SYMPOSIUM ON BUILDING THE
FINANCIAL SYSTEM OF THE 21ST CENTURY:
AN AGENDA FOR INDIA AND THE UNITED STATES

The Trident Hotel, Mumbai • JANUARY 29-31, 2016
C-56, G Block, Bandra Kurla Complex, Mumbai, Maharashtra 400051

AGENDA

Friday, January 29

6:15-6:20 p.m. **INTRODUCTORY REMARKS** Golconda Ballroom

- Mr. S. K. Roy, Chairman LIC & Chairman, Governing Board, NIA

6:20-7:00p.m. **KEYNOTE ADDRESS** Golconda Ballroom

- The Honorable Union Minister of State for Finance, Mr. Jayant Sinha

7:00-7:45 p.m. **KEYNOTE ADDRESS** Golconda Ballroom

- Mr. Hal S. Scott, Nomura Professor of International Financial Systems, and Director, Program on International Financial Systems, Harvard Law School

7:50-8:30 p.m. **RECEPTION** Golconda Ballroom

8:30-10:00 p.m. **DINNER** Golconda Ballroom

Saturday, January 30

8:00- 9:00 a.m. **BREAKFAST** Golconda Ballroom

9:00-9:40 a.m. **PANEL SESSION** Golconda Ballroom

Topic 1: Financing Infrastructure and the Role of Insurance and Pension Funds
Co-panelists will introduce and discuss issues relevant to the topic. Each panelist will make a 10 minute presentation, followed by a brief plenary discussion, before all of the participants are broken into small, working groups.

- Dr. Ila Patnaik, Professor, National Institute of Public Finance and Policy, New Delhi
- Mr. Akash Deep, Professor, Harvard Kennedy School of Government

9:45-11:00 a.m. **SMALL GROUP SESSIONS** 2nd Floor

Participants are divided into working groups for facilitated discussions with the views raised by the panelists serving as a foundation for the discussions. A facilitator encourages conversations which occur under Chatham House Rules, and a rapporteur will record the major themes (sans attribution) for use during the sessions on the final day.

GROUP	ROOM	FACILITATOR	RAPPORTEUR
1	Cullinan	Lionel C. Johnson	James Shipton
2	Orloff	Bob Dannhauser	Bill Grimes
3	Room III	Nick Collier	Melissa Frakman
4	Room IV	Thierry Porte	Tom Miller

11:00-11:15 a.m. **REFRESHMENT BREAK**

11:15-12:00 p.m. **KEYNOTE ADDRESS** Golconda Ballroom

- Mr. G. N. Bajpai, Ex-Chairman, LIC / Ex-Chairman, SEBI / Chairman, Intuit Consulting Pvt. Ltd.

12:00-12:50 p.m. **LUNCHEON** Golconda Ballroom

12:55-1:40 p.m. **PANEL SESSION** Golconda Ballroom

Topic 2: The Development of INR Bond Markets Inside and Outside of India

Panelists will introduce and discuss issues relevant to the topic. Each panelist will make a 10 minute presentation, followed by a brief plenary discussion, before all of the participants are broken into small, working groups.

- Ms. Ashu Suyash, Managing Director and CEO, Crisil Limited
- Ms. Huzan Mistry, Chief Business Development , Currency & Debt, National Stock Exchange of India
- Mr. William Foster, Senior Advisor for International Financial Markets, U.S. Department of Treasury

1:45-3:00 p.m. **SMALL GROUP SESSIONS** 2nd Floor

Participants are divided into working groups for facilitated discussions with the views raised by the panelists serving as a foundation for the discussions. A facilitator encourages conversations which occur under Chatham House Rules, and a rapporteur will record the major themes (sans attribution) for use during the sessions on the final day.

Group	Room	Facilitator	Rapporteur
1	Cullinan	Brian Kelly	James Shipton
2	Orloff	Dave Loevinger	Bill Grimes
3	Room III	Satoru Murase	Melissa Frakman
4	Room IV	Catherine Simmons	Tom Miller

3:00-4:00 p.m. **PANEL SESSION- PLENARY** Golconda Ballroom

Building Profundity and Resilience in India's Derivatives Market: Effective tool of risk management, liquidity and fine price discovery

A moderator will facilitate a discussion between a panel of experts. Each will be encouraged to make introductory remarks before turning to a moderated discussion with audience questions and commentary.

