

Credit default swaps: The next big crisis in making

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Amol Agrawal
+91 22 66177921
amol@idbigilts.com

The ongoing sub-prime crisis is now being termed as a classic credit market crisis. Initially, the crisis started in housing markets as house prices fell. Then, as large number of financial entities had huge exposures in housing markets (either as an investor or lender) the crisis was felt in liquidity markets. But now because of the effect spilling to other assets and people defaulting because of fall in housing prices, this crisis has now become a credit market crisis. As these developments are likely to have an impact of Credit Default Swap markets, this report is an attempt to study the developments in the CDS market.

Credit Default Swap (CDS) - Primer

- **Meaning:** A CDS is a derivative instrument for protecting oneself against defaults of a particular company. It is like buying an insurance product to protect oneself from a loss. The insurance companies don't provide protection against default of particular companies so there is a need for this financial product. For instance, say a bank has given a loan to a company XYZ. Now, the bank wants to protect itself against defaulting of XYZ. So, it buys a contract or CDS from the seller. The risk is now transferred from the Bank to the CDS seller.

Under this contract, like in an insurance contract, the bank will pay the provider a premium and in case the default occurs the seller has to pay the Bank. Earlier, there were plain CDS instruments like the example, now CDS can be given for corporate bonds, asset backed securities, leveraged loans etc. CDS are off-balance sheet transactions.

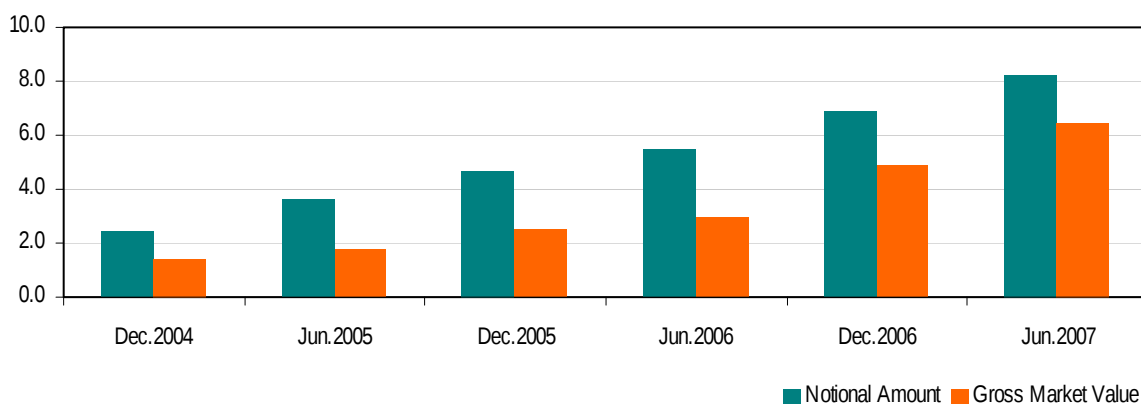
The organization against whom the CDS is taken is called as the "reference entity" and the default event is called as "Credit event"

- **CDS is an OTC product:** There are two kinds of markets - Exchange traded or over the counter (OTC). In the first market, we have standard products that can be traded on an exchange like shares, corporate bonds, futures, options etc. OTC market is for those financial products where the demand is for specific products and it needs to be designed according to the client. Earlier most of the derivative market was an OTC market but now exchange traded derivative markets are as big. CDS (like an insurance product) is available in an OTC market as it is designed specifically for a client. Though, this does not mean that CDS cannot be traded in an exchange, but so far this has not happened.
- **It is synthetically created:** Unlike securitization, which involves transfer of assets, CDS is synthetically created. There is no transfer of any assets and one simply buys a contract/bond from the seller of CDS which is to be honored in case of a default.
- **Pricing:** A CDS is priced like an insurance product e.g. to protect against losses from any XYZ, the price of the CDS could be 50 bps. This means if a bank has to insure against a loan of Rs 10 crore then it will have to pay an annual premium of Rs 5 lakhs. The premium varies depending on the strength of the company's financials and it is usually inversely related to the latter. Various indices have developed that help one get premium on a daily basis.
- **Risks:** There are various risks involved with credit derivatives that apply to CDS as well. These risks are pretty important as it has been shown in the Delphi case that settling and honoring the CDS contracts is not as easy as it is made out to be. In times of heightened risk and drying liquidity from the markets, one may not be able to get the desired protection. This is the most obvious risk in credit market. Credit risk is the risk to earnings or capital arising from an obligor's, or counterparty's, failure to meet the terms of any contract with the bank or to perform otherwise as agreed. The credit risk is for both the CDS buyer and CDS seller. US Comptroller of Currency identifies six risks with credit derivatives- Transaction Risk, Liquidity Risk, Compliance Risk, Price Risk, Strategic Risk and Reputation risk

Growth in CDS

The data for credit default swaps in public sources (IMF, BIS) is available from December 2004 onwards. The CDS market has grown exponentially (Figure 1). The notional amount outstanding in CDS market in Dec 2004 is around USD 6.4 trillion and has increased to nearly USD 42.5 trillion. Though, it is not right to compare financial variables which are a stock and economic variables which are flows, some comparison helps understand the magnitude. The World GDP in 2007 as per IMF was around USD 54.3 trillion, so credit derivatives are nearly 80% of the world economy in 2007, compared to 15% in 2004. The CDS markets were just around 2.5% of the total OTC derivative market. It has increased by nearly 3.5 times to 8.2% in June 2007. Average yearly growth in this period has been about 50%.

Figure 1: CDS market as a % of total OTC derivative market



Source: BIS, IDBI Gilts Limited

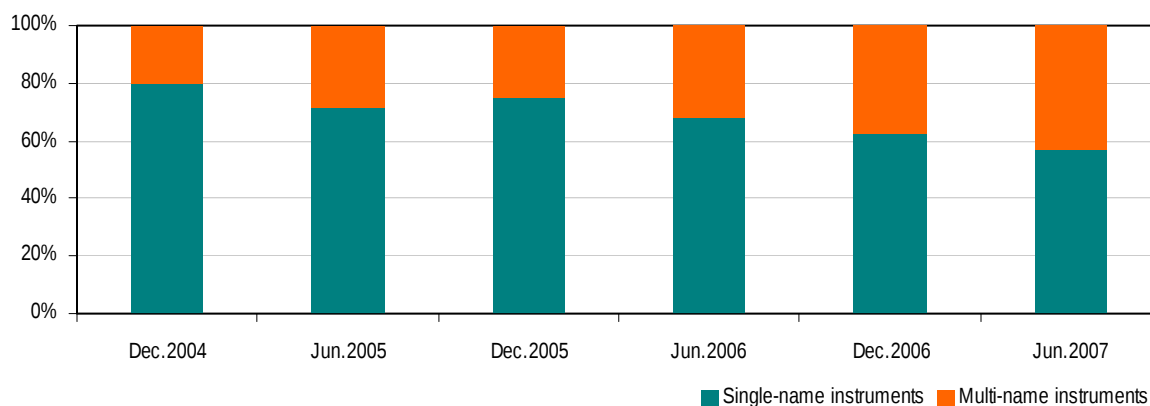
Reasons for rise in Credit derivatives/ CDS

- Utilize capital more efficiently:** The role of Banks has changed dramatically from just providing loans to providing the entire gamut of financial services. Banks are now competing with other entities for other financial services firms and vice-versa. This has made the entire sector very competitive and all want to utilize their capital most effectively. This has led to wide increases in risk transfer activity in general (and credit derivatives in particular) as it helps in deploying capital for other purposes as well.
- CDS is less costly:** CDS is created synthetically and hence is less costlier than traditional asset transfer techniques like securitization etc (pointed above). Another aspect is that most economies do not have well developed legal systems making it difficult to securitize. Hence, CDS and synthetic activity has become more popular with banks and other entities.

Is CDS market managing risks or adding more risks?

BIS also provides CDS data across types of CDS instruments, maturity, investment rating etc. Figure 2 shows the preference has moved towards multi-name instruments. Single-name instruments as a % of total CDS was 80% in Dec-04 but has declined to 57% by June 2007. Single-name instruments are those like the example given above- a bank needs to protect itself from default of a company. Multi-name swaps are those in which the buyer of the swap can get protection against defaulting of multiple parties/clients. Either the Bank buys four separate swaps for protection against each of the four clients or it buys a multi-name swap that protects it in case any of the one (it can be two, three as well) defaults. It is more complex to price multi-name securities and these are more ill-liquid as well.

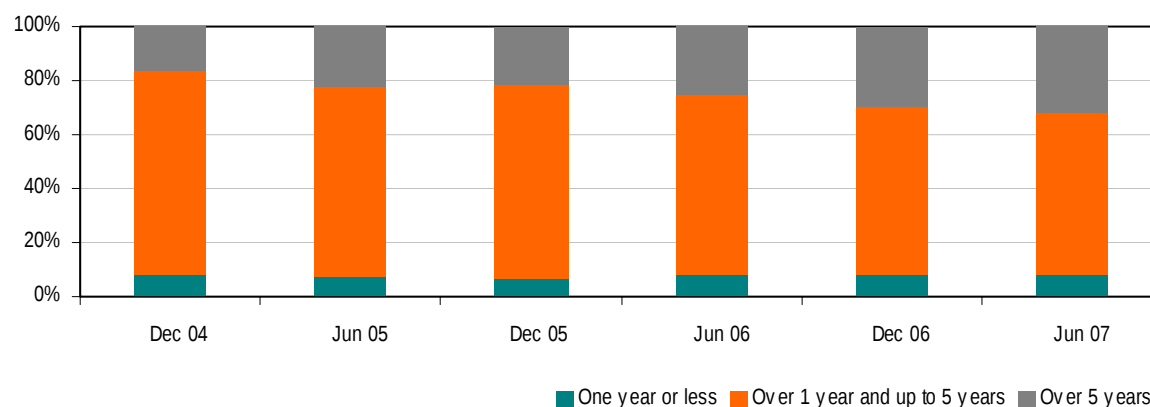
Figure 2: Types of CDS - Notional Amount



Source: BIS, IDBI Gilts Limited

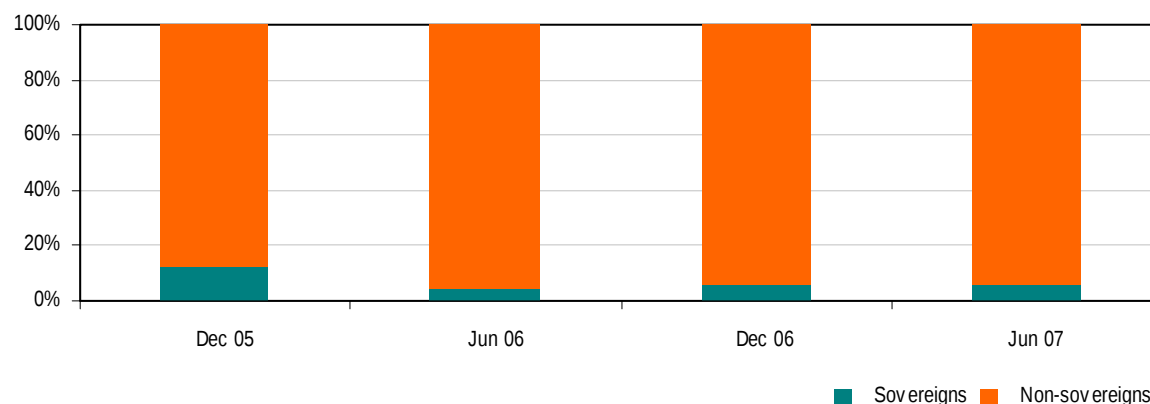
Within single name instruments, the maturity of the CDS has shifted from shorter maturity CDS to longer maturity CDS (Figure 3). CDS having maturity of over 5 years was 17% in Dec 04 but has almost doubled to 32% in Jun 07. Another interesting thing to note is to see the Single name CDS investments by safety. Figure 4 shows that non-sovereigns have always been more popular than sovereign instruments which is even right as the risks of default are higher for non-sovereigns. Figure 5 further looks at the non-sovereigns from the credit rating perspective. The share of below investment grade (below BBB) in the total non-sovereign CDS has increased from 30% in Dec 05 to 35% in Jun 07. Within below investment grade the share of non-rated has increased.

Figure 3: Single-name CDS outstanding- Maturity-wise



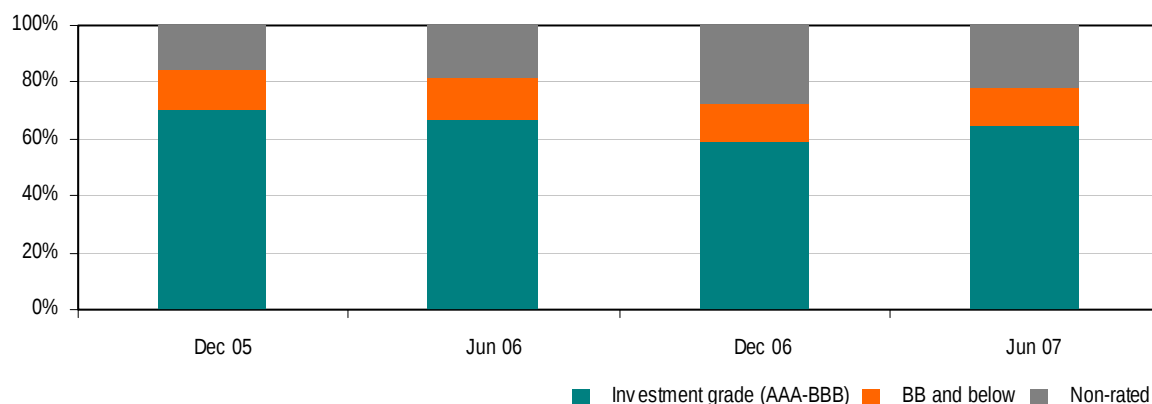
Source: BIS, IDBI Gilts Limited

Figure 4: Single-name CDS outstanding- riskwise



Source: BIS, IDBI Gilts Limited

Figure 5: Single-name non-sovereign CDS outstanding: Rating wise



Source: BIS, IDBI Gilts Limited

Summarising the developments

The overall summary is that CDS market has not only expanded over the years but has become more riskier as well. The preference has been more for multi-name instruments, longer duration and below investment grade companies. All this indicates that CDS market has become riskier over the years. There has been a lot of empirical research on the subject and most research leans towards the fact that credit derivatives help firms and financial entities manage risks. One very important reason for this is benign economic conditions in the world economy. The volatility in financial markets and world economy has been very low and the era was even termed as "Great Moderation". There has been empirical work looking at various worse case scenarios but we have seen it has never been enough. The markets always have a tendency to spring more surprises than one can imagine.

The policymakers have been aware of the rising trend but in absence of any event triggering the risks, it has been largely ignored. There were a few concerns like when it was difficult to settle CDS in default of Delphi Corporation. But still this was a one-off event. The real test for the strength of this market was in wake of a larger crisis. This was raised by Timothy Geithner (New York Fed President in his speech (May 16, 2006):

"Let me conclude by reiterating the fundamental view that the wave of innovation underway in credit derivatives offers substantial benefits to both the efficiency and stability of our financial system. The extent of these benefits will depend, in part, on the degree to which market participants can keep up with the pace of change in the market through continued investment in both risk management and in the processing infrastructure. We have been through a period of relatively favorable financial conditions, and the prospect for future stability will depend in part on the degree of care and conservatism market participants bring today to judgments about opportunity and risk management."

Post sub-prime crisis

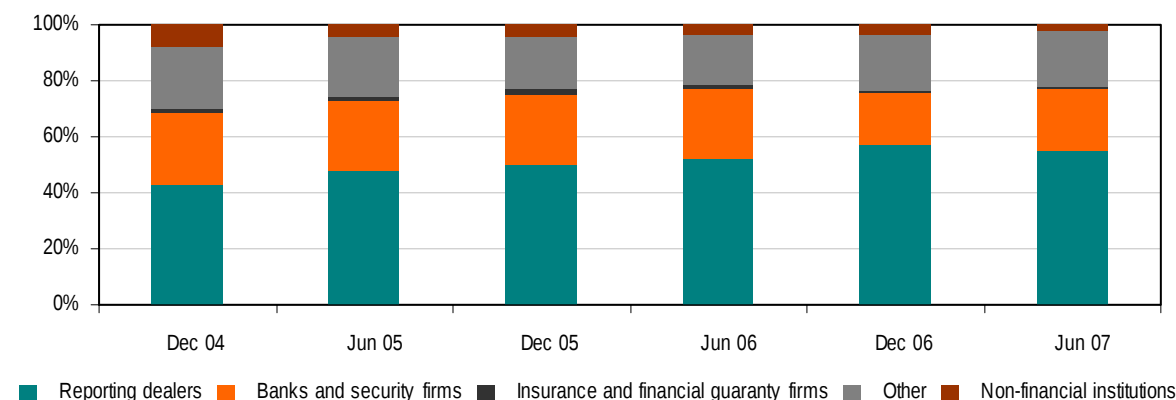
The sub-prime crisis has been a learning curve for policymakers on many matters. The main lesson is one has to keep vigil on smallest of the developments in financial markets.

The crisis has affected most banks and it has required substantial liquidity infusions from Central banks and capital cushions from Sovereign Wealth Funds to help the financial firms tide the crisis. What has however been a surprise is that the crisis has not resulted into a crisis in the credit derivative market.

The sub-prime crisis has now become a classic credit crisis from the initial housing market crisis and liquidity crisis. The Banks had taken up much higher exposures to the sub-prime mortgage markets via sponsored various special purpose entities. The special purpose entities had in turn taken up highly leveraged exposures to these mortgages. These developments dried the liquidity in the markets and increased uncertainty led even good quality assets to become illiquid resulting in more losses. This has been pretty well documented by now. Now, as this has become a credit crisis why hasn't there been any news regarding credit derivative markets?

The counterparties in the credit derivative market are mostly financial firms (Figure 6). In Dec 04 the non-financial institutions constituted around 8% of the CDS notional amounts (both bought and sold) but the figure has declined to just 2% in Jun 07. Hence, this market is largely dominated by financial firms that are either buyers or sellers of the various CDS instruments.

Figure 6: CDS Market - By counterparty (Notional Amount)



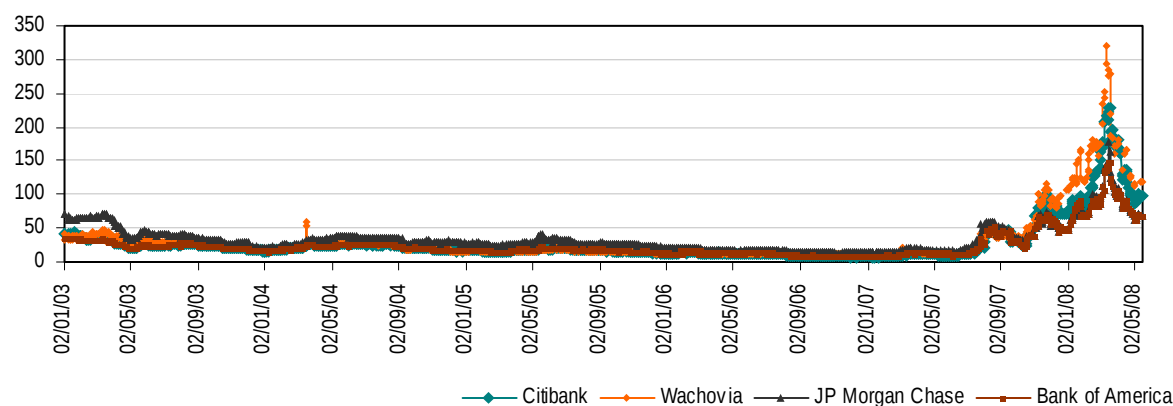
Source: BIS, IDBI Gilts Limited

This leads to various problems:

- In a credit crisis one should see credit events triggering against large number of financial firms particularly Banks. This will lead to buyers of the CDS asking the sellers to honor their commitments.
- As the sellers of the CDS are these financial entities themselves it will be difficult to pay the buyers of the CDS which are again financial entities.
- As these CDS are traded amidst financial entities, the buyer might be in a position where he has difficulty finding who holds the CDS as of date. The entity holding the CDS might be in a much worse position than the original seller and might not be able to pay the insurance.

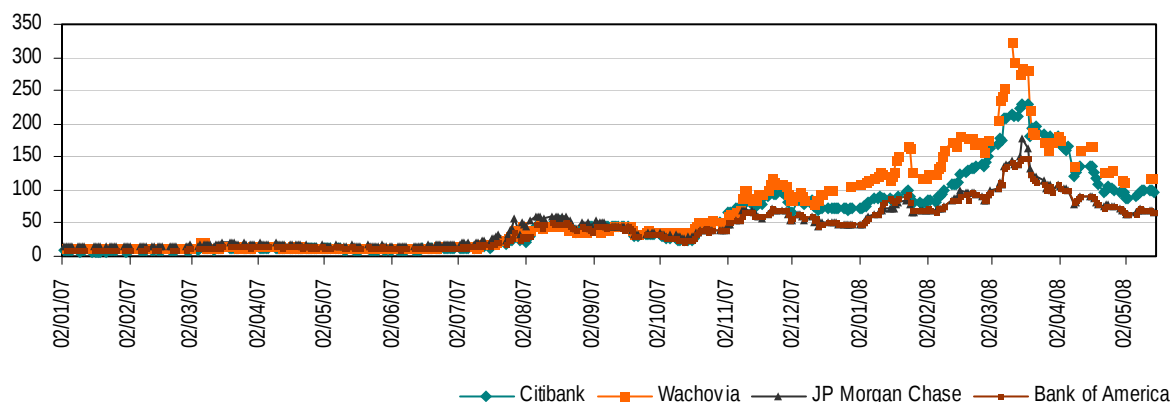
On analyzing the CDS spread movements of select US Banks (Figure 7) one can clearly see that spreads have widened during the subprime crisis. The CDS spreads have increased for all the select financial firms. It can also be seen that the spreads were really low during most of the period post 2003 and volatility is also low. This reinstates the statements made above that in general economies were calm and probability of default was low. This implies that writing or selling CDS was a good profitable opportunity. On looking at the CDS spreads post 2007 (Figure 8), one can also see that spreads have become highly volatile as market outlook has been uncertain. The spreads have declined lately indicating Fed intervention has helped lower the probability of defaulting of these banks.

Figure 7: CDS spreads of select US Banks



Source: Bloomberg, IDBI Gilts Limited

Figure 8: CDS spreads of select US Banks (post 2007)



Source: Bloomberg, IDBI Gilts Limited

So far the analysis has been of a financial entity defaulting as it looks like the most likely case. If recession deepens, the possibility of corporate default cannot be ruled out. But this analysis can also be extended to corporate default. If the corporate defaults, similar rush is going to be amidst financial entities that have brought CDS to protect itself from defaulting of that particular corporate. As it was seen in the Delphi case, 100% protection via the CDS route doesn't imply that all payments will indeed be done. In the Delphi case, an auction was instituted to settle the dues with CDS buyers just getting a fraction of the protection. Since then authorities have made changes to settle CDS more effectively which will be tested in wake of crisis. Another related problem is that the CDS outstanding are much higher than total corporate assets outstanding like bonds and loans leading to difficulty in the final settlement. As per a IMF report, corporate bonds and loans in 2005 stood at around USD 11 trillion where as outstanding credit derivatives (out of which majority are CDS) were at almost USD 17.5 trillion. So, if the corporate defaults, the banks are not able to recover the loans given and not able to honor the CDS. It leads to a chain of events, which is extremely complex to unravel.

Going forward

The Fed and other Central banks have helped in easing what could have been a big crisis. A crisis in the credit derivative markets and CDS in particular could have derailed the US economy and make recoupling worse. The credit derivative market has not been limited to the US shores and an IMF report says has expanded more in European markets as cost of securitization and risk transfer is higher in Europe. It will all depend on how the crisis fares in future. The experts are divided on the future of the crisis - some believing it is over and others believing it worse is yet to come. If latter prevails, CDS market could worsen the events further and could lead to a vicious circle. Meanwhile, the authorities should make every effort to understand the various positions taken by financial entities in the credit derivative market. It is prudent to conclude with Timothy Geithener's words where he addresses the risk management challenges of the US economy (28 February 2006):

Credit derivatives, where the gaps in the infrastructure and risk management systems are most conspicuous, are less than 10 percent, and perhaps less than 5 percent, of the total OTC derivatives universe, but are growing much more rapidly. Large notional values are written on a much smaller base of underlying debt issuance. The same names show up in multiple types of positions-singles-name, index and structured products such as CDOs. These create the potential for squeezes in cash markets and greater volatility across instruments in the event of a default, magnifying the risk of adverse market dynamics.

IDBI Gilts Limited (A wholly owned subsidiary of IDBI Ltd.)
1st Floor, Janmabhoomi Bhavan, Janmabhoomi Marg, Fort, Mumbai – 400 001.
Phone: (91-22) 6617 7900. Fax: (91-22) 66177999

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