



OTC DERIVATIVES MARKET IN INDIA: RECENT REGULATORY INITIATIVES FOR DERIVATIVES

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Abstract

The OTC derivatives markets all over the world have shown tremendous growth in recent years. In the wake of the present financial crisis, which is believed to have been exacerbated by OTC derivatives, increasing attention is being paid to analyzing the regulatory environment of these markets. In this context, we analyze the regulatory framework of the OTC derivatives market in India. The paper, inter alia, seeks to prove the point that the Indian OTC derivatives markets, unlike many other jurisdictions, are well regulated. Only contracts where one party to the contract is an RBI regulated entity are considered legally valid in India. A good reporting system and a post-trade clearing and settlement system, through a centralized counter party, has ensured good surveillance of the systemic risks in the Indian OTC market. From amongst the various OTC derivatives markets permitted in India, interest rate swaps and foreign currency forwards are the two prominent markets. However, by international standards, the total size of the Indian OTC derivatives markets still remains small because credit default swaps were conspicuously absent in India until now. It appears that Indian OTC derivatives markets will grow fast once again after the present financial crisis is over.

INTRODUCTION

Since a vast majority of financial asset classes exist only in the over-the-counter (OTC) environment, OTC markets are viewed as critical to the effective functioning of national and global financial systems. Alongside and complementary to the organised exchange markets, OTC markets have a crucial role to play in all national and international economies. The OTC derivatives markets all over the world, including in India, have shown tremendous growth due to their flexibility, low operating cost, zero regulatory costs, developments in information technology and, above all, due to high volatility in asset prices. However, in the backdrop of the present financial crisis, which is believed to have been exacerbated by OTC derivatives, a lot of attention is being given to analysing the possible regulatory structure of OTC markets to promote stability and, at the same time, ensure market efficiency. The competition between OTC and exchange-traded derivative markets is another issue for policy makers. We assume that this competition would drive all the players to minimize transaction costs and adopt best practices.

The present research work on OTC derivative markets seeks to achieve, inter alia, the following objectives:

- (i) To provide a brief introduction of the OTC derivatives market
- (ii) To formulate some stylised facts about global OTC markets
- (iii) To reflect upon the present regulatory initiatives of various national and multilateral bodies towards increasing the surveillance of the global OTC market
- (iv) To explain the regulatory framework, in which the Indian OTC derivative market operates
- (v) To give more details about the market structure, and
- (vi) To elaborate the open issues impacting new policy initiatives towards OTC and organised exchange derivatives markets.

What this paper does not seek to provide is a separate assessment of credit, market, liquidity and funding risks inherent in the OTC derivatives markets. This would entail a detailed discussion of the tools for measuring these risks, analysing their impact and proposing remedial solutions. The main argument of the paper hinges on how central counterparties



CCPs reduce the counterparty and credit risks and how good supervision through a well-defined regulatory framework underpins the systemic risk. Section 2 of the paper provides a primer on the OTC derivatives market, along with some definitions. Section 3 explains why global OTC markets have gained in prominence. Section 4 offers some stylized facts about the global market, which seeks to correct some misnomers about the size of the market and its risk-potential. Section 5 briefly recounts recent policy initiatives on the global OTC markets. Section 6 describes the regulatory framework of the Indian OTC derivatives markets; it explains the recent regulatory initiatives of the Indian central bank towards improving the resilience of the Indian OTC derivatives market, including the central counterparty approach. Section 7 provides an assessment of major OTC derivative markets. Section 8 focuses on some of the open issues that need to be reviewed for any fresh policy review of the Indian OTC derivatives market and for improving the surveillance of the market. The last section provides a wrap up of the discussion with some concluding remarks.

A Primer on OTC Derivative Markets

A derivative is a risk transfer agreement whose value is derived from the value of an underlying asset. The underlying asset could be a physical commodity, an interest rate, a company's stock, a stock index, a currency, or virtually any other tradable instrument upon which two parties can agree. Derivatives fall into two major categories. One consists of customised, privately negotiated derivatives, which are known generically as over-the-counter (OTC) derivatives. The other category consists of standardised, exchange-traded derivatives, known generically as *futures*. "An over-the-counter (OTC) derivative is a bilateral, privately-negotiated agreement that transfers risk from one party to the other".