- Mr. William Knottenbelt, Senior Managing Director, International, CME Group
- Mr. N. S. Venkatesh, Executive Director, IDBI Bank Ltd & Chairman FIMMDA

Moderator: Ms. Jinu Koola, Financial Attaché to India, U.S. Department of the Treasury (*confirmation pending*)

4:00-4:45 p.m. **KEYNOTE ADDRESS** *(via video conference)* Golconda Ballroom

- The Honorable Union Finance Minister, Mr. Arun Jaitley

4:45-6:30 p.m. **HIGH TEA & NETWORKING** Golconda Ballroom

Sunday, January 31

8:00-9:00 a.m. **B R E A K F A S T** Golconda Ballroom

9:00-10:00 a.m. **P R E S E N T A T I O N & D I S C U S S I O N** Golconda Ballroom

Topic 1: Financing Infrastructure and the Role of Insurance and Pension Funds

Co-chairs will moderate a plenary discussion that uses a synthesis of the small group sessions from the previous day as the basis for session.

- Mr. Andrew Cross, Deputy Treasurer , Asia & Pacific, International Finance Corporation
- Mr. Shameek Ray, Head-Debt Capital Markets, ICICI Securities Primary Dealership Ltd

10:00-10:45 a.m. **K E Y N O T E A D D R E S S** Golconda Ballroom

- Mr. T S Vijayan, Chairman, Insurance Regulatory and Development Authority of India (IRDAI)

10:45-11:00 a.m. **R E F R E S H M E N T B R E A K**

11:00-12:00 a.m. **P R E S E N T A T I O N & D I S C U S S I O N** Golconda Ballroom

Topic 2: The development of INR Bond Markets inside and outside of India

Co-chairs will moderate a plenary discussion that uses a synthesis of the small group sessions from the previous day as the basis for session.

- Mr. Mark Austen, CEO, Asia Securities Industry & Financial Markets Association
- Mr. Anjan Ghosh, Executive Vice President and Chief Rating Officer, ICRA Limited

12:00-1:00 p.m **C L O S I N G & L U N C H E O N** Golconda Ballroom

- Mr. Sushobhan Sarker, Director, NIA

2016 India-U.S. Symposium on Building the Financial System of the 21st Century

The Inaugural India-U.S. Symposium on Building the Financial System of the 21st Century, jointly organized by the Harvard Law School Program on International Financial Systems and the National Insurance Academy of India, was held January 29 – 31, 2016 at the Trident Hotel in Mumbai. Topics included infrastructure financing, promotion of INR bond markets, and the development of India's derivatives markets.

Session 1: Financing Infrastructure and the Role of Insurance and Pension Funds

In Session 1, participants discussed how India's financial system could support its vast need for infrastructure investment. Discussions addressed characteristics of Indian infrastructure projects, governance issues, and potential for various financing mechanisms to provide the necessary funding. Participants paid considerable attention to what they saw as a mismatch between many infrastructure projects and the interests of potential investors.

Infrastructure as an Asset Class

Participants discussed at some length characteristics of infrastructural investment that made it distinct as an asset class. This included its long-lived nature, the long and uncertain period before which infrastructure projects would start producing income, public ownership of the asset, and the politically-contingent revenue streams. While in some respects, infrastructure would hold parallels with real estate, and thus be attractive to some of the same types of long-term investors, participants agreed that politics and ownership meant for considerable differences. In particular, insurance firms and pension funds, with their strong preference for predictable performance of long-term assets, were seen as reluctant to step into infrastructure financing, even though in principle they would be the ideal investors.

Participants agreed that investors' hesitance about funding infrastructure was retarding infrastructure development in India. Given the enormous need for new and improved infrastructure, they worried that lack of finance would stymie the country's ability to reach its economic potential. However, many participants expressed the view that the biggest obstacle to expansion of infrastructure financing was the quality of the underlying assets, rather than particular funding mechanisms. Thus, there was considerable discussion of the ways in which infrastructure projects often fell short as investment opportunities and about ways that financing opportunities could be structured to address those shortcomings.

One common observation by participants was that there was a significant difference in the attractiveness of financing projects that were in the construction (greenfield) phase compared to those that had phased into the operational (brownfield) phase. A number of participants argued that the construction phase of infrastructure projects was typically much more risky than the operational phase, as a result of frequent delays and cost overruns. In contrast, many infrastructure projects, particularly roads, were seen to have relatively predictable income streams once they became operational. At the operational stage, it was argued, infrastructure bonds were a plausible means of finance. However, much of the existing project financing in India integrated both construction phase and operational phase; not surprisingly, the creditors (mostly banks) that had already endured losses in the construction phase were not enthusiastic about spinning off payments streams in the operational phase to institutional investors that had not taken on that risk.

In order to improve confidence among potential investors, participants pointed to the need to create a track record of success. While many participants cited examples of projects that met their criteria for success, they agreed that the financial performance of many infrastructure projects to date had often been disappointing. Indeed, several cited figures showing that around a quarter of infrastructure projects were facing financial stress, which was in turn harming the lenders that had funded them. Thus, a major concern among many participants was the high level of uncertainty that infrastructure investment in India still entailed.

Participants noted several challenges facing infrastructure projects in India. A major one was land acquisition. Despite the 2013 revision in the federal law governing land acquisition, participants described the process of acquiring land even for public infrastructure as being lengthy, expensive, and uncertain. The difficulty of acquiring all of the land needed for a given project was seen as a major barrier in the construction phase of many projects, particularly those that required a great deal of land, such as road projects.

A second challenge that was noted by many participants was what they saw as excessive regulation and the need to obtain many approvals in order to design, build, and operate infrastructure. The effects of overregulation were seen to be exacerbated by several factors, including bureaucratic norms, lack of coordination between levels of government and from state to state, and in some cases political patronage and corruption. These factors were seen by participants as contributing to delays and uncertainty, particularly in the design and construction phases of projects, which could sometimes drag on for years beyond original expectations.

A number of participants also pointed to variation among infrastructure sectors. For example, while roads faced significant challenges in terms of land acquisition, construction was seen as relatively straightforward, and operations even more so. Thus, investors would find brownfield investment in them an attractive fixed-income investment. In contrast, power plants—particularly fossil fuel-fired power plants—were seen as especially challenging, even at the operational phase. This was due not only to regulations and approvals associated with fuel and emissions, significant as those were. As several participants noted, power utilities faced administered prices in terms of both inputs and outputs, putting many ventures on precarious financial footing. Moreover, the need for ongoing and often costly maintenance meant that power generation projects would sometimes be unable to pay their creditors consistently. (Unlike fossil fuel-fired power plants, several participants argued that renewable power projects were a safer bet once they had reached the operational phase, as they did not require either fuel inputs or as constant maintenance. Moreover, government support at the construction phase also improved the attractiveness of renewable power projects for investors and lenders.)

Governance Challenges

Governance was central to the challenges faced by infrastructure investment in India. Participants noted the fragmented nature of government and regulation. Federalism created one set of complications, as states did not always coordinate well with each other or with the federal or municipal governments. But participants also pointed to a functionally segmented regulatory structure that complicated coordination of rules and approvals across agencies even at a given level of government. They called for better coordination between agencies and jurisdictions to reduce unnecessary barriers to completing projects.

As noted, a number of participants also expressed concern about what they saw as overregulation in the form of the "license and permit raj," which required bureaucratic permission for many business operations and maintained a hostility to liberalization. They argued that reduction of regulation would reduce bottlenecks and the potential for corruption to slow down a project or to raise its costs. The problem of excessive approvals was seen by some participants to be compounded by the multiplicity of other government interventions, including industrial promotion efforts and subsidized lending programs. Even when meant to support industry or infrastructure, such programs also entailed bureaucratic or political procedures that could add to the time and uncertainty associated with a given project. Moreover, inability to obtain financial support through such programs could prevent an infrastructure project from going forward indefinitely.

Beyond these structural factors, participants noted several other factors that affected investors' expectations about the attractiveness of infrastructure projects. In particular, they expressed concern about a lack of consistency of policies. For example, a number of participants stated that they were unable to predict how future tax policies might affect the viability of long-lived assets. Several participants argued more generally that changes of administration were often associated with large-scale changes in policies—including tax, regulation, administered prices, and public spending—and personnel that could further delay projects, raise their costs, or reduce their revenues.

Funding Infrastructure

Turning to the issue of how to finance infrastructure, participants addressed several questions. A fundamental one was where sufficient funds could be found to support India's infrastructure needs. While a number of participants argued that foreign investment would be vital due to insufficiency of domestic savings, questions were raised about the country's ability to absorb large amounts of foreign capital. Several participants noted that capital inflows would be limited by India's ability to carry a current account deficit; assuming a rule of thumb that the current account should not exceed 2.5% of GDP, they posited that net capital inflows should also not exceed that amount. Others disputed that assessment, arguing that India could accommodate higher capital inflows if the money were put to good use. They pointed out, for example, that China had run large current account surpluses for years while also absorbing significant foreign direct investment. Thus, they argued that ensuring that foreign funds would be put to productive uses was more important to sustainability than limiting inflows. Several also emphasized that most of India's borrowing from foreigners was in INR, so that the economy did not face the kind of currency mismatch that had helped drive the Asian Financial Crisis and other currency crises. Capital controls and the relatively low percentage of foreign investment in Indian equities would also tend to reduce the likelihood of rapid outflows of hot money.

Whether domestic or foreign, most participants agreed on the necessity of developing a profit-minded institutional investor base. They noted that most long-term lending, whether to infrastructure or other projects, had traditionally come from banks. But they saw this as unsustainable for several reasons. One was the classic problem of maturity mismatch: since banks tended to borrow short in the form of deposits, it was potentially dangerous to lend long in the form of direct loans or illiquid bonds. Moreover, Indian banks were holding large amounts of non-performing assets (NPAs) including ones from poorly-performing infrastructure projects, and participants agreed that they needed to shore up their balance sheets and reduce risk. Finally, there were concerns about banks' ability to gauge and manage risk in long-term investments such as infrastructure. The last point was somewhat debated, as some participants argued that banks might be better able to manage risk for long-term loans because they might have access to information that was not available to market participants.

The central role of banks was also seen by some participants to have unfortunate effects on market-based finance. Prevalence of bank lending and of buy-and-hold strategies for bonds made for mispricing of risk. This effect was exacerbated by state ownership, regulations that required banks to provide funding for various public purposes, and the effects of relationship banking (especially between state-owned financial institutions and quasi-governmentals, public sector utilities, etc.). As a result, many participants argued that risk was underpriced in infrastructure development. Given the small spread between infrastructure investment and federal government debt (GSEC) as well as the attractive yields on GSECs, few private investors—whether domestic or foreign—would be interested in investing in it.

While Session 2 delved into the general challenges for institutional investors as well as financial market development, in Session 1 participants considered the more specific question of whether there were methods that could induce institutional investors to lend to or invest in infrastructure. Much of the discussion on this question centered around various forms of credit enhancement.

First, a number of participants argued that it would be necessary to separate the construction and operational phases of infrastructure financing. Operational phase funding would be relatively easy to come by and would not require investors to face very high risks and potential costs. However, some countered that banks and other potential lenders would be loath to lend at the construction phase if they could not also lock in the implementation phase. However, if the government or another guarantee agency (e.g., the International Finance Corporation) would take on the larger and more uncertain risk of the construction phase from the beginning, it was argued, private sector investors would be willing to invest in infrastructure bonds and start creating real market pricing. In this regard, some participants lauded the newly-established (National Investment and Infrastructure Fund NIIF) and Infrastructure Debt Funds. Others suggested that this function could be fulfilled by private sector actors. There were also questions raised as to whether government funds would enforce discipline on infrastructure projects if they offered loan guarantees or took an equity tranche, or would be more likely to sacrifice discipline in response to political demands.

Participants also discussed a variety of other concerns regarding financing of infrastructure that were more generally relevant to financial market development in India. These included bankruptcy law and enforcement, tax treatment of securities, and the limited availability of hedging instruments. They are addressed in the summaries of Sessions 2 and 3, below.

Session 2: The Development of INR Bond Markets Inside & Outside of India

In Session 2, participants discussed the progress and prospects for development of INR bond markets. While participants saw considerable potential for bond markets to expand and to improve credit allocation, they noted several factors that were restraining their growth. Discussion revolved around four topics: market infrastructure, liquidity, institutional investor base, and the role of foreign investors.

Regulation and Market Infrastructure

Participants discussed several aspects of market infrastructure that they regarded as essential to improving the quality and attractiveness of India's bond markets. They noted that credit provision had been dominated by banks, with bond markets being relegated to a subordinate role, but expressed the hope that the environment could be improved. Indeed, with banks stressed by NPAs, concentration limits, and the need to maintain capital adequacy, many considered growth of bond markets as critical to further credit expansion and to overall economic growth. Thus, they saw improvements in regulation and market infrastructure as urgent priorities.

A major concern for many potential investors in bond markets was creditor rights. They did not feel secure that the legal system would support their claims in the event of bankruptcy or other creditor disputes. Many participants expressed concern that if a company were to fail, bondholders could find themselves in limbo for years, without certainty about what their claim would be. To some extent, the issue was the lack of clarity and multilayered character of bankruptcy laws. But most participants saw the main issue as being not the bankruptcy code itself, but rather the process by which bankruptcies were handled. Courts were seen as slow and not always consistent, leading to cases in which proceedings could drag on for years and leaving few assets to divide among creditors. Some participants stated that the legal system handled failures of infrastructure projects even less effectively.

Some participants argued that pending reforms would go a long way toward clarifying the rights of creditors in a bankruptcy, and ensuring that seniority and priorities would be properly observed. It would also create a unified framework for defining and disposing of bankruptcy and insolvencies. Another particularly attractive feature of the law under consideration was the provision that allowed for separate insolvency courts, which could speed up the adjudication process and reduce uncertainty. Participants agreed that the proposed law could be a significant step forward, and expressed a desire for it to be passed soon.

Fragmentation of regulation and financial infrastructure was seen by many participants as another major weakness in the development of India's bond markets. Participants noted that financial market regulation was divided along both sectoral lines and between levels of government. They saw the overlapping and sometimes conflicting rules and jurisdictions as contributing to an extremely complex—and therefore costly—regulatory environment for issuers, investors, and intermediaries. However, many participants found some comfort in the current government's efforts to address regulatory fragmentation in the form of the proposed bankruptcy and unified financial code legislation.

Fragmentation was also identified in terms of market infrastructure. Clearing and settlement were fragmented along product and jurisdictional lines. Moreover, despite some movement toward exchange-based trading, many products were still traded over the counter in disconnected markets. A number of participants argued that these patterns limited liquidity and price discovery in bond and derivative markets, thus reducing their attractiveness to investors.

Liquidity and Investor Base

Lack of liquidity was seen as a major problem by many participants. Low liquidity increased risk to investors, who could not be assured of being able to exit their positions quickly and without affecting pricing. Participants also identified low liquidity in the bond markets as an important factor in generating what they saw as excessive volatility. In terms of price discovery, participants expressed concern that there was not a clear and continuous yield curve even in government securities, which further complicated the task of pricing corporate bonds.

Participants identified several factors leading to low bond market liquidity. One was a simple question of supply. Outstanding government and corporate bonds (mostly issued by financial institutions, and virtually all AA or higher) remained at a comparatively low level. Government bonds in particular were seen to be in short supply, contributing to the yield curve problem noted above. The lack of supply in secondary markets was exacerbated by the tendency of bond investors to employ buy-and-hold strategies; in the government bond markets, scarcity of supply further increased the incentive to hold them to maturity. As a result, several participants observed that foreign investors often were incapable of obtaining GSECs, which complicated their risk management strategies.

Participants also noted that there was a limited institutional investor base in Indian markets. The insurance sector, though growing, remained a relatively small investor in corporate bonds, as did pension funds. Moreover, both faced heavy prudential regulation and monitoring by their supervisors to prevent damage to policyholders. This limited the issuance of bonds rated below AA. Not only was this seen as a challenge for foreign investors and mutual funds, it also reduced access to credit for those companies that needed it most. Mutual funds remained underutilized. Foreign investors also found their investment options limited, given the absence of high-yield debt markets, short supply of GSECs, and paucity of derivative instruments.. This left banks—particularly the large state-owned banks—as the major players in India's bond markets. However, banks tended to treat bonds as loans, and to hold them to maturity. With little incentive to act as market makers, India's banks were not contributing to liquidity.

Many participants encouraged policymakers to address these issues by reducing restrictions on insurers, pension funds, and foreign investors. At the same time, they saw state-owned banks as crