to be generally poor. The same also applies to the forward market. The existence of premium in forward or futures market exist due to several possible reasons such as non-stationary risk premia, bias in regression coefficients arising from systematic error components due to non-rational response, microstructure and behavioural issues.

2.12 Ideally in the futures market, the difference between the spot and future prices reflect the covered interest rate arbitrage, which fosters interest rates in the two relevant countries. However, imperfections in the market, regulatory restrictions, capital controls, etc, may prevent the arbitrage activity from operating efficiently. In such a scenario, futures price may reflect more of a consensus forecast of prospective exchange rates rather than classical arbitrage pricing theory.

Clearing House

2.13 The margin system functions through a hierarchy of market participants that links the clearing house with the individual trader. The members of an exchange may be classified as clearing members or non clearing members. A clearing member is a member of the exchange and the clearing house. The clearing house deals with clearing members only. Any non clearing member has to clear his transactions through a clearing member. The clearing house collects margin deposits from clearing members to cover all futures positions that are on account of the particular member. For e.g., if a bank is a member of the clearing house, it has to maintain margins on account of all the trades executed though it. In turn the clearing member would insist on receiving margins from all traders whose trade it handles and thus the margin requirements travel down the chain to brokers and actual traders.

2.14 The clearing house does not take any active positions on the exchange, but interposes itself between two parties to a trade. The number of contracts bought in a futures market must therefore be exactly equal to the number of contracts sold. Without the clearing house, it would have been difficult for two totally unknown parties separated geographically to trust each other and trade. Because of the clearing house, the two parties to the trade are only concerned with the financial soundness of the clearing house. The clearing house is invariably a large well capitalized financial institution. In the history of futures, there has never been a known failure of the clearing house.

2.15 There are four identifiable tiers in the futures market – the broker, the exchange and clearing house, a self regulatory body and the government agency. The KYC of the customer is the broker's responsibility. He is also responsible to the clearing house for all accounts handled by him directly or indirectly. Any restrictions on specific types of trades or limits on positions, etc laid down for smooth functioning and free determination of price have to be implemented through brokers. A broker has a duty to report any violation or attempt at price manipulation to the exchange. A code of conduct for brokers framed by the exchange, regulator or a self regulatory agency is generally put in place.

2.16 The futures exchange and the clearing house are themselves self regulated entities. They prescribe and enforce rules for trading and clearing on the exchange. Exchange rules inter alia prohibit fictitious trading, rumour mongering, disclosure of customer positions, false declarations and statements, etc. by members. Any attempt at price manipulation by pre-arranged trades is strictly forbidden. Brokers are also forbidden from a practice called front running where a broker trades on his own account to the detriment of the customer. Futures exchanges can also set daily price limits, position limits and margin requirements. These will be within the framework of any limits set by the higher level regulator.

2.17 Often the various futures exchanges in a market form a self regulatory association. This helps promote just and equitable principles of trade, remove impediments to free and open futures trading and generally protect public interest. Such associations undertake the tasks of screening and testing applicants for membership, prescribe record keeping and disclosure standards, etc. The ultimate regulator is the one with powers derived from statute, e.g. the Commodity Futures Trading Commission (CFTC) in USA. The ultimate regulator can lay down rules relating to trading, daily permitted price fluctuations, rules for delivery process, etc. It has powers to intervene by suspending trading if warranted by price manipulation. It can also prescribe competency standards for brokers, members, etc.

Margins

2.18 The credit risk in futures market is assumed by the exchange. In order to minimize the credit risk to the exchange, traders are required to post margins, typically in the range of 5 per cent – 15 per cent of the contracts' value. In some jurisdictions, different margin regimes are followed for hedgers and speculators. There are three types of margins- ***initial margin, maintenance margin and the variation margin.*** The initial deposit called the initial margin is the amount a trader (buyer and seller), must deposit before trading in any futures. This normally is approximately taken as the maximum daily price fluctuation permitted for the contract being traded. The initial margin can be kept so small because of the safeguard built into the system of daily mark to market. Whenever the position held on the exchange shows a loss on mark to market, the same is deducted from the margin deposited. When this drops below a threshold level called the maintenance margin, established by the exchange, a margin call is made on the trader to replenish the margin and the additional amount deposited is called the variation margin.

Settlement

2.19 Settlement of futures contract can take place through physical delivery or cash settlement. Under physical delivery, the amount specified of the underlying is delivered by the seller to the buyer. Physical delivery is common in commodities and bonds. Under the cash settlement system, a cash payment is made based on the underlying reference rate at the time of expiry.

Forwards and Futures

2.20 The foreign exchange futures market coexists worldwide with a very active forward market. In fact the presence of a strong OTC markets has somewhat limited the development of futures markets. Essentially, futures contracts are standardized forward contracts traded on an Exchange. The standardization of the futures contract will typically be in terms of quantity, expiration months, delivery/ settlement amounts, date and mode, trading days and hours. The biggest feature in favour of the futures is the existence of the clearing house to guarantee the fulfillment of contract obligations and virtually eliminate counterparty risk. The Clearing house may be organized as a separate corporation that offers clearing services to multiple exchanges or it could be a division of the futures exchange itself. The Clearing house guarantees all trades by adopting the position of counterparty to every trade. The Clearing house's safeguard against default is the margin money deposited by clearing member firms on behalf of their customers and their own proprietary accounts. A second line of defense is the capital of the clearing members in the event of default by a clearing member.

2.21 The futures contracts and forward contracts have similar characteristics; but are different in many respects:

i) Futures are always traded on an exchange, whereas forward contracts are OTC product.

ii) Futures are highly standardized, whereas forwards can be customised.

iii) The future contracts are settled at the settlement price, while forwards are settled at the contract price specified upfront.

iv) The credit risk on futures is eliminated, unlike the forwards.

v) In forwards there are no margins, whereas futures require margins and daily marking to market of the positions.

Chapter 3

Currency Futures – Implications for Monetary and Exchange Rate Policies

3.01 Currency futures have certain implications for the conduct of monetary and exchange rate policy. These implications need to be clearly understood so that appropriate policy framework could be put in place with a view to ensuring that the market developments do not attenuate monetary policy efficacy and financial stability. The main implications of currency futures market for monetary and exchange rate policies arise from the following: (i) risks of possible dollarization of the economy, (ii) risks of possible increased volatility in the exchange rate, which could then spill over to other segments of financial markets and in the process have impact on interest rate, pace of economic activity, inflation and financial stability. Higher variability in output and prices is undesirable for the economy as the uncertainty makes economic contracts difficult and lead to potential loss in output. Financial volatility also has an adverse impact on the saving and investment decisions. They can fuel asset price bubbles and busts which can have adverse impact on the economy for a fairly long time. These possibilities ultimately impinge on the stability of the financial system also.

3.02 While the abovementioned risks exist, their probability is relatively low. At the same time, the loss value of the extreme events could be large. Hence, there is an imperative need to be better prepared to cope with such low probability extreme events. At the same time, the potential gains from the introduction of currency futures also need to be recognised. The gains are multi-dimensional in nature in terms of availability of better risk management tools to the market players, better price discovery mechanism and the resultant potential to lower transaction costs, apart from the improved two way information flows between the markets and the policy-makers. Currency futures would also contribute to a higher level of sophistication of the financial market and imbibe greater confidence to economic agents within and outside the country, which is an inherent strength of our financial system.

Dollarisation

3.03 Dollarisation refers to broad use of foreign currency as a substitute for domestic currency for transaction or other purposes. One of the risks inherent in the currency futures is the possibility of currency substitution of the domestic economy i.e. if the residents get induced to seek holding of foreign currency or assets to a significant extent by economising holdings of domestic currency and assets. Historically, dollar or foreign currency holdings have been a very small proportion of asset portfolio of different economic agents in India and even their current appetite for such holdings is not large. Currency futures, however, entail some potential risk of permeating through the capital controls in place causing dollarisation of the economy, as its consequence or otherwise. It is, therefore, important to survey the phenomenon of dollarisation of economies elsewhere, even though, so far, there has been no evidence of a direct causality between the introduction of currency futures and the dollarisation of economies.

3.04 Almost all the countries in the world issue their own currencies as it enables them to conduct their own monetary policy and provides them the seigniorage benefits. However, given a choice, many residents might prefer to hold assets denominated in foreign currencies (US dollar or any other hard currency) in the interest of preserving the value of their holdings. Such a preference of the economic agents could potentially lead to dollarisation of an economy. There are countries which are officially dollarised. Official dollarisation occurs when a country eliminates its own currency and adopts the U.S. dollar (or any other foreign currency) as legal tender. Economic contracts, such as payment of wages and settlement of financial contracts could then be made in US dollar or other foreign currency. Consumers could make their purchases in foreign currencies as well. Even the government accepts foreign currency for payment of taxes and debts, as also use it for making payments. Countries which are officially dollarised include Andorra (dollarised in Euro), Kosovo (Euro), Lichtenstein (Swiss Franc), Monaco (Euro), Montenegro (Euro), Nauru (Australian Dollar), San Marino (Euro), Tuvalu (Australian Dollar) and Vatican (Euro). Certain dependencies also are officially dollarised, such as the Cocoa Island (Australian Dollar), the Cooks Island (New Zealand Dollar), the Norfolk Islands (Australian Dollar), St. Helena (British pound) and Tokelau (New Zealand dollar).

While in the above mentioned countries domestic currency is completely eliminated, there are countries where the foreign currency co-exists with domestic currency as a legal tender and such countries are termed as semi-dollarised economies. These officially semi-dollarised economies include the Bahamas, Cambodia, Laos, Haiti and Liberia in all of which US dollar is also a legal tender, in addition to the respective domestic currencies. Other such countries include Bhutan (Indian rupee), Brunei (Singapore dollar), Canary Island (British pound), Isle of Man (British pound), Lesotho (South African Rand), Namibia (South African Rand) and Tajikistan (any other currency).

The positives of dollarisation

3.05 Some countries prefer to officially dollarise their economies because of high inflation which reduces public confidence in the domestic currency. Dollarisation is generally expected to lower the level of inflation as the domestic monetary policy gets determined by monetary authorities of the low inflation country whose currency is permitted as a legal tender. This also helps deepen the financial markets, lower the interest rates, and leads to fiscal discipline, all of which together could lead to faster economic growth.

The risks of dollarisation

3.06 However, the dollarisation of an economy could also occur even if a foreign currency is not officially recognised as a legal tender. This could arise from the liberalisation of the current and, even more so, of the capital account, if the residents prefer to hold foreign currency. It is important to understand that dollarisation can pose serious risks to an economy, especially if it takes place in an unplanned manner. The serious risk emanating from the process of dollarisation is that it makes it very difficult for the domestic monetary authority to conduct an independent monetary policy. If the shocks facing the economy are asymmetric vis-à-vis the country of the currency of dollarisation (i.e., they are not coinciding or are of a similar nature to that of the country whose currency is permitted as a legal tender), they could pose serious policy dilemmas. Thus, it could be extremely damaging to the domestic economy if, for instance, the domestic demand shock warrants a monetary policy compression in the domestic economy at a

time when the external monetary authority is pursuing an expansionary monetary policy on the basis of its own macroeconomic situation, or vice-versa. Since in a dollarised economy, the domestic monetary authority would also find it difficult to perform the lender-of-the-last resort (LOLR) function, on account of its inability to print additional money to provide emergency funding to the banks, it could potentially lead to financial stability problems with an accelerator effect. In addition, dollarisation also leads to loss of seigniorage for the dollarised economy, (seigniorage is the profit a country earns when it issues a currency as the difference between the products the currency can buy and the cost of printing that currency). It is in this context that the implications of dollarisation of the economy call for a comprehensive and thorough analysis while considering the introduction of the currency futures in India.

3.07 It needs to be noted that dollarisation of an economy, pursuant to the introduction of currency futures, is a possibility but not an inevitable outcome of introducing currency futures in the domestic market. If currency futures contracts are settled in domestic currency and capital account regime is in place the probability and extent of dollarisation are likely to be even less significant than the case where the contracts are settled with physical deliveries in domestic and foreign currency. However, cash settled contracts could weaken the link between cash-futures arbitrage and has risk of greater speculative investments than one would anticipate in case of physical deliveries. These aspects are explained later in Chapter 6, where the framework and the options for currency futures contracts are discussed. While prima facie dollarisation does not appear to be a significant probability, it is reasonably clear that costs of dollarisation could far outweigh the benefits for an economy like India's, as the country has neither faced nor is facing high/hyper inflation or a loss of confidence in its currency. It is important to recognize that with dollarisation of an economy, apart from the seigniorage losses, it is well nigh impossible to conduct an independent monetary policy. Inability to conduct an independent monetary policy could have serious consequences when shocks to the Indian economy are asymmetric and inflation could inflict sizeable costs on the poor. As such, it appears that the design of the currency futures market for the Indian system would have to be one which prevents dollarisation of the Indian economy and keeps the

policy of capital account management in place so that problems of trilemma could best be avoided.

3.08 In an economy where a large segment of the population still lives below the poverty line in spite of a marked reduction in the poverty ratio, it is essential to aim for growth with emphasis on low inflation. This, in turn, underlines the importance of protecting the independence of monetary policy and of averting dollarisation. Price stability is the best means for protecting income levels of the poor and help them participate in the overall economic progress. Keeping the above in view, the Reserve Bank's objectives of monetary policy in India in the recent period have evolved as those of maintaining price stability and adequate flow of credit to the productive sectors of the economy. These have been pursued with emphasis on price stability and well anchored inflation expectations. In the recent period, financial stability has also assumed priority in the hierarchy of objectives of the Reserve Bank in view of increasing openness of the Indian economy and the financial reforms brought about. As such, the Reserve Bank has focused on issues of credit quality and on maintaining orderly conditions in the financial markets for securing macroeconomic and financial stability.

Exchange Rate Volatility

3.09 Volatility in exchange rate refers to the statistical measure of its dispersion of returns or change. In the financial world, volatility adds to risks. Typically it is seen in terms of standard deviation or coefficient of variation (the latter has the advantage that it is unit free). However, there are wide arrays of other measures, specially the conditional volatility measures which provide better insights into exchange rate volatility which is marked by clustering and symmetric dependencies in variances. The exchange rates could display higher volatility because of several factors such as deviation from fundamentals, excessive speculative activity, macroeconomic shocks or other news. Excessive fluctuations and volatility in exchange rates could spill over to other segments of financial markets, can blur monetary policy signals and lead to financial stability problems. Excessive exchange rate fluctuations also have a detrimental impact on foreign trade and at times even on genuine investments. Investments could then be potentially

guided by a view or a bet on exchange rate movements rather than by the underlying returns, especially if the umbilical cord between the cash-futures arbitrage is snapped.

3.10 Keeping in view the risks associated with possibility of large volatility in exchange rates, the Reserve Bank's exchange rate policy in recent years has been guided by the broad principles of careful monitoring and management of exchange rates with flexibility. The exchange rate policy does not aim at a fixed target or a pre-announced target or a band but is supported by the ability of Reserve Bank to intervene in the markets, if and when necessary, only to smoothen any undue volatilities or disorderly market behaviour, while allowing the underlying demand and supply conditions to determine the exchange rate movements over a period in an orderly manner. The Reserve Bank sells/ purchases foreign currency in the foreign exchange market from time to time in order to even out lumpy demand and supply and also to smoothen out the exchange rate movements.

3.11 However, as the foreign exchange exposure of the Indian economy expands resulting in additional exposures of several Indian entities in a large number of currencies, there is a possibility that it could have an impact on the levels of exchange rate volatility in the domestic markets. While on one hand, the larger exposures could add to widening and deepening of forex markets and reduce volatility which presently arises from the thin volumes in forex market in India, on the other hand, larger exposures could also add to volatility if speculators take one-sided views on the movement of exchange rate. While, on a net basis, volatility could be expected to decline with growing liberalization, it is also important that larger exposures emerging in the system are matched with larger recourse to currency risk management. Currency futures market in India would make a notable contribution towards improving the menu of options available for currency risk management. Introduction of such a market by itself is neither expected to cause a change in the extant exchange rate policy which has yielded rich dividends to the economy, nor is likely to become a cause for debilitating the central bank's ability to carefully monitor and manage exchange rate with flexibility in tune with the policy in place.

3.12 Furthermore, in the days ahead, global developments are expected to have an increasing role in determining the conduct of monetary and exchange rate policies of the country. With the Indian economy having ascended a higher growth path and with the

economy progressively moving towards fuller capital account convertibility, newer challenges could emerge necessitating continuous adjustment and adaptation to the changing environment. Moreover, in the context of progress towards further capital account convertibility, the market participants would be faced with increased risks on multiple accounts. Therefore, there is a need to develop the markets further to enable market participants to absorb greater exchange rate volatility and shocks. Towards this purpose, the introduction of currency futures in the forex market could prove to be one more channel for providing greater flexibility to the market participant to operate in the markets. In this direction, the introduction of currency futures in the forex market can play a crucial role. The liberalization in this direction would, however, need to be synchronised with that in the OTC market.

3.13 In view of the above, it is important that while establishing currency futures market in India, the policy framework and the product design are evolved so as to minimize risks to macroeconomic and financial stability. In line with this broad objective, the Reserve Bank has been working continuously towards development of sound and efficient intermediaries and markets in order to provide a foundation for a robust and diversified financial system. A robust and diversified financial system, in turn, promotes effective transmission of monetary policy. While there is emphasis on strengthening the structural factors in the economy, the endeavour of the Reserve Bank has also been to moderate the cyclical and excessively volatile elements of the economy that interfere with achieving its goal of price stability and growth. There is a general recognition that larger hedging opportunities would be required as capital account liberalization occurs. The Reserve Bank has taken several steps in the recent past to allow economic agents to benefit from dynamic hedging tools. It has also allowed hedging against economic exposures.

3.14 The conduct of monetary policy needs adequate monetary transmission and the appropriate monetary transmission takes place with efficient price discovery of interest rates and exchange rates. In this context, the development and integration of the money, government securities and foreign exchange markets becomes essential. The Reserve Bank, since 1990, has initiated wide- ranging policy measures for the development of

financial markets, along with progressive liberalization of the exchange and payment regime with the institution of a market determined exchange rate policy. The developments of financial markets have been progressively made broad-based in regard to market segments, instruments and participants. Concomitantly, appropriate regulatory regime has been initiated with sharper emphasis on implementation and oversight.

3.15 While a carefully gradual and phased transition has been initiated over a period of time with minimal disruption, the market participants have been given adequate time to adjust to the new environment. The Indian foreign exchange market in particular, has widened and deepened with the transition to a market determined exchange rate system and liberalisation of restrictions on external transactions leading to current account convertibility under Article VIII of the Articles of Agreement of the International Monetary Fund. The capital account has also been substantially liberalized and has been buffeted by recent liberalization for residents investing abroad. Extensive liberalization and simplification of procedures in foreign exchange transactions have been initiated and this along with corresponding liberalization in other markets has resulted in vibrancy in activities of the foreign exchange market. Introduction of currency futures could be one more policy option in this direction.

3.16 International experience of the emerging markets with the introduction of currency futures is a mixed one. In several cases, the volatility is found to be reduced following the constitution of currency futures market, though empirical evidence to the contrary also exists. The transaction volumes in currency futures in these countries have remained too small to put any significant upward pressure on exchange rate volatility. Also, there is no clear evidence to prove that futures contracts traded on exchanges result in increased volatility in the prices for the underlying commodity. For most products, volatilities are higher or lower depending upon the choice of the time period and no causation is established. There have, however, been some episodes of build up of speculative price rise in case of some futures contracts. However, it is expected that the potential for increased volatility could in effect be neutralized by the presence of wider pool of market participants who would be having divergent perceptions, views, exposures and horizons.

3.17 Further careful examination of the potential impact of currency futures on the exchange rate volatility would be necessary if these futures contracts are to be allowed without an explicit underlying. Several countries have introduced cash settled currency futures contracts without any undue impact on volatility, though it is important to recognize that the experience of the most liquid currency futures exchange has been distinctly in favour of physical delivery based settlement. For instance, in the CME, during the period January till September 2007, 99.77 per cent of the total volume in FX futures contracts was in physical deliveries. These were mainly in terms of the developed country currencies. In contrast, cash settled FX futures contracts in Brazilian Real, Russian Rouble, Chinese RMB and Korean Won with US dollar were small and those for Chinese RMB with euro and Japanese yen do not appear to have taken off at all. If experience of other countries is any guide, it appears that physical delivery-based FX futures have been popular for countries with fully convertible currencies, while countries with less than complete convertibility prefer cash settled contracts, but volumes are restricted nevertheless. In either case, it is unlikely to significantly affect the liquidity of the spot market. From the viewpoint of monetary and exchange rate policies, physical delivery based contracts could result in lower exchange rate volatility, which reduces the need for intervention and so delivers better control on liquidity conditions. At the same time,

physical delivery based contracts in presence of capital controls could result in uncontrolled changes in foreign asset positions and pose relatively greater risk of dollarization. This could consequently lead to weaker monetary control for reasons stated elsewhere in the Report.

3.18 There is a view that currency futures could result in enhanced volatility due to inherent differences in the regulatory prescriptions for the OTC and the futures markets. In this context, it is important to consider whether it would be desirable to have different sets of regulations for the OTC and the futures markets and if so, whether these differences should be permitted for both the residents as well as non-residents. While for the exchange-traded FX-futures, the regulatory framework could possibly be placed somewhere between the extant capital account regime and that of a full convertibility, the desirability of such a regulatory framework would have to be viewed in the light of the path of fuller capital account convertibility, as currently envisaged. The impact of these changes on the exchange rate volatility in the currency futures market would need to be managed through appropriate regulatory prescriptions for the price/position limits, eligible participants, market access, and margins requirements in the context of settlements of the exchange-traded contracts.

3.19 In sum, as the Indian economy becomes more open to the forces of globalisation, the liberalization in the currency market segment with appropriate checks and balances and adequate regulations with a focus on implementation and supervision would help the Reserve Bank to conduct its monetary policy in a more flexible manner. The argument for going ahead with a currency futures market is that it provides an additional instrument in the market and enables participants to manage their risks prudently thereby contributing to smooth functioning of the markets. At the same time, it generally facilitates the conduct of policy and not necessarily impedes it, though the risks from dollarization and increased exchange rate volatility could arise. If currency futures add to the degree of dollarization in the economy, the risks in the form of exchange rate volatility would also grow. Eventually this would impact interest rates, pace of economic activity and inflation. Appropriate product design, risk management, monitoring and surveillance, could help introduce the

currency futures while minimizing the above risks such that in net terms the risks are outweighed by the benefits and lower exchange rate volatility is achieved through currency future products.

3.20 Considering the above points, the gains likely from the introduction of currency futures in the Indian context could be set out as below:

- Provide an additional tool for hedging currency risk.
- Further development of domestic foreign exchange market.
- Permit trades other than hedges with a view to moving gradually towards fuller capital account convertibility.
- Provide a platform to retail segment of the market to ensure broad based participation based on equal treatment.
- Efficient method of credit risk transfer through the Exchange.
- Create a market to facilitate large volume transactions to go through on an anonymous basis without distorting the levels.

Impact of Futures on Spot and Forward Markets

3.21 There are concerns about impact of currency futures price on the spot price or *vice versa*. There is no clear evidence to suggest that currency futures result in enhancement of volatility in the spot exchange rates in a causal sense. Empirical evidence is ambiguous as to whether currency futures afford distinctly higher speculation than is possible without them. In theory, futures price would largely operate on a premise similar to forward markets i.e. it should largely reflect interest rate differentials. In India, as in most countries, even the forward prices do not stick to that script most of the time but are susceptible to the influence of sentiments. An appropriate term structure of forward premia is yet to develop in India. As such, while theoretically futures prices should reflect similar interest rate expectations, the real effect on prices remains to be seen.

3.22 Worldwide, the currency futures market remains small, though rapidly growing market, in relation to the size of OTC spot as well as forward market. According to the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2004 (BIS, 2005), the average daily turnover in exchange traded currency contracts was USD 23 billion in a total foreign exchange turnover of USD 1,880 billion which included the USD 621 billion in the spot foreign exchange market. According to the preliminary results of the just released Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2007, the average daily turnover in exchange traded currency contracts has trebled since then to USD 72 billion in 2007. However, it is still small in relation to USD 3,220 billion total foreign exchange turnover, which includes USD 1,005 billion daily spot turnover in 2007. The exchange traded currency contracts comprise futures as well as options and options on futures. As such, currency futures still comprise less than 2 per cent of the foreign exchange market. Therefore, the currency futures market is far from becoming a significant segment of the foreign exchange market and can be seen merely as an add-on to risk management kit and a tool for furthering transparent price discovery.

3.23 The low turnover of currency futures in the world foreign exchange markets could mean that price discovery in foreign exchange occurs primarily in the OTC spot and derivative market segments. It is likely that the spot segment may be a major driver of price discovery in the foreign exchange market, in spite of it being half of the OTC forwards and swaps where daily turnover slightly exceeded USD 2 trillion in 2007. Interest parity condition may ordinarily act as an error correction mechanism forcing forwards to converge with spot price changes. However, at times significant deviations in interest parity are observed and the role of forward market in exchange rate determination cannot be ignored.

3.24 The futures prices, however, are less likely to have significant information content and the role played by it in exchange rate determination is likely to be limited in view of the low volumes. It may, nevertheless be stated that the importance of futures market in price discovery might actually be larger than its share in turnover would indicate. This is

so, because typical players such as hedgers could have considerable private information. Also, for individuals, SMEs, small exporters, etc. currency futures could bring in transparency and coupled with anonymity, accompanying the order matching trading format can help reduce information asymmetry in the foreign exchange market, bringing in better price discovery. Empirical research on market microstructure of foreign exchange markets suggests that often future prices do lead the spot price changes by couple of minutes. Over longer horizons, however, the futures prices are found to have a more significant influence on foreign exchange price discovery, which is not commensurate with its relative market share. While exchanges bring together rational as well as noise traders, it is important to recognize that informed traders could prefer trading in currency futures which afford anonymity. On the whole, however, the inter-dealer trades through direct market or through electronically brokered market can be expected to have a more pronounced impact on spot and forward foreign exchange market than the trades in futures markets.

Chapter 4

Current Legal and Regulatory Framework

4.01 There is growing evidence that legal and regulatory frameworks matter for enabling financial development to contribute to growth. In particular, legal and accounting reforms that strengthen creditor rights, contract enforcement, and accounting practices boost financial development and accelerate economic growth[3]. As such, in respect of currency futures while the key question is whether currency futures should be introduced or not, its introduction should also be considered from the viewpoint of appropriate legal and effective regulatory system being put in place. These aspects merit close attention as in the preceding Chapters have argued that currency futures are expected to be beneficial in net terms given that they would widen participation base and hedging choices in face of potential exchange rate volatility in the framework of open economy macroeconomics.

4.02 The Reserve Bank has the overall responsibility of managing the affairs relating to foreign exchange and exchange rate and also the mandate of maintaining monetary and financial stability. The preamble to the RBI Act provides the objective for the establishment of the Bank as to regulate the issue of Bank notes and keeping reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage. The preamble makes it clear that operation of currency and credit system falls within the regulatory ambit of the Bank. Furthermore, promoting orderly development and maintenance of forex markets is one of the main functions of the Reserve Bank. The newly incorporated provisions under section 45 U, 45 V and 45 W of the RBI Act are also relevant in this regard. These provisions have been brought into the statute book by the Reserve Bank of India (Amendment) Act, 2006 (Act 26 of 2006). The term 'derivative' is defined in section 45U (a) of the RBI Act *to mean " an instrument, to be settled at a future date, whose value is derived from change in interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called "underlying"), or a combination of more than one of them and includes interest rate*

[3] For seminal work, Levine, Loyaza and Beck (1999)," Financial Intermediation and Growth: Causality and Causes", *World Bank Policy Research Working Paper*, No.2059, Washington, D.C., World Bank, may be cited.

swaps, forward rate agreements, foreign currency swaps, foreign currency-rupee swaps, foreign currency options, foreign currency-rupee options or such other instruments as may be specified by the Bank from time to time". Section 45V (1) of the Act provides that 'notwithstanding anything contained in the Securities Contracts (Regulation) Act, 1956 (42 of 1956), or any other law for the time being in force, transactions in such derivatives, as may be specified by the Bank from time to time, shall be valid, if at least one of the parties to the transaction is the Bank, a scheduled bank, or such other agency falling under the regulatory purview of the Bank under the Act, the Banking Regulation Act, 1949 (10 of 1949), the Foreign Exchange Management Act, 1999 (42 of 1999), or any other Act or instrument having the force of law, as may be specified by the Bank from time to time." Further, 45 W deals with the power of the Reserve Bank *to regulate transactions in derivatives. The Reserve Bank is empowered by section 45 W to give directions 'to all agencies or any of them, dealing in securities, money market instruments, foreign exchange, derivatives, or other instruments of like nature as the Bank may specify from time to time' and also to call for any information, statement or other particulars from such agencies or cause an inspection of such agencies to be made.*

4.03 The objective of FEMA as contained in its preamble is of "facilitating external trade and payment and for promoting orderly development and maintenance of foreign exchange market in India." In terms of Section 3 of the FEMA, no person can deal in or transfer foreign exchange or foreign security to any person without general or special permission granted by the Reserve Bank. Sale or drawal of foreign exchange to or from an authorized person is subject to the reasonable restrictions imposed by the Central Government in consultation with the Reserve Bank. The Reserve Bank is also empowered under Section 7 of FEMA to prohibit, restrict or regulate capital account transactions. The Reserve Bank is empowered under section 10 of FEMA to authorize any person to deal in foreign exchange or foreign securities, etc. The Reserve Bank is competent to permit any person to trade in foreign exchange by way of spot, forward or futures in exercise of its powers under the FEMA.

4.04 The extant legal framework as discussed above confers on the Reserve Bank the required powers to enable introduction of currency futures. As discussed above, the RBI

Act casts on it the responsibility of determining the regulatory policies relating to a wide range of instruments, including interest rates or interest rate products, foreign exchange, derivatives, or other instruments of like nature. The FEMA also provides the Reserve Bank with overriding jurisdiction over development and management of foreign exchange markets. Therefore, the Reserve Bank may specify currency futures as an added instrument.

Chapter 5

Currency Futures – FEMA Provisions

5.01 The rules for domestic foreign exchange market are covered largely under the Foreign Exchange Management (Foreign Exchange Derivative Contracts Regulations, 2000 (Notification No. FEMA 25 dated 3.5.2000 (hereinafter referred to FEMA 25). The permission to a person resident in India to enter into a foreign exchange derivative contract is covered under regulation 4 of FEMA 25, which states that "*a person resident in India may enter into a foreign exchange derivative contract in accordance with provisions contained in Schedule I, to hedge an exposure to risk in respect of a transaction permissible under the Act, or rules or regulations or directions or orders made or issued thereunder*"

5.02 Similarly, the permission to a person resident outside India to enter into a foreign exchange derivative contract is covered under regulation 5 of FEMA 25, which states that "*a person resident outside India may enter into a foreign exchange derivative contract with a person resident in India in accordance with provisions contained in Schedule II, to hedge an exposure to risk in respect of a transaction permissible under the Act, or rules or regulations or directions or orders made or issued thereunder".*

5.03 Schedule I of FEMA 25 deals with the foreign exchange derivative contracts permissible for a person resident in India. The various products permitted to be used by residents in India include foreign exchange forward contracts, options – both cross currency as well as foreign currency rupee, and foreign currency-rupee swap. While these products can be used for a variety of purposes, the fundamental requirement is the existence of an underlying exposure to foreign exchange risk. The requirement for qualifying to undertake a hedging transaction in the domestic foreign exchange market is the existence of a crystallized underlying which establishes that the entity has a genuine foreign exchange exposure which is sought to be hedged through the use of these permitted tools.

5.04 In a similar vein, Schedule II of FEMA 25 deals with the foreign exchange derivative contracts permissible for a person resident outside India. The category "persons resident outside India" includes Foreign Institutional Investors (FII), persons resident outside India having Foreign Direct Investment (FDI) in India and Non-resident Indians (NRI). For this category of participants as well, the hedging products that can be used are clearly specified as are the purposes for which hedging can be undertaken. Under Schedule II also, the existence of a crystallized underlying is mandatory.

5.05 Therefore, under FEMA 25, the permission for hedging is basically predicated upon the existence of a crystallized underlying. However, some relaxation has been provided to SMEs and resident individuals. The underlying has to be evidenced by an Authorised Dealer Category – I bank and access to hedging is permitted only after such verification. Finally, the hedge can be undertaken only for purposes defined under FEMA for each category of participants.

5.06 Under a futures regime, the requirement of an underlying exposure doesn't remain valid since futures by definition are meant to be used not only for hedging but also for speculation and leveraging. After introduction of currency futures, if an entity is permitted to take a speculative position, then this would clash with the FEMA requirement of hedging for permitted purposes which currently doesn't include speculation/leveraging. Therefore, the controls on permitted purposes would have to be modified and speculation (trades other than transaction backed) will have to be recognized under FEMA as a permitted activity.

5.07 Reserve Bank has in recent times undertaken a series of measures to liberalize the markets further. It was announced in the Annual Policy in April 2007 that SMEs engaged in export-import business may be permitted to hedge their foreign exchange exposures without complying with the complicated documentation requirements or past performance of exports and imports. The Annual Policy also permitted resident individuals to book forward contracts on the basis of current or anticipated exposures up to a limit of USD 100,000. Thus, the first step towards liberalization of hedging tools has already been

initiated. However, the scope of the liberalization would have to be widened considerably, may be over a period of time, in order to permit trading of currency futures.

5.08 In conclusion, it may be necessary to substitute FEMA 25 with a new notification to enable trading of currency futures. The new notification may have provisions consistent with the regulatory framework for currency derivatives.

5.09 The Group had extensively debated the desirability of commencing currency futures in an environment where OTC contracts have restrictions especially the need for a crystallized underlying. The regulatory arbitrage between the OTC market and currency futures might give an initial boost to the futures market, but might also result in a clear demarcation between hedgers and speculators, with only the latter category dominating the futures market. The cost benefits of tailor-made solutions are likely to give an edge to OTC market for corporates who can access this market.

5.10 There was agreement that the OTC market restrictions need to be removed in a phased manner. It is proposed that compulsory disclosure of unhedged exposures and the results of hedging be mandated in the annual accounts of the corporates, which will obviate the need for strict insistence on the existence of underlying while accessing the derivatives market.

Chapter 6

Framework for Introduction of Currency Futures

6.01 Considering the international experiences and the current stage of development of the foreign exchange market in India, the Group recommends the introduction of currency futures in the domestic foreign exchange market. As regards the underlying, since the futures contract is aimed at participants seeking to hedge their foreign exchange exposure, the most liquid onshore currency pair, viz. USD-INR may initially be considered as an eligible underlying. Participants wishing to hedge specific currency exposures other than USD-INR may consider approaching forwards market for the same. Based on the market feedback and experiences gained, the introduction of other currency pairs can be considered at a later stage. In other words, the Group recommends that initially only USD-INR currency futures contract may be introduced at the outset. It must be recognized that even now in OTC markets, other currency pairs are quoted synthetically. The flipside to such an arrangement would be that there would be no direct hedge available for participants with non-USD exposures. To mitigate the situation, other currency pairs, especially Euro-INR may be considered after a period of six months. Introducing only USD-INR pair would mean that liquidity is retained within one contract in the initial stage

6.02 The features of the USD-INR contract need to be modified so as to retain the non-convertible feature of the INR as well as to seek harmony in regulatory norms between the OTC market and the futures trading. The options available as regards the major features of the futures contract being considered are detailed below.

Contract design

6.03 The Group pondered as to whether the contract design should be left to the exchanges or the regulator should pre-specify the availability of uniform contracts across various exchanges. It was concluded that while attracting liquidity through product innovation is a feature of the competitive markets, in the initial phase, a standardized product across various exchanges (in terms of contract size, final settlement dates, settlement procedure of contracts, tenors of contracts, etc) would invite greater participation and add to the liquidity of futures markets.

Size of the contract

6.04 The Group acknowledged that since the currency futures segment is meant to provide non-institutional market participants a means to hedge their currency exposures in a transparent and price-efficient manner, the size of the currency futures contract may not be unduly large. Large institutional and corporate customers are able to manage beneficial rates even in the OTC segment. The price discovery function of the exchanges is significant for the individuals and SMEs. Further, price discovery should be such that the individuals and SMEs are able to trade on the same prices as are available to the large customers. If the price discovery is done for a large size lot, the individuals and SMEs may not be able to capture the fineness of that rate for their small-sized lots. This is the bane of the OTC markets. Hence, it is important that the contract size be kept at such a level that it facilitates price discovery as well as trading, particularly for retail segment of the market. The retail focus of the contract should not in any manner disenchant the institutional clients since in the era of electronic trading, the cost efficiency is not compromised at all even if multiple contracts have to be purchased. A single contract would also ensure that market frictions are avoided, which could occur in case of multiple contracts. Hence, the Group recommends that a single contract of notional value USD 1,000 may be introduced.

Tenors of contracts

6.05 There is likely to be adequate interest in currency futures contracts beyond the first three months as is the case with the OTC forwards contract. Moreover, certain segments of the market expressed a desire for introduction of contracts with maturity of two years and beyond as currently such currency exposures cannot be hedged in the OTC market. The Group debated extensively on the issue and felt that while certain segments of the market may stand to benefit through introduction of long tenor currency futures contract, the liquidity in such contracts in the absence of an underlying OTC market of corresponding tenor is by no means assured. The Group recommends that, initially, the tenors of the contract may largely replicate the tenors of the currency forwards and to this end, the currency futures maturing in the first 12 calendar months may be offered.

Settlement of contracts

6.06 As has been argued, a section of the participants in the currency futures segment may not have underlying currency exposures at all while a few participants may have economic exposures to exchange rate movements. In the absence of underlying flows, settlement based on delivery may impede participation from such segments of the market. While delivery based settlement provide tight cash - derivatives linkage, given the complications that delivery based settlement entail, and the fact that Indian Rupee is not fully convertible on capital account, the Group recommends that in the initial phase, settlement only on cash basis, based on spot Reserve Bank reference rate on the expiry date, may be permitted. Cash settlement would also ensure convergence between regulations in respect of OTC markets and currency futures market, since cancellation of a forward contract on the date of maturity is akin to cash settlement.

Settlement Cycle

6.07 Certain sections of the market participants felt that the settlement cycle of the currency futures contract should be co-terminus with the settlement of month end forward contracts. They argued that settlement at the month-end would enable SMEs and individuals to benchmark the prices available in the futures market with the OTC prices. The experiences of the equity markets also suggest that settlement cycle of similar underlying across various exchanges eventually converge. However, FEDAI and some large banks opined that separating the maturity of forward contracts and currency futures contracts may be better for effective management of liquidity. The Group felt that the futures contracts settling in the mid month may allow the banks to transfer/ seek exposure on the futures segment. After taking into account the market feedback on the draft proposals, and the expert views of the TAC, the Group recommends that the futures settlement cycle may be co-terminus with the settlement of month end forward contracts.

Eligible Participants

6.08 The Group agreed that the requirement of an underlying exposure to trade in OTC foreign exchange market is very difficult to implement in an exchange- traded regime. The international experience in this regard also supports the Group's views. Currently, resident individuals are allowed to hedge their underlying or anticipated exposures up to USD 100,000 in the OTC market without going through complex documentation formalities. Similarly, the SMEs which have direct and indirect exposure to foreign exchange have also been provided flexibility in hedging their exposures without going through the rigors of complex documentation formalities. All other categories of residents in India are permitted to access the OTC markets only if they have an underlying exposure or under the past performance window. As to whether any exposure limit need to be placed on the residents, the participation of residents in currency futures even in countries with capital controls, as is the case with India, has been generally unconstrained. Moreover, residents in the Indian context represent an amorphous group – day traders with limited capital and virtually no underlying exposure to foreign exchange

to multinational corporates, relatively unconstrained by margin requirements and with fairly sizeable balance sheet foreign exchange exposures.

6.09 We may also take note of the fact that in major markets and increasingly in certain emerging markets, management of foreign exchange rate risk in respect of cash flow, balance sheet and economic exposures through forwards and futures involve a dynamic combination of hedging, unhedged and speculative positions with a motive to either reduce hedging cost or gain from exchange rate movements, within a proper risk management framework. This approach needs to be adopted/facilitated in India as well, if the real sector in India are to be able to face competition both at home and abroad vis-à-vis their competitors overseas. In view of the foregoing, the Group recommends that no quantitative restrictions may be imposed on residents to trade in currency futures. This is likely to ensure greater liquidity and wider participation and would be in line with usual policy where liberalization is done first for residents.

6.10 As regards non residents, the participation may be permitted in a gradual and phased manner. The Group is of the view that at the inception, the participation in the futures market may be restricted to residents alone in the interest of financial stability. This is suggested purely from the perspective of evaluating the robustness of various systems such as surveillance, monitoring, reporting, etc. Once it is established that the systems are working properly, the participation of Foreign Institutional Investors (FIIs) and Non Resident Indians (NRIs), as hedgers, may be considered. Currently, in the OTC market, FIIs have been permitted to hedge their underlying exposures with flexibility for canceling and rebooking only up to 2 per cent of the underlying exposure. This stipulation cannot be replicated in the exchange format. However, it may be noted that allowing the FIIs, without any limits, in the futures market would mark a quantum leap for FIIs since effectively they would be able to dynamically hedge (freely cancel and rebook contracts) their entire portfolios, something that they are not permitted to do in OTC segment. This could possibly result in increase in volatility in the foreign exchange market but at the same time enhance liquidity in the currency futures market. Keeping in mind the current stipulation of participation of FIIs in OTC markets, the Group recommends that once the currency futures market systems stablised, including execution procedures, risk management framework and surveillance mechanism, FIIs may be allowed as hedgers

with suitable position limits on their exposures in the futures market. In order to ensure adherence to the limits stipulated, the FII trades in currency futures may only be routed through the designated Authorised Dealers. Currently, the NRIs are allowed to hedge their exposures to the extent of their underlying exposures. Further, balances in the NRO account are repatriable up to USD 1 million per financial year. The Group, therefore, proposes that in line with the stipulation for FIIs, after establishing the effective functioning of all systems, the NRIs may be allowed to hedge their exposures in the futures market with suitable position limits. The transactions by the NRIs may also be routed through the designated AD banks. Given the current regulations in the OTC market, the categories excluded from the futures market, in the initial stages, are not being disadvantaged.

Unique Identification Number

6.11 In order to distinguish across various classes of participants in the futures exchanges, allotment of unique client identification numbers, preferably the PAN, as practiced in futures exchanges in other jurisdictions, may be considered.

Market Timings

6.12 The spot markets operate between 9 am – 5 pm every day. The OTC forward market too is bound by similar timings. Hence, the currency futures market may also operate between 9 am – 5 pm on every working day.

Membership Type

6.13 The participation in the exchange can be for two reasons, viz., hedging and speculation. While in the equity markets such nomenclature is given as per the underlying transactions based on declaration by the participants, in the context of currency futures, whether the same format may be followed or certain participants can participate only as hedgers need to be resolved. While the former regime gives the flexibility to the participants, enabling participation of the non residents only to hedge their underlying INR exposure makes their participation, by definition, as hedgers only. It is appreciated that the segregation of the participants as hedgers and speculators and fixing differential margin is difficult to administer, as the Exchanges would be depending on declarations. It is also difficult to segregate and monitor the positions since the requirement of underlying is not extended to the futures Exchanges. Further, only non-residents are envisaged as pure hedgers in the market and suitable safeguards have been proposed for their participation in the futures market. Detailed study needs to be undertaken on the feasibility of segmenting the participants and fixing differential margins.

Eligible intermediaries

Banks as Members on Futures Exchange

6.14 Banks have the necessary expertise in the foreign exchange market being authorised dealers and can impart necessary liquidity to the market to make and keep it active and vibrant. Participation of banks would also provide linkages to the OTC market. Furthermore, anyone with a foreign currency exposure necessarily has a linkage with an AD bank. The Group considered the aspect of desirability of banks as members of the exchange and it was felt that banks may be allowed to become direct members of the futures exchanges, both as a trading-cum-clearing member and also as professional clearing member as banks can provide liquidity and are regulated entities. This would essentially mean that the banks may be permitted to trade on their own account as also on behalf of the clients, and clear and settle all such deals. The banks could also be

allowed to function as a professional clearing member i.e., they would be entitled to settle and clear trades executed by other members of the exchange as well.

6.15 Some segments of the market felt that, at this point of time, the banks should be the sole clearing members of the currency futures segment. They felt that the issue of whether non-bank clearing members (including professional clearing members) can also be allowed may be revisited in the second phase.

6.16 The banks, being present on both the OTC and the futures markets, will be able to arbitrage and weave the two markets together. Currently, as a matter of policy only subsidiaries of banks are allowed to undertake stock broking activities. However, in foreign exchange markets, banks have been operating on their own account as well as providing prices to their clients. Keeping in view the significance of the active participation of banks in the currency futures, the Group recommends that banks may be permitted to become members of the proposed exchange for currency futures market. The Group considered fixing of entry criteria and it was felt that the banks could be subjected to complying with the prudential criteria such as minimum net worth, CRAR, profitability, risk management systems, etc.

Brokers

6.17 As regards the other entities eligible for intermediation, it can be argued that since the success of the futures market also crucially hinges on bringing in newer sets of participants, the role played by other intermediaries (including brokers) would also be crucial. As brokers facilitate depth and liquidity required in these markets, it was felt that brokers could be permitted in the currency futures market, provided they meet “fit and proper” criteria as well as other eligibility norms, though their regulation and accreditation may be issues. It can also be argued that such intermediaries be chosen on multiple criteria like net worth, market reputation, regulatory framework, participation in the derivatives segment, etc.

6.18 The Group opined that there should be appropriate mechanism for dispute resolution, ensure adherence to code of conduct as well as for entering into dialogue with the regulator for addressing broader issues relating to market development. The method of regulating these markets should be adequate to ensure that the markets are safe and sound, investors' interest are protected and that disruptions from these markets do not spill-over into the broader economy.

Clearing Mechanism

6.19 Usually, each Exchange has a separate clearing corporation. The clearing corporation and the exchange are akin to a single entity only. The only reason for separation of the two is to ensure that the liability of the exchange is limited. In practice, it appears that in the context of the multiple exchanges, a universal clearing corporation model may not be desirable since common margin system may not work in practice. Hence, irrespective of whether it is decided to have a single exchange now or to expand the number further at a later date, it is preferable to have separate clearing corporation for each exchange. The Group recommends that Exchange specific Clearing Corporation approach is preferable since it is likely to lead to competitive pricing and services.

Margining

6.20 While margin is an important credit risk mitigant, it could also be used effectively to deal with excessive leveraging. Thus, the Reserve Bank, as regulator of currency futures market may have overriding powers to prescribe margins and/or impose specific margins for identified segments of the market, if considered necessary. In view of the recommendation that the settlement of the currency futures contract be done at Exchange specific clearing corporation, the day-to-day margining may be left to the discretion of such clearing corporation. The Exchanges and their respective clearing corporation may decide on the margining requirements purely from their credit risk management perspective.

The Contract format

6.21 The contract specifications are summarized below in tabular form:

Category	Description
Underlying	Rate of exchange between one US dollar and INR
Contract Size	USD 1000
Contract Months	12 near calendar months
Expiration Date and time	Last business day of the month
Minimum Price fluctuation	0.25 paisa or INR 0.0025
Settlement	Cash settled in INR based on Reserve Bank reference rate of expiry date
Margins	As specified by the clearing corporation

Infrastructure

Entity/ies which would serve as the Exchange

6.22 Since the RBI Act quite clearly underpins the regulatory powers of the Reserve Bank vis-à-vis exchange-traded interest rate/ currency contracts, the regulatory regime of the exchanges is less of an issue. As regards the choice of exchanges, derivatives being leveraged products, the management of trading in derivatives is somewhat different from that of managing cash products. Moreover, since over a period of time the product bouquet being offered on the exchanges may be enhanced to include contracts with non-linear pay-offs, the expertise of the exchanges dealing with such products may be an enabling factor. The basic criteria for currency futures exchanges could be experience, net worth and capital adequacy. Besides, there should be documented Rules and Bye-laws of the Exchange, separate membership criteria, trading rules, robust risk management framework, etc. In addition to this, the participating exchanges should have requisite systems and IT infrastructure. The ownership of the exchanges must be well

diversified. The shareholders and directors must satisfy the “fit and proper” criteria. The FDI should not exceed the limits prescribed for infrastructure companies in the securities market. Further, no foreign investor including persons acting in concert would be permitted to acquire or hold at any point of time more than five per cent in the equity capital of the exchange. It is also recommended that the eligible exchanges should have adequate financial resources to undertake IT up-gradation from time to time.

6.23. Existing exchanges which meet the eligibility criteria as also new entities set up for the purpose may be considered for trading currency futures. Eligible Exchanges would have to set up separate segment within the Exchange, with separate membership criteria, trading rules, risk management framework, etc for trading of currency futures contracts.

Role of Reserve Bank

6.24 The role of Reserve Bank in the domain of exchange rate management will not undergo any change when currency futures are introduced. The Reserve Bank may therefore, retain the right to stipulate or modify the participants and / or fixing participant-wise position limits or any other prudential limits in the interest of financial stability. Such over-riding powers are not without a parallel and are also used by other regulators in their respective jurisdictions. Illustrations of such emergency powers include being empowered to order the Exchange to take actions specified by the regulator. Such actions could include imposing or reducing limits on positions, requiring the liquidation of positions, extending a delivery period or closing a market.

Reforms required in the OTC market

6.25 The forward and futures markets function differently in many respects. The extant regulatory prescriptions in the OTC market may not necessarily be carried over to the futures markets. International experiences have also indicated that the OTC and the futures markets co-exist, even with varying regulatory frameworks in South Korea and South Africa. In India, the existence of an underlying foreign exchange exposure is a pre-requisite for undertaking hedging in the OTC market. Such a stipulation may not be enforceable in the currency futures market. It must be appreciated that the two markets offer different products. While OTC requires an underlying to be evidenced, the major benefits are customised contracts, bilateral trading which could result in improved trade terms at least for prime customers, and the possibility of physical delivery of foreign exchange. On the other hand, trading of currency futures on exchanges provides freedom from production of an underlying and enables position taking even without an underlying. However, this freedom comes with a cost in the form of strict mark-to-market and margin requirements and other prudential limits. Despite the advantages of futures over the OTC products in regard to the access to concentrated liquidity due to the provision of a common platform, greater transparency, mitigation of counterparty risk and enhanced confidentiality, the OTC market continues to be a much more significant part of the overall foreign exchange market globally. This could be because of its flexibility and ability to meet specific needs of customers at a lower cost as well as ability to provide a perfect hedge. In the Indian context, the key imponderable is whether commencing a relatively free futures market will provide incentives to a large proportion of OTC customers to shift to the futures due to operational convenience.

6.26 Hence, it is not essential that introduction of currency futures should result in substantial transformation in the OTC market. The two markets could co-exist since they have different product offerings. However, significant differences in regulatory norms, such as dispensing with the requirements of the underlying, flexibility in unwinding of positions, transparency in pricing, etc., in the futures market provide arbitrage opportunities for the participants. There is a need for progressive liberalisation in respect of documentation and other procedures of the OTC market, in a phased manner.

6.27 The Committee on FCAC had observed that '*booking of contracts at present is conditional on having a position in the underlying. But, with the economy getting increasingly exposed to various types of forex/commodity risks/exposures arising out of exchange rates, their international competitive position needs to be strengthened by allowing them effective options to hedge. The spot and forward markets should be liberalised and extended to all participants removing the constraints, such as the requirement of past performance/underlying exposures, in a phased manner. It should be noted that there are no restrictions as such on unhedged exposures*'.

6.28 In view of the above, whether there is a need to further liberalise the OTC markets require resolution. In case, a decision is taken to gradually liberalise the OTC markets, the contours of such a reform program need to be chalked out.

Chapter 7

Currency Futures Market : Surveillance and Reporting

7.01 A key prerequisite for smooth functioning of the currency futures market at the exchanges is to put in place a state-of-the-art surveillance system and an adequate reporting mechanism. Ideally, the surveillance system should be based on on-line trading system, with the capability of generating real time data, if required. It may also provide exception reporting at a fairly short interval of say every half an hour and be capable of providing warning mechanisms through alerts at the earliest possible. The surveillance system is of a critical importance, especially in respect of the generation of key reports on market manipulation. Preferably, a state-of-the-art surveillance system should also be able to identify the hedge trades from arbitrage and speculative trades, and treat them distinctly so that if the structure of currency futures contract is built upon separate treatment for the same, it should be able to support the same. It also needs to be considered if some kind of certification for the surveillance system would be necessary.

7.02 It may be appropriate to consider the surveillance model for the currency futures exchange at the introduction stage. The surveillance model could be based/ located on the exchanges, which would serve as Self Regulatory Organizations (SROs). The surveillance could also be multi-tiered one, in which the primary responsibility would be borne by the exchange and single or multiple settlement agencies together. They would need to function under broad guidelines and parameters which may be set up by the Reserve Bank as the regulator of the currency markets, including its futures segment. In either case, the exchanges may have to develop into effective first-level Self Regulatory Organizations (SROs). If a sole or multiple clearing agency/ies is/are set up, it/they may have to shoulder important responsibilities in respect of surveillance. As a clearing house for all currency futures transactions undertaken in one or more exchanges, a single clearing agency would be the repository of aggregate data and would be in a uniquely placed to monitor aggregate positions including position limits across multiple exchanges. All options should be urgently explored in this context to examine whether real time live monitoring of all positions could be made feasible at the end of the settlement agency. At

the minimum, from inception the surveillance system should be able to detect market abuses and manipulations at a nascent stage through price and position monitoring.

7.03 The surveillance system for currency futures contracts, at both the exchange and the clearing agency, should support market integrity objective in a very strong way. Price and volume movements need to be monitored on a continuous basis along with computation of a range of volatility measures (unconditional as well as conditional). Value-at-risk measurements would be required on a near continuous basis. Work may be necessary on dynamic VaR, copulas and extreme value models in this respect. The surveillance system being put in place should be able to recognize risks of extreme events and focus on fat tails typical of distributions associated with exchange rates. It should be able to support management of default risks through timely actions. The system, apart from covering price and position monitoring could also cover investigations where necessary. *Price monitoring* is mainly related to the price movement/ abnormal fluctuation in prices or volumes etc. whereas the *position monitoring* relates mainly to abnormal positions of participants, members, etc. in order to manage the default risk. Market abuse information should focus on fictitious/ artificial transactions, circular trading, false or misleading impressions, insider trading, etc. Basic information, as above, could be supplemented through strong investigation mechanisms within the exchange.

7.04 Introduction of currency futures could entail certain modifications in the system of risk monitoring at banks. The current risk management practices in the banks need to be dovetailed to accommodate live integration of futures positions in their position / risk limits. Banks participating in the currency futures market may be required to ensure that they have the capacity and the wherewithal to deal with market risk, and operational risks associated with currency futures even though the counterparty credit risk would be minimized through settlement guarantees by the exchange and the clearing organization. The Boards of the banks may have to be specifically made accountable for ensuring that risks are properly assessed and are in proportion to the bank's ability to withstand extreme shocks. Banks should also ensure that they have appropriate risk mitigation techniques in place to withstand such shocks.

7.05 From the regulatory perspective, there is a need to regulate markets appropriately through effective regulatory filters. Apart from the exchange functioning as an SRO, the regulators may have to oversee basic decisions regarding participants price/position limits, etc, even while day-to-day margins are worked out by settlement agency/ies in consultation with exchanges. The price/position limits are essentially an exchange rate policy tool and the volatility tolerance would need to consider monetary and exchange rate policies in place. Typically, on the current reckoning, the volatility tolerance could be much lower when compared to other exchange traded products such as stocks or commodities.

7.06 The main focus of market surveillance has to be on detection of any attempt at market manipulation. To this effect, monitoring of large positions, demand/ supply factors as well as price distortions would have to be carried out on a continuous basis. The basic relationship must also be focused upon and in case of any break in the alignment, some alerts must be triggered. If the currency future contracts are cash-settled, close monitoring of cash markets would be essential to detect any price aberrations. The cash market activity of traders holding large positions in futures must be monitored, even as reference rate determination assumes critical importance. During market surveillance, information could be gleaned from a variety of sources and the integrity of these sources must be established on an ongoing basis. Problem resolution at an early stage would be important. The exchange could be given the first opportunity for tackling the problem, failing which other regulatory intervention might be required. In case the contracts are physically settled, short squeezes could come into play. While, these can be acceptable as long as these are part of normal market dynamics, if such situations are created by large position holders, the role of surveillance function in monitoring/ identifying such instances would become crucial.

7.07 Institution of regular and ad hoc audits at various levels for various types of entities holds the key to an effective surveillance system. It is important to recognize that the surveillance as well as reporting requirements would need to be different in case of regulated and non-regulated entities. The exposure control structure would need to be administered more strictly in case of regulated entities keeping in view the regulatory regime prescribed by different regulators for these entities. Surveillance and reporting requirements would also need to be worked out differently in case of large trader transactions, as also for bulk deals.

7.08 A risk-management system based on state-of-the-art techniques is a necessary concomitant of an efficient surveillance system. Surveillance system should throw up information on risk profiles of the trading members and along with the risk management system should ensure that leveraged positions remain under control.

7.09 Structures for Surveillance Committee for currency futures merit close attention in the context of the proposed introduction of currency futures. The primary task of the Surveillance Committee should be to ensure that day-to-day monitoring by the exchange ensures compliance with the best of the surveillance practices. Participants should adhere to the applicable rules and regulations, the rules should be implemented in a spirit of level playing field and specific regulatory or penal action should be taken in a timely and just manner.

7.10 Identified exchange(s) would need to take their regulatory and supervisory role more seriously and effectively than warranted in the case of other exchange traded products. While the exchanges would need to work out their own procedures with this objective in view, they could be guided by simple facts such as: a) do the currency futures prices as they approach expiration move in a manner consistent with supply and demand factors and with OTC exchange rates? or b) do traders with large positions in the expiring currency future contracts have the capacity and ability to affect the OTC exchange rates used for settling the futures contract? The Surveillance Committees should also ensure compliance with exchange level limits or larger speculative position limits. While the bonafide hedgers could be exempt from limits in respect of hedged positions, the

surveillance mechanism should look into the hedgers' compliance with exemption levels. The policy for working out aggregation of accounts for the purpose of limits may also have to be clearly laid down. It is equally important that surveillance mechanisms in exchanges generate Suspicious Transactions Reporting (SRT) at varying frequencies. These reports should be discussed in the Surveillance Committees.

7.11 The Surveillance Committees should be distinct from dispute resolution mechanism, which should be handled separately. Adequate customer protection levels should also be laid down by policy of the exchange. A view may have to be taken on the margin trading. An option is to discourage margin trading in initial phases of introduction of currency futures. In any case, such trading should be restricted only to those entities which (i) fully understand how the trading on margin is done, (ii) have the ability and willingness to accept losses that exceed the margin amounts paid.

7.12 A data reporting system would need to be formulated with necessary flow of information from the exchanges to the Reserve Bank. In this respect, the requirements of a firm set of regulations and implementation of monetary and exchange rate policies should override all other requirements.

Chapter 8

Summary and Conclusion

8.01 Globalization and increased cross-border flow of funds have increased the exposure to market risk and hedging of such exposures has become critical. The current regulatory structure in India enables hedging by use of OTC products such as forwards, swaps and options, and structured products. With growing integration of the Indian economy with the rest of the world, the open economy framework for macroeconomics requires increased opportunities for economic agents to hedge their currency risk through a wider menu of hedging instruments. The need for introduction of currency futures has to be viewed in the context that wider hedging opportunities could strengthen economic agents' ability to cope with market-induced currency movements The Group recommends that introduction of currency futures may be considered favourably and that the requirements for trading and settlement infrastructure and regulatory framework and other aspects mentioned in this Report may be provided to create an enabling environment. (Para 1.01)

8.02 The Group had extensive discussions with a wide cross section of market participants including existing securities and commodities exchanges in India, associations, clearing and settlement agencies, brokers, legal experts, etc. Based on the discussions with market participants and the experiences drawn from international exchanges, the Group explored various options for the currency futures, analyzing the pros and cons of each option in the Indian context. The Group thereafter presented the menu of alternative proposals along with different options to the Technical Advisory Committee (TAC) for Money, Foreign Exchange and Government Securities Markets for its expert views. The draft report was then placed on the website of the Reserve Bank for public comments. The comments received from the market participants were again presented to the TAC for a final view. All these inputs have been taken into account while finalizing the Report. (Para 1.07)

8.03 The origin of futures can be traced back to 1851 when the Chicago Board of Trade (CBOT) introduced standardized forward contracts. Currency risks could be hedged mainly through forwards, futures, swaps and options. Each of these instruments has its role in managing the currency risk. The main advantage of currency futures over its closest substitute product, viz., forwards which are traded over-the-counter (OTC) lie in price transparency, elimination of counterparty credit risk and wider reach through easy accessibility. The futures are also disadvantageous in a few areas when compared to OTC market viz., inability to obtain a perfect hedge, margining requirements that drive up the costs, unique feature of Central Banks' interventions in the forex market. (Para 2.01 - 2.03)

8.04 A futures contract is a standardized contract, traded on a futures exchange, to buy or sell a certain underlying instrument on a certain date in the future, at a specified price. Traditionally, the futures market meets the needs of the three distinct sets of market users - those who wish to discover price information, those who wish to speculate and those who wish to hedge. (Para 2.05 & 2.09)

8.05 The Group studied the impact of introduction of currency futures even in certain emerging markets like Mexico, Korea, South Africa and Brazil. One feature shared by all these countries with India, is the existence of capital controls in some form or the other. It seems evident that currency futures market can and does co-exist with capital controls. (Annex 1)

8.06 The main implications of currency futures market for monetary and exchange rate policies arise from the following: (i) risks of possible dollarisation of the economy, and (ii) risks of possible increased volatility in the exchange rate, which could then spill over to other segments of financial markets and in the process have impact on interest rate, pace of economic activity, inflation and financial stability. The potential gains from the introduction of currency futures also need to be recognised. The gains mainly derive from better risk management, better price discovery and potential to lower transaction costs, as also information which the market gives to policy-makers and the signals which the policy-makers transmit to the markets through these markets. (Para 3.01 & 3.02)

8.07 The Reserve Bank has the overall responsibility of managing the affairs relating to foreign exchange and exchange rate and also the duty of maintaining monetary and financial stability. The preamble to the RBI Act provides the objective for the establishment of the Reserve Bank as to regulate the issue of Reserve Bank notes and keeping reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage. The preamble makes it clear that operation of currency and credit system falls within the regulatory ambit of the Bank. Furthermore, promoting orderly development and maintenance of forex markets is one of the main functions of the Reserve Bank. The legislative framework arising from the RBI Act and the FEMA clearly suggests that the obligation for setting the policy and of regulating currency futures lies under the ambit of the Reserve Bank. Section 45U(a) of the RBI Act clearly makes Reserve Bank responsible for derivatives whose underlying is a foreign exchange rate or an interest rate. Section 45V(1) provides that the derivatives transactions would fall within the regulatory ambit of the Reserve Bank if at least one of the parties to the transaction is a Reserve Bank regulated entity or covered under FEMA or any other Act , if specified by Reserve Bank (Chapter 4).

8.08 The extant legal framework as discussed above confers on the Reserve Bank the required powers to enable introduction of currency futures. RBI Act casts on it the responsibility of determining the regulatory policies relating to a wide range of instruments, including interest rates or interest rate products, foreign exchange, derivatives, or other instruments of like nature. The FEMA also provides the Reserve Bank with overriding jurisdiction over development and management of foreign exchange markets. Therefore, the Reserve Bank may specify currency futures as an added instrument. (Chapter 4).

8.09 Further it will be necessary to amend FEMA 25 permitting currency futures. The amended notification may have provisions consistent with the regulatory framework for currency derivatives. (Chapter 5).

Framework for Introduction of Currency Futures / Recommendations

Contract Menu

8.10 After taking due cognizance of the forex market and international developments it appears that introduction of currency futures may be considered to provide the participants with an additional hedging tool. Initially, a standardized USD-INR contract is recommended, with Euro–INR contract after a period of six months. (Para 6.01)

Contract design

8.11 While attracting liquidity through product innovation is a feature of the competitive markets, in the initial phase, a standardized product across various exchanges (in terms of contract size, final settlement dates, settlement procedure of contracts, tenors of contracts, etc) would invite greater participation and add to the liquidity of futures markets. (Para 6.03)

Size of the contract

8.12 It is important that the contract size be kept at such a level that it facilitates price discovery as well as trading, particularly for retail segment of the market. Hence, a single contract of notional value USD 1,000 may be introduced. (Para 6.04)

Tenors of contracts

8.13 Initially, the tenors of the contract may largely replicate the tenors of the currency forwards and to this end, the currency futures maturing in the first 12 calendar months may be offered. (Para 6.05)

Settlement of Contracts

8.14 Given the complications that delivery based settlement entail, and the fact that Indian Rupee is not fully convertible on capital account, settlement only on cash basis, based on spot Reserve Bank reference rate on the expiry date may be permitted. Cash settlement would also ensure convergence between regulations in respect of OTC markets and currency futures market, since cancellation of a forward contract on the date of maturity is akin to cash settlement. (Para 6.06)

Settlement Cycle

8.15 The key issue was whether currency futures should have a maturity co-terminus with OTC forwards or not. Taking into account the market feedback and the expert views of the TAC, the maturity of the futures contract may be co-terminus with the settlement of the month end forward contracts. (Para 6.07)

Eligible Participants

8.16 The requirement of an underlying exposure to trade in OTC foreign exchange market is very difficult to implement in an exchange- traded regime. Participation in the currency futures market may initially be restricted to residents alone in the interest of financial stability. This is suggested purely from the perspective of ascertaining the robustness of various systems such as surveillance, monitoring, reporting etc. Further, no quantitative restrictions may be imposed on residents to trade in currency futures. This is likely to ensure greater liquidity and wider participation and would be in line with usual policy where liberalization is done first for residents. As regards non residents, the participation may be permitted in a gradual and phased manner. Once the currency futures market systems stabilise, including execution procedures, risk management framework and surveillance mechanism, participation of Foreign Institutional Investors (FIIs) and Non Resident Indians (NRIs), as hedgers through designated AD banks may be permitted. Suitable position limits on such entities may also be prescribed. Given the current regulations in the OTC market, the categories excluded from the futures market, in the initial stages, are not being disadvantaged. (Para 6.08 – 6.10)

Unique Identification Number

8.17 In order to distinguish various classes of participants in the futures exchanges, allotment of unique client identification numbers, preferably the PAN, as practiced in futures exchanges in other jurisdictions, may be considered. (Para 6.11)

Market Timings

8.18 The currency futures market may operate between 9 am – 5 pm on every working day. (Para 6.12)

Membership Type

8.19 Taking in to account the administrative difficulties, it was felt that a detailed study needs to be undertaken on the feasibility of segmenting the participants into hedgers and speculators and fixing differential margins. (Para 6.13)

Eligible Intermediaries

8.20 Banks may be allowed to become direct members of the futures exchanges, both as trading-cum-clearing members in respect of own account and clients account and also as professional clearing members as banks can provide liquidity and are regulated entities. The issue of whether non-bank clearing members (including professional clearing members) can also be allowed may be revisited in the second phase. (Para 6.14 - 6.15)

8.21 Brokers may be permitted in the currency futures market, provided they meet "fit and proper" criteria as well as other eligibility norms. The brokers may be chosen on multiple criteria like net worth, market reputation, regulatory framework, participation in the derivatives segment, etc. (Para 6.16)

Clearing

8.22 Exchange specific Clearing Corporation approach is preferable to centralized clearing since it is likely to lead to competitive pricing and services. (Para 6.19)

Margining

8.23 While margin is an important credit risk mitigant, it could also be used effectively to deal with excessive leveraging. Thus, the Reserve Bank, as regulator of currency futures market may have overriding powers to prescribe margins and / or impose specific margins for identified segments of the market, if considered necessary. In view of the recommendation that the settlement of the currency futures contracts be done at Exchange specific clearing corporations, the day-to-day margining may be left to the discretion of such clearing corporations. (Para 6.20)

Entity/entities which would serve as the Exchange

8.24 Since over a period of time the product bouquet being offered on the exchanges may be enhanced to include contracts with non-linear pay-offs, the expertise of the exchanges dealing with such products should be an enabling factor. The basic criteria for currency futures exchanges could be net worth and capital adequacy. Besides, there should be documented Rules and Bye-laws of the Exchange, separate membership criteria, trading rules, robust risk management framework, etc. In addition to this, the participating exchanges should have requisite systems and IT infrastructure. The ownership of the exchanges must be well diversified. The shareholders and directors must satisfy the “fit and proper” criteria. The FDI should not exceed the limits prescribed for infrastructure companies in the securities market. Further, no foreign investor including persons acting in concert would be permitted to acquire or hold at any point of time more than five per cent in the equity capital of the exchange. The eligible exchanges should have adequate financial resources to undertake IT up-gradation from time to time. (Para 6.22)

8.25 Existing exchanges which meet the eligibility criteria as also new entities set up for the purpose may be considered for trading currency futures. Eligible Exchanges would have to set up separate segment within the Exchange, with separate membership criteria, trading rules, risk management framework, etc for trading of currency futures contracts. (Para 6.23)

Role of Reserve Bank

8.26 The introduction of currency futures will not alter the role of Reserve Bank in the domain of exchange rate management. The Reserve Bank will continue to retain the right to stipulate or modify the participants and / or fixing participant-wise position limits or any other prudential limits in the interest of financial stability. (Para 6.24)

Reforms required in the OTC market

8.27 Significant differences in regulatory norms, such as absence of requirements relating to the underlying, flexibility in unwinding of positions, transparency in pricing, etc in the futures market provides arbitrage opportunities for the participants. There is a need for progressive liberalization in respect of documentation and other procedures of the OTC market, in a phased manner. (Para 6.26)

Currency Futures Market: Surveillance and Reporting

8.28 A key prerequisite for smooth functioning of the currency futures market at exchanges is to put in place a state-of-the- art surveillance system and an adequate reporting mechanism. Ideally, the surveillance system should be based on the on-line trading system, with the capability of generating real time data, if required. It may also provide exception reporting at a fairly short interval of say every half-an-hour and be capable of providing warning mechanisms through alerts at the earliest possible. The surveillance system is of a critical importance, especially in respect of the generation of key reports on market manipulation. It should also be able to treat distinctly hedge, arbitrage, and speculative trades. (Para 7.01)

8.29 Structures for Surveillance Committee for currency futures merit close attention in the context of the proposed introduction of currency futures. The primary task of the Surveillance Committee should be to ensure that day-to-day monitoring by the exchange ensures compliance with the best of the surveillance abilities. (Para 7.09)

8.30 A data reporting system would need to be worked out with necessary flow of information from the exchanges to the Reserve Bank. In this respect the requirements of a firm set of regulation and implementation of monetary and exchange rate policies should override all other requirements (Para 7.12)

Annex 1

Cross Country Experiences

A1. Currency futures are of a recent origin when compared with several other derivatives contracts, especially the commodity futures. However, over the years more and more countries have introduced exchange traded currency futures. The first currency futures exchange was set up by the CME in 1972 in USA. Such exchanges were later set up in Europe, Japan, etc. More lately, some emerging market economies have also introduced currency futures onshore. These include Brazil, Korea, and Mexico. South Africa is the latest addition to this group having introduced currency futures on June 18, 2007. The structures, products and regulatory framework in these countries were studied by the Group to draw upon their experiences.

The Chicago Mercantile Exchange (CME)

A2. The CME was the world's first financial exchange to introduce currency futures. It introduced futures in seven foreign currencies in May 1972. Though CBOT was launched in 1848 and had established commodity futures and the CME itself was founded in 1919 (out of Chicago Butter and Egg Board which was set up in 1898), it was only after the collapse of the Bretton Woods system that the idea of currency futures gained acceptance. At the time of its inception, the original currency contracts were floated for British pounds, Canadian dollars, Deutsche marks, French francs, Japanese yen, Mexican pesos and Swiss francs. The CME is also the first to introduce standardization of futures contracts, the formation of the clearing process, the creation of financial futures-cash-settlement and electronic trading. It is interesting to note that despite introduction of electronic platforms, the CME still retains its trading floor which is also integrated into its electronic platform. It may be added that in July 2007, the CME completed its merger with CBOT forming the combined entity as the CME Group.

A3. The FX contracts listed at the CME go through a physical delivery process four times a year on the third Wednesday of March, June, September and December. The Mexican peso and the South African rand are traded on all twelve calendar months. The Brazilian real also is traded on all twelve calendar months but is not physically delivered — it is cash-settled. The Russian ruble is cash-settled, but currently is traded on only four calendar months (March, June, September and December). While only a small portion of all CME FX futures contracts actually result in physical delivery, the CME believes that an efficient and reliable delivery system is essential to the contracts' fair pricing.

A4. The clearing members are recognized as the parties to a trade, irrespective of whether those clearing members are acting on their own behalf or for other trading members or other customers. The Clearing house becomes the counterparty to every trade with the clearing member assuming the opposite side of the transaction.

A5. The CME is a Self-Regulatory Organization (SRO). The rules[4] followed by the CME provide for electronic surveillance, which authorize the Exchange to intercept, record and use any electronic communication passing through the trading floor. The stated objectives[5] of the CME in the areas of risk management and financial surveillance are:

- Anticipate potential market exposures
- Ensure that sufficient resources are available to cover future obligations
- Result in the prompt detection of financial and operational weaknesses
- Allow swift and appropriate action to be taken to rectify any financial problems and protect the clearing system
- Prevent the accumulation of losses

A6. The financial surveillance program of the CME is mainly aimed at monitoring the financial condition of the clearing members. The surveillance is carried out by the CME Audit Department and includes features such as reporting by clearing members at prescribed frequency, annual surprise inspections customized to capture specific risks of the clearing member, sharing of information regarding clearing members with other

[4] http://rulebook.cme.com/Rulebook
[5] www.cme.com

clearing organizations/SROs, etc. The CME is also a member of Inter-market Surveillance Group (ISG), which has exchanges from different countries as its members. The objective of ISG is sharing of information related to surveillance, investigation, etc.

A7. The CME also carries out an analysis of the intra-day price movements during the entire trading session with an objective of monitoring the impact of price changes on the clearing member positions. Stress testing of such positions is also carried out on a daily basis to simulate different scenarios and their likely impact on the clearing member positions. Based on the results, the CME could seek additional information from the clearing member about its customer accounts or even ask for reduction in positions in case of adverse results.

A8. The Market Regulations Department of the CME has daily access to account position information of different classes of members, which allows it to identify concentration of positions as well as aggregation of positions through different clearing members. Such information, in conjunction with other data at its disposal, permits the CME to identify market situations that may adversely affect financial stability of clearing members. The Market Regulations Department is also empowered to collect information on the profile of the trader i.e. whether it is listed as a hedger or a speculator.

A9. The CME follows the rules laid down by the US regulator for futures and options, the CFTC. The Commission conducts daily market surveillance and, in an emergency, can order an exchange to take specific action or to restore orderliness in any futures contract being traded. The market surveillance program of the CFTC is aimed at safeguarding the functions of price discovery and risk management. This is sought to be done through monitoring daily large positions, futures and cash price relationships, etc.

A10. The CFTC has a report titled Commitments of Traders (COT), which provides a breakdown of each Tuesday's open interest for market reports in which 20 or more traders hold positions equal to or above the reporting levels established by the CFTC. In other words, COT contains large trader reporting levels. According to CFTC, the aggregate of all large trader positions reported to it usually manages to capture 70 to 90 per cent of the total open interest in any given market. CFTC can specify between 25 contracts to over 1000 contracts as the reporting level for large trader reports and these levels are based on various factors such as total open positions, size of positions held by the trader in that market, surveillance history of the market etc. The CME has prescribed 200 contracts as the cut-off for major currencies and 25 contracts for all other minor currencies. The CFTC requires submission of Form 102 in case the open interest exceeds the large trader reporting level. The Form 102 includes very specific information on trader and accounts, which makes aggregation (if applicable) possible. This, in turn, provides an insight into potential market impact of a trader.

A11. The main objectives of the market surveillance program of the CFTC are:

- to detect and prevent manipulation or abusive practices.
- to keep the Commission informed of significant market developments
- to enforce Commission and Exchange speculative position limits
- to ensure compliance with Commission's reporting requirements

A12. The CFTC[6] seeks to protect customers by

- requiring registrants[7] to disclose market risks and past performance information to prospective customers,
- requiring that customer funds be kept in accounts separate from those maintained by the firm for its own use, and

[6] http://cftc.gov
[7] Commodity Exchange Act requires all Futures Commission Merchants (FCMs) and Introducing Brokers (IBs) to register as such unless they qualify for an exemption

- requiring customer accounts to be adjusted to reflect the current market value at the close of trading each day.

A13. Before an exchange lists a new futures or option contract for trading, it must certify that the contract complies with the requirements of the Commodity Exchange Act (CEA) and the Commission's (i.e. CFTC) regulations, including the requirement that the contract terms reflect commercial trading practices and that the contract not be readily susceptible to manipulation.

Mexico[8]

A14. Mexico had weathered several financial crises, the most recent one being the 1994-95 currency crises brought about by a fixed exchange rate regime, somewhat in line with the South East Asian crisis. The importance of an organized market for exchange-listed derivatives in countries like Mexico had been discussed by international financial organizations like the International Monetary Fund (IMF) and the International Finance Corporation (IFC). These institutions recommended the creation of markets for exchange-listed derivatives in order to promote macroeconomic stability and to facilitate risk control for financial intermediaries and economic entities. As part of financial sector reforms, Mexico permitted the CME to commence trading in Mexican Peso, starting April 1995. The explicit objective of the recommendation was to promote macroeconomic stability and to facilitate risk control for financial intermediaries and economic entities. The CME claims that volatility in the CME Mexican Peso market has reduced significantly since the launch of the CME contract, the futures market acting as a safety valve relieving pressure in the market.

[8] The Mexican Derivatives Exchange website (mexder.com.mx)

A15. The Mexican Derivatives Exchange called MexDer (Mercado Mexicano de Derivados) was set up on December 15, 1998. It was incorporated as a corporation under the Mexican law (S.A. de C.V.), authorized by the Ministry of Finance and Public Credit (SHCP). MexDer and its clearinghouse (Asigna) are self-regulatory entities that function under the supervision of the following financial authorities: the SHCP, Banco de México, and the National Banking and Securities Commission (CNBV).

A16. As part of its steps for global financial risk management, MexDer assigns each participant a unique registration code called the "MexDer Account Number", which permits position monitoring across various accounts of each client. The unique number is system generated at the time of registration. Some equivalence criteria in the system check for similarities between existing accounts and manual intervention will be required for assigning numbers in such cases. No account can be deleted when positions are open on the exchange.

A17. The Clearing House Asigna has a system in place (TIMS) to measure, monitor and manage the level of exposure of the member's portfolio. The system uses advanced pricing models to generate a set of theoretical values based on current prices, historical prices and market volatility. Appropriate margin offsets are assigned by Asigna based on the entire position within product group and across classes of products taking into account correlations, etc.

A18. Incidentally, the CME had earlier stopped the peso contract in 1985 and re-introduced Mexican Peso currency futures trading in 1995 after the Bank of Mexico amended its exchange regulations to allow physical delivery of *"CME Mexican Peso futures contracts".* In fact, the CME has access to Mexican payment systems for settlement of trades. MexDer introduced its domestic USD / Mexican Peso futures contracts in 1998, and it is claimed that both the MexDer & CME USD / MP futures contracts are successes[9].

[9] BIS paper no. 24, 2005 – 10 years of Mexican experience

A19. MexDer, *inter alia,* lists currency futures on the Mexican Peso/US dollar and Mexican Peso/ Euro. The Mexican Peso/ USD contract design is given below:

Contract Characteristics	United Sates of America - Dollar
Contract Size	USD 10,000
Delivery Months	Monthly cycle for up to three years (thirty six months)
Trading Symbol	**DEUA** plus the month and year of maturity: DEUA MR06 (March 2006)
Unit quoted	Mexican pesos per dollar
Minimum price fluctuation (Tick)	0.001 pesos, value of the tick per contract 10.00 pesos
Trading Hours	07:30 to 14:00 hours (GMT -06:00)
Last day of trading and maturity date	Two previous days before settlement date
Settlement day	Third Wednesday of maturity month
Settlement	Physical delivery

Brazil[10]

A20. Brazilian Real US dollar futures contracts were launched on August 1, 1991. The contracts trade on the Brazilian Mercantile & Futures Exchange (BM&F), which was founded in July 1985 and has undergone several mergers with other exchanges to develop into the present form. BM&F is a private not-for-profit association.

A21. BM&F has three separate clearing houses for derivatives, securities and foreign exchange which operate with the explicit objective of reducing the credit risk to all the participants and are all ISO 9001 certified. In April 2002, the Foreign Exchange Clearing house was launched alongside the new Brazilian Payment System (SBP). The FX Clearing House is responsible for the settlement of foreign exchange transactions in the inter bank, for which it acts as a counterpart of the transactions and adopts the Payment vs. Payment (PVP) system on a net basis. The FX Clearing House has about 41 broker

[10] Brazilian Mercantile & Futures Exchange (www.bmf.com.br)

members in addition to banks. BM&F has also established a BM&F Settlement Bank which is operating since November 30, 2004 to render settlement and custodial services.

A22. Banks, consumer finance agencies, cooperatives, development banks etc. are regulated and supervised by the Central Bank of Brazil (BCB). Entities like investment banks, futures and commodities exchanges, securities dealers and securities brokers, foreign investor's portfolios, etc are subject to joint regulation by the Central Bank and the Securities and Exchange Commission. The stability of the purchasing power of the Brazilian currency and the soundness of the financial system are the main institutional objectives of the Central Bank. Systemically important payment systems come under its purview. The Securities and Exchange Commission of Brazil (CVM) has the mandate to ensure proper functioning of the exchanges and the OTC market. They are also responsible for investor protection, transparency and prevention of price manipulation and other malpractices. The BM&F is subject to laws relating to Money Laundering, Non resident investor and the Payment System Regulation. The BM&F is otherwise a self regulated entity.

A23. The currency futures contracts come in two denominations of USD50,000 and another mini contract of USD 5,000. The Exchange also trades a Euro contract. The contract specifications are tabulated below:

Contract Characteristics	Exchange Rate of Brazilian Reals (R$) per U.S. Dollar for cash delivery
Contract Size	USD 50,000 USD 5,000 Mini contract
Delivery Months	All months Maximum of twenty four, as authorized by BM&F
Trading Symbol	**DOL** – US Dollar futures **WDL** – Mini US Dollar futures
Unit quoted	Brazilian Reals per US$ 1,000.00 to three decimal places
Minimum price fluctuation (Tick)	R$0.50 per US$ 1,000.00
Trading Hours	DOL - 09:00 to 16:00 hours WDL - 09:00 to 18:00 hours
Last day of trading and maturity date	Last business day of the month preceding the contract month
Settlement day	First business day of the contract month on the basis of the rate announced by the National Monetary Council of the Central Bank.
Settlement	Cash settlement

A24. The USD 50,000 contract has a category called hedgers, which includes the following:

a) Institutions authorized by the Central Bank of Brazil to trade US Dollars
b) Other companies whose basic activity is related to the transactions regulated for this market

South Korea[11]

A25. The Korea Exchange (KRX), which currently trades currency futures, was launched in January 2005 by consolidating three domestic exchanges – Korea Stock Exchange (KSE), KOSDAQ Market and Korea Futures Exchange (KOFEX). The Exchange is committed to improve market and build itself as a leading capital market in Northeast Asia. The Clearing and Settlement Department securely brings all trades carried out in the Stock Market and Kosdaq Market to a close. The KRX's role as a central counter party (CCP) helps the investors to conduct trade with the anonymous third party without being concerned about the settlement risk.

A26. The Korea Exchange introduced Yen and Euro futures in May 2006. Monthly volumes on the Exchange for currency futures have amounted to a notional of USD 10.9 billion, while the daily turnover in the OTC forex market is around USD 10 billion. The CME introduced USD/KRW Futures and Options on Futures contracts on June 20, 2006. The CME contracts are cash settled based on KRW NDF market. The Korean Government has also reportedly agreed to review the possibility of physical delivery of the CME Won contracts based on the volume and influence on the forex market. The Korean Won volumes onshore are significantly higher than the Won contract volumes traded on the CME. Highly liquid and more flexible NDF market is also said to be the cause of the thin traded volumes in KRW contracts in the CME.

A27. Non residents have access to the onshore currency market and account for about 6.6 per cent of the volume. Restriction on non resident participation is enforced through the types of accounts they can maintain and can be classified as accounts with free local access and limited repatriation and accounts with limited local access and free repatriation. For trading on KRX, non residents are required to hold limited local access accounts with no restrictions on repatriation. At the Exchange level there is no distinction between domestic and non resident participants. To trade futures and options contracts listed on KRX, a foreign investor may designate custodian banks (standing proxy) to facilitate operations related to futures and options trading. A custodian bank opens

[11] www.krx.co.kr

accounts at foreign exchange banks and futures companies, deposits and withdrawals investors' money and monitors investors' assets for them. Most foreign exchange banks also do custodian bank and standing proxy operations.

A28. The Korea Exchange currently trades three currencies – the USD, the Euro and the Japanese Yen. All contracts provide for physical delivery. There is a provision for putting in place position limits on all these contracts. Currency Futures market volumes have registered increase, while the OTC forward market has retained its volume over the years. Certain key features of the USD contract traded on the Exchange are listed below:

Contract Characteristics	Exchange Rate of USD against Korean Won
Contract Size	USD 50,000
Contract Months	The first three consecutive months (two serial expirations and one quarterly expiration) plus the next three months in the quarterly cycle (March, June, September and December)
Price Quotation	KRW per USD 1 to two decimal places
Minimum price fluctuation (Tick size)	0.1 representing KRW 5000
Settlement day	Third Wednesday of contract month
Final Settlement	Physical delivery

A29. Members are classified as Stock Trading Members or Futures Trading Members depending on the type of market that they can participate in. Members are also classified as Settlement Members or Trading Specialist Members depending on whether or not they are responsible for settlement. Eligibility requirements in terms of financial strength, equity holding in the Exchange, deposit and reserve funds have been laid down for different category of members. A foreign investor should designate securities and futures companies to trade futures and options traded on KRX.

A30. The Central Bank of Korea administers control on foreign exchange transactions. These have been progressively liberalized and as per the Foreign Exchange Liberalisation plan, the time line for completion of foreign exchange liberalization has been brought forward to 2009 from 2011. The limits on overseas investments by residents, foreign investments in Korea by non residents, real estate acquisition abroad by residents etc have been raised in keeping with this objective. Korean financial system is regulated and supervised by the Financial Supervisory Commission (FSC), which was constituted as a part of the Structural Readjustment Process, when Korea accepted the bailout package of the IMF following the South East Asian crisis. The Korean Exchange is also under the supervisory jurisdiction of the FSC, while KRX itself functions as a self regulatory authority like any Exchange.

South Africa[12]

A31. The currency futures started trading on the Yield-X (JSE's interest rate exchange) with effect from June 18, 2007. Standard Bank and Investec have been chosen to be the two market makers for the currency futures market. Yield –X, similar to other JSE markets, would be regulated by Financial Services Board (FSB), while South African Reserve Bank would also be an external regulator.

A32. The participants permitted to trade currency futures include the following:

- Individuals and foreigners without any limits
- Pension funds and long term insurance companies subject to their 15 per cent foreign allocation allowance
- Asset managers and registered collective investment schemes subject to their 15 per cent foreign allocation allowance
- Resident company, close corporation, trust, partnership or hedge fund, provided a valid exchange control approval is in place (from SARB)

[12] www.yieldx.co.za/currency_futures.aspx

A33. An authorized dealer can apply to be a market maker in currency futures by tendering a formal written application to the SARB. To begin with, only US dollar/Rand contracts are permitted, to be followed by Euro/ Rand and Sterling/ Rand currency futures. The Yield-X system performs pre-trade checking and prevents trades between a member and a corporate. In other words, trades are allowed to go through only when these are between counterparties permitted to trade. Each participant is assigned an Exchange control approval number by SARB which is the basis for determining eligibility to trade.

A34. The contract specifications are tabulated below:

Contract Characteristics	Exchange Rate of foreign currency[13] and the South African Rand
Contract Size	Mini – USD 1,000 nominal of underlying currency Maxi – USD 100,000 nominal of underlying currency
Delivery Months	March, June, September and December
Trading Symbol	**j-Rand**
Unit quoted	Number of Rand per 1 unit of foreign currency to four decimal places
Minimum price fluctuation (Tick)	Mini – 0.0001 equal to R0.10 Maxi – 0.0001 equal to R10.00

Last day of trading and maturity date	At 1340 hrs on two business days prior to third Wednesday of expiry month (or the previous business day, if that day is not a business day)
Settlement	Cash settlement in ZAR
Market Times	As determined by Yield-X (09h00 - 17h00)

[13] Currently only US Dollar, Euro and Pound Sterling

Key Lessons for India

A35. India can draw several lessons from the international experiences. The economies in emerging markets have enabled futures to coexist with restrictions on capital account and regulated OTC markets. The participants have also been selected and approved by the Central Bank in some cases. Salient points to be noted are given below**:**

i) **Regulation** - The Securities Regulator and the Central Bank jointly regulate and supervise some of the Exchanges, while the Exchanges are self regulated entities everywhere.

ii) **Capital Controls** – A few countries like South Africa and South Korea have introduced currency futures in recent times despite having capital controls.

iii) **Settlement** - In Brazil, at the BM&F open positions at maturity of the contract are cash settled by an offsetting transaction on the same number of contracts according to a specified formula. The Korean Won and Mexican Peso provide for physical delivery. There seems to be no distinct advantage for physical delivery, though Korea feels that this is the reason for higher volumes onshore in relation to the CME.

iv) **Multiple Contracts** - Introduction of two contracts catering to different market segments is a feasible option. The Brazilian and South African experiences establish that this option is workable. Some participants who had discussions with the Group and more particularly some exchanges like NSE and MCX have also confirmed that operating more than one contract should not be an issue in terms of technology, infrastructure and cost efficiency.

v) **Contract Size** - South African Reserve Bank has permitted individuals as participants without limits since there is less risk of capital flight. The contract size has been kept low at USD 1,000, a sum small enough to ensure wider retail participation.

vi) **Contract Denomination** - Most exchanges have Euro contracts in addition to USD contracts. JSE has commenced with the Rand-US dollar exchange rate contract with Euro and Sterling denominated contracts to follow.

vii) **Participants** - Brazil has created a separate category of participants called hedgers. South Africa has excluded corporates[14] and hedge funds from participating in the currency futures exchange (unless they have a valid exchange control approval from SARB). Hedge funds, may not be permitted till they are regulated. Corporates have been kept out since it was felt that allowing them in would result in hedge funds also following them.

viii) **Participation Limit for individuals** - South African individuals have an annual foreign exchange allowance of R 2 million under their forex regulations. This has been waived for the currency futures market.

ix) **Exchanges** – There is no unique model for introduction of currency futures. These have been listed and traded on multiple product exchanges (Brazil, Korea, Mexico) as well as on stock exchanges. The BM&F is a private not-for-profit association, while the other Exchanges run on commercial lines.

[14] Corporate refers to any entity which is not any one of the qualifying audiences

x) **Clearing Mechanism** - Existence of a clearing house with an excellent safety net that acts as counterparty to every trade on the Exchange, i.e. acts as a buyer vis-à-vis each seller and as a seller vis-à-vis each buyer, is critical to the success of any Futures Exchange. In most countries, the Clearing House is a separate set up. For foreign exchange clearing most arrangements have members of the clearing house who have accounts with the Central Bank. Brazil also has an exclusive settlement bank.

xi) **Client codes** - Unique registration code assigned to each client facilitates tracking transactions across exchanges and brokers. The process of assigning these numbers could have checks and balances facilitating detection of multiple accounts of same entity or related accounts. A tight KYC for every entity authorized to trade on the Exchange will eliminate undesirable elements from the system.

xii) **Approval of Members** – In South Africa, each participant on the Yield-X is assigned an Exchange control approval number by South African Reserve Bank which is the basis for determining eligibility to trade.

xiii) **Response to Currency Futures** - In some countries, the initial response and volumes when currency futures were first introduced were reported to be tepid and slow. This could happen in our markets too and time has to be allowed for the market to experience growth and acquire critical mass.

xiv) **Volatility** – There is no clear evidence of an increase in volatility of exchange rates after the introduction of currency futures. There is, however, some empirical evidence that volatility has reduced in some countries. In Mexico, there was reduction in volatility and a more stable exchange rate despite financial turbulence and large swings in speculative positions[15]. Similarly, empirical tests have established that the introduction of futures contracts resulted in lower spot market

[15] BIS paper no. 24, May 2005 - Central banking intervention under a floating exchange rate regime: ten years of Mexican experience by Jose Julian Sidaoui, Banco De Mexico (contributed paper)

volatility for the Mexican Peso, while in Brazil and Hungary it did not have significant impact on spot market volatility[16].

Annex 2

List of TAC members and market participants invited for discussions/ interaction by the Group

1). Members of the Technical Advisory Committee (TAC) on Money, Foreign Exchange and Government Securities Markets

1) Dr. Rakesh Mohan, RBI, Chairman
2) Shri. A P Kurian, AMFI
3) Shri. P K Pain, FEDAI
4) Ms. Susan Thomas, IGIDR
5) Shri. Arun Kaul, PNB
6) Shri. Sushobhan Sarkar, LIC
7) Shri. Uday Kotak, Kotak Mahindra
8) Shri. T C Nair, SEBI
9) Shri. R H Patil, CCIL
10) Shri. C B Bhave, NSDL
11) Ms. Naina Lal Kidwai, HSBC
12) Shri. Ravi Narain, NSE
13) Shri. V K Gupta, PDAI
14) Shri. R Vaidyanathan, IIM Bangalore
15) Shri. V Srikkanth, FIMMDA

[16] IMF Working Paper No.98/13, February 1, 1998 – Does the introduction of Futures on Emerging Market Currencies destabilize the underlying currencies? By Christian Jochum and Laura Kodres

2) Authorised Dealer Category – I banks

Name	Participant
Citibank	Vipul Chandra
ICICI bank	Ms. Shilpa Kumar, GM Ms. Suchismita Satpathy, DGM Mr. Prasad Ukidwe
Standard Chartered Bank	Mr. Hemant Mishr
State Bank of India	Mr. Anjan Barua, Chief General Manager Mr. A N Appiah, Deputy General Manager Mr. Rakesh Joshi, Asst. General Manager

3) Brokers

Name	Participant
Mecklai Financial	Mr. Jamal Mecklai

4) Clearing House – Clearing Corporation of India Limited (CCIL)

Name	Participant
Clearing Corporation of India Limited (CCIL)	Ms. Indirani Rao, Senior Vice President Mr. Siddhartha Roy, Senior Vice President Mr. Kamal Singhania, Vice President

5) Exchanges

Name	Participant
Chicago Mercantile Exchange (CME)	John P Davidson III, Chief Corporate Development Officer Derek Sammann, Managing Director Nicholas Bolton, Director
Multi Commodity Exchange of India Limited (MCX)	Mr. Jignesh Shah, Chairman Mr. Joseph Massey, Dy Managing Director Mr. Anjani Sinha Dr. Nag, Chief Risk Consultant, Riskraft
National Stock Exchange (NSE)	Ms. Chitra Ramakrishna, Dy Managing Director Mr. Sayee Srinivasan, Vice President
National Commodity & Derivatives Exchange Limited (NCDEX)	Mr. P H Ravikumar, Managing Director and CEO

6) Industry Associations

Name	Participant
Foreign Exchange Dealers' Association of India (FEDAI)	Mr. P K Pain
Fixed Income Money Market and Derivatives Association of India (FIMMDA)	Mr. C E S Azariah

7) Others

Name	Participant
Financial Technologies (India) Limited	Mr. N Deshpande, Principal Legal Adviser Mr. Seshachalam, Vice President, Legal
IBS Forex	Mr. Ganesh Rao