The OTC derivatives market can be divided into five distinct categories:

- (1) Interest rate derivatives;
- (2) Foreign exchange derivatives;
- (3) Credit derivatives;
- (4) Equity linked derivatives ; and
- (5) Commodity derivatives

The most important products in the derivatives markets are interest rate derivatives (henceforth IRD), followed by foreign exchange derivatives (henceforth FED). Whereas the former accounted for 70 per cent of market value at the start of 2007, the latter had about 10 per cent of the market value. Credit default swaps (CDS), which became the third largest traded OTC product, accounted for seven per cent of market value. The derivatives relating to equity and commodities, taken together, account for 13 per cent of market value at the start of 2007. This paper focuses primarily on the first three types in the above list. The equity linked and commodity derivatives are not included in this research work.

Why the Global OTC Derivatives Market is Important

The global OTC market has grown both in terms of size as well as in terms of its relative position vis-à-vis the exchange-traded derivatives market and the exchange traded cash equities. Recent estimates by the Bank for International Settlement (BIS) put the notional value of the instruments traded on the global OTC derivatives market at \$684 trillion at end-June 2008. The total size of the OTC market can be appreciated by comparing it with equivalent, exchange-traded derivatives. Thus, one estimate suggests that the global OTC derivative contracts were some eight times greater than the equivalent exchange traded derivatives. It is interesting to note that the value of daily turnover in exchange traded derivatives in London is some 25 times greater than the value of daily turnover in exchange



traded cash equities. The global OTC derivatives market has also grown very fast; thus, the notional amount outstanding has increased from \$72 trillion in 1998 to \$684 trillion in June 2008. However, several indicators suggest that the use of OTC in general, and that of CDS in particular, declined in the wake of the recent financial crisis. One has to look at the economic significance of OTC derivatives to understand its contribution to the financial markets' efficiency. The following arguments are often given to support the growth of this market:

1. OTC markets promote the price discovery process in financial markets and hence, improve allocational and operating efficiencies of intermediaries and market participants.
2. OTC markets provide liquidity to financial markets.
3. OTC markets help in risk management inherent in underlying assets by transferring the risk to the party that can shoulder it the best.
4. A well-developed OTC market would provide financial institutions with tools needed to manage risks associated with financial globalisation.
5. Currency and interest rate derivatives are important for monetary policy

Stylized Facts on Global OTC

The facts and ideas mentioned in this section offer an insight into the riskiness of the OTC derivatives market. We use two main data sources to prove that the risk volume in the OTC market is not based on the notional value of the outstanding contracts. The following stylised facts are relevant in this regard:

1. Nominal or notional amounts outstanding on all contracts (\$684 trillion as of end-June 2008 as per BIS statistics) are the gross notional value of all deals concluded and not yet settled on the reporting date. It provides a measure of market size and a reference point from which contractual payments are determined in a derivatives market. However, such amounts are generally not truly at risk. The amount at risk in derivatives contracts are a function of the price level and/or volatility of the financial reference index used in the determination of contract payments, the duration and liquidity of the contracts, and the creditworthiness of counterparties. **Gross market values** provide a more accurate measure of the financial risk transfer taking place in the derivatives markets. Thus, gross market values, which measure the cost of replacing all existing contracts, are a better measure of market risk than notional amounts. According to the BIS survey, the gross market value of the global derivatives markets was \$33.89 trillion as of end-December 2008. It would be important to note that the gross market values at current market prices provide a measure of the economic significance that is readily comparable across markets and products.

2. The term "gross" in gross market values is used to indicate that contracts with positive or negative replacement values with the same counterparties are not netted, nor are the sums of positive and negative contract values within a market risk category set-off against one another. Thus, one has to find out the **gross credit exposure**, which represents the gross value of contracts that have a positive market value after taking account of legally enforceable bilateral netting arrangements. Gross credit exposure represents the aggregated market values and shows the payment flows at risk. According to the BIS surveys, the gross credit exposure of the global OTC derivatives market has increased from \$2.6 trillion as of end-June 2007 to \$5.0 trillion as of end-December 2008. This reinforces the argument that the payment flows at risk increased and almost doubled during the period.

3. In a bilateral OTC contract, where market participants trade directly with one another, management of counterparty risk – the risk that the person or firm on the other side of the



deal will fail to live up to what is contractually agreed – has two components: *collateral* and *bilateral netting*.¹⁴ In the collateral component, the parties limit the counterparty risk by requiring the daily posting of collateral reflecting the mark-to-market value of the contracts. Collateral agreements can be customised to reflect the contracting parties' assessment both of the riskiness of the position and of each other's credit quality. The posting of collateral implies that actual counterparty exposures are smaller than market values would suggest. Surveys conducted by the International Swaps and Derivatives Association (ISDA) indicate that roughly two-thirds of OTC derivatives exposures are collateralized and the estimated amount of collateral in use at the end of 2008 was approximately \$4.0 trillion.

4. Cash is the most common form of collateral used in the global OTC derivatives market and it continues to grow in importance. It stood at almost 84 per cent of collateral received and 83 per cent of collateral delivered during 2008. The use of government securities as collateral also grew in 2008, with nine per cent of collateral received and 15 per cent of collateral delivered in 2008 being in the form of government securities. Other forms of collateral, such as corporate bonds and equities, were used less during the year. Most collateral agreements amongst firms were with hedge funds and institutional investors (50 per cent) followed by corporates (15 per cent) and banks (13 per cent).

5. Concentration in the global OTC derivatives market appears to have risen in recent years, although it remains low on average. Concentration tends to be the lowest in foreign exchange and interest rate derivatives, where the Herfindahl index (HI)¹⁶ is in the range of 400 to 700 in the major currencies. Such values are below what some economists would consider an oligopolistic market. It is relevant to note that the most active players, who are end users in the market, are large international banks, securities firms and multinational companies. The fact that there are fewer participants in the market hints at the wholesale character of the market.

6. In the five OTC derivatives markets (mentioned in Section 2), the euro is either the predominant currency or the second most important currency after the US dollar. BIS reports that the US dollar is the predominant currency in the OTC foreign exchange derivatives with a 42 per cent share in the notional amounts outstanding. In the interest rate swaps, 36 per cent of the market was denominated in euro.¹⁸ The transactions by counterparties located in the European Union (EU) represent a sizable share of the OTC derivatives markets. The counterparties located in euro area countries handled \$308 trillion or 36 per cent of the total global business.

7. The global OTC derivatives market is concentrated largely in the United Kingdom, which has 43 per cent of the overall market by value and the United States, which has 24 per cent. Most of the cross-border OTC derivatives are concentrated in G-10 countries, though the exposure of the residents of emerging markets has increased over time.

Recent policy Initiatives on Global OTC market: CCP as the Most Dominant Solution

In the context of the recent financial market turbulence, concerns regarding the limited development of post-trading infrastructure for OTC derivatives have intensified. It is argued often that the lack of a good post-trading infrastructure not only implies operational inefficiencies and risks but also hampers effective counterparty risk management and market transparency. Because of the large size of the OTC derivatives markets and their close linkage with cash markets, these markets seem to have acted as a contagion channel during the recent financial market turbulence. Against this background, measures to improve market organisation in general, and to strengthen the post-trading infrastructure of the OTC derivatives markets, in particular, have gained momentum during 2009. At this point, the



buyer and seller are no longer counterparties to each other – instead, each acquires the CCP as its counterparty. The structure benefits are:

- (a) It improves the management of counterparty risk;
- (b) It allows the CCP to perform multilateral netting of exposures as well as payments; and
- (c) It increases transparency by making information on market activity and exposures – both prices and quantities – available to regulators and the public. One crucial characteristic of a CCP is that it mutualises credit and market risk, spreading it among all its participants. However, the capacity of a CCP to absorb risk is determined by:
 - (i) The equity capital injected by owner-members
 - (ii) The margin it collects and
 - (iii) The practice of marking positions to market

OTC Derivatives Market in India: The Regulatory Framework.

Given the nature of the derivatives market, a sound regulatory framework that defines financial infrastructure, product design and scope for innovation is inevitable. Such a regulatory framework would define the market participants, the counterparties, the nature of products and transactions, the method of clearance and settlement and, ultimately, the level of risk in the market as a whole. Further, it would also enable the regulator to collect market information from primary sources. Saksena³¹ states, “emergence of derivatives market will normally require legislation, which addresses issues regarding legality of derivatives instruments, specifically protecting such contracts from anti-gambling laws because these involve contracts for differences to be settled by exchange of cash, prescription of appropriate regulations and powers to monitor compliance with regulation and power to enforce regulations”. Thus, understanding the historical evolution of regulatory initiatives is critical to understand the market microstructure, problems and prospects for future reforms. Though some kind of OTC derivatives trading was prevalent in India in the pre-independence era, the Securities Contract Regulation Act 1956 (SCRA) had banned all kind of derivatives trading in India to curb detrimental speculation in securities.

Present Structure of the OTC Derivatives Markets in India

There is no comprehensive source for assessing the total volume of transactions carried out on the Indian OTC derivatives market. Therefore, the information presented in this section draws upon various sources and is an attempt to assess the Indian OTC derivatives market under two major groupings: interest rate derivatives and foreign currency derivatives. Since the markets for interest rate swaps (in the category of interest rate derivatives) and foreign currency forwards (in the category of foreign currency derivatives) enjoy significant position in the Indian OTC space, the following description is related mostly to these two markets. A brief description of the credit derivative swaps (CDS), which are not permitted in India so far, is given in the section on open issues.

Table 1: Interest Rate Swaps - Outstanding Notional Principal (*Benchmarkwise Details*)
(Amount in Rs. Crore)

Item/Yea	March 2005	March 2006	March 2007	March 2008
Total	10,81,867	18,29,700	37,07,342	80,18,647
% Growth	(Y-o-Y)	69	103	116
MIBOR/OIS	4,76,744	10,75,917	27,37,244	66,93,065
% Share in total	44.07	58.80	73.83	83.47
% Growth	(Y-o-Y)	126	154	145
MIFOR	5,64,262	7,01,305	8,72,000	12,54,255



% Share in total	52.16	38.33	23.52	15.64
% Growth (Y-o-Y)		24	24	44
INBMK	20,070	34,110	82,103	48,574
% Share in total	1.86	1.86	2.21	0.61
% Growth (Y-o-Y)		70	141	-41
Others	20,792	18,369	15,995	22,753
% Share in total	1.92	1.00	0.43	0.28
% Growth (Y-o-Y)		-12	-13	42

Notes:

MIBOR: Mumbai Inter-Bank Offer Rate

MIFOR: Mumbai Inter-Bank Forward Offer Rate

OIS: Overnight Index Swap

INBMK: Indian Benchmark

Source: RBI

The total volume of transactions in the above table is based on the outstanding notional amounts, which provides a measure of market size and a reference point for contractual payments. However, such amounts are not truly at risk. To get a more accurate picture of the financial risk transfer taking place in the derivatives markets, one should analyse the gross market values. The gross market value of all IRS contracts on December 10, 2009, as estimated by CCIL, was \$16.9 billion. If we assume that 80 per cent of the IRS contracts have an embedded netting agreement⁵³, the gross credit exposure would be approximately \$1.69 billion (See Table 2 for details). Furthermore, if we assume that two-thirds of the derivative exposure is collateralised, only \$556 million worth of exposure is uncollateralised. It is this amount, which represents the potential credit risk and needs to be monitored carefully. With the continuous growth of the OTC markets, a trend analysis of the uncollateralised exposures will give a better perception of the market.

Table 2: Computation of Gross Credit Exposure in IRS Market

(Billion \$)

	Global IRS*	Indian IRS*
Gross Notional Value of IRS contracts (GNV)	328,114	733.82
Gross Market Value (GMV)	16,573	16.87
GMV as a % of GNV	5.05%	2.30%
Gross Credit Exposure (GCE) before netting	8,286	8.44
GCE as a % of GMV	50%	50%
Gross Credit exposure (Assuming that 80 percent of the contacts are netted out)	1,657	1.69
Potential Credit Risk (Assuming that 67 percent of the exposure is collateralized)	547	0.56



When we analyse the activities in the IRS in terms of active participants, it is striking that foreign banks dominate the IRS (MIBOR) market – they accounted for about 80 per cent of the deals carried out during November 2009, followed by private banks operating in India.⁵⁴ The competitive advantage of foreign as well as private banks could be traced to their expertise in this area and the use of appropriate technology for the purpose. CCIL started reporting transactions of OTC interest rate swaps (IRS) through its reporting platform from 2007. The monthly data provided by CCIL reveals that the growth in the notional amount of IRS based on both MIFOR and MIBOR started decelerating from the beginning of the year 2008. Thus, the IRS derivatives segment started shrinking as year-on-year growth rates turned negative in the peak of the financial crisis. Even though the Indian financial sector does not have direct exposure to toxic assets abroad, the derivatives market does get severely affected through expectations (created by uncertainty in the market) and through a credit crunch (due to drying up of foreign funds).

The Offshore Non-Deliverable Forwards (NDF) Market

In addition to the onshore -D FM, there is active trading in cash-settled rupee dollar forwards on what are termed non-deliverable forwards (NDF). The NDF markets in the Indian rupee (INR NDFs) have grown in volume and depth over time. While these are largely concentrated in Singapore, they also exist in London and New York. NDF turnover is estimated at \$0.5 to \$0.75 billion a day, compared with \$1.5 billion a day for the onshore R-D FM. The typical quote depth on both markets is \$5 million. The spread on the onshore market is roughly 0.5 to 1.0 paise (a rupee has 100 paise), while the offshore NDF market has a spread between 0.5 and 2.0 paise.⁶⁵ These derivatives allow multinational corporations, portfolio investors, hedge funds and proprietary foreign exchange accounts of commercial and investment banks to hedge or to take speculative positions in local currencies. The demand for NDFs arises principally out of regulatory and liquidity issues of the underlying currencies. The requirements, that transactions in the onshore market must only be for the purpose of hedging has made the NDF market interesting to entities who are prevented from making transactions in onshore market.

SUMMARY AND CONCLUSIONS

The present work is a country study of the regulatory framework of the Indian OTC derivatives markets. The research work analyses the present market structure and reflects upon the regulatory initiatives taken by the Reserve Bank of India towards better surveillance of OTC markets. In addition to that, the research work focuses on four open issues impacting the stability and development of the market. The major findings of the study are the following:

(i) The notional value of OTC contracts is not a true measure of risk. It is the gross market value, measuring the cost of replacing all existing contracts, which shows market risk. However, for analysing the payment flows at risk, a still better measure is the gross credit exposure, which shows the aggregated market value of OTC contracts after bilateral netting has been completed.

(ii) In the Indian context, the OTC derivatives markets are well regulated by the central bank. The RBI has legalised OTC derivatives trading, where at least one of the parties in a transaction is a regulated entity. RBI allows financial institutions to use derivatives for their own balance sheet management and non-financial firms to use derivatives for hedging their exposures. A centralised counter party, called CCIL, is entrusted with the job of engaging in the OTC derivatives market as a reporting platform and a clearing agency for post-trading settlements. The CCP approach offers a unique model for automatic surveillance of the OTC



exposure. Recently, the guarantee offered by CCIL on some OTC products has gone a long way in reducing the capital requirements for the banks.

(iii) A review of the market structure reveals that interest rate swaps (in the category of interest rate derivatives) and foreign currency forwards (in the category of foreign currency derivatives) occupy dominant positions in the Indian OTC derivatives markets. The market for IRS is primarily an overnight market and products of tenure longer than overnight have not become popular because of the absence of a vibrant inter-bank term money market. The dominance of foreign banks is an important characteristic of this market. The market for foreign currency forwards is basically a rupee dollar forward market, where CCIL provides guaranteed settlement of the forward trades. There is also an off-shore NDF market in rupee-dollar forwards. The evidence on corporate use of the OTC derivatives market for hedging real and/or potential exposure is also limited. Given the increased use of international financial markets by the Indian corporate sector for trade financing, external commercial borrowing and foreign direct investment, we should encourage the use of OTC derivatives markets for hedging the potential exposure of the corporate sector. This will be an important step in the right direction.

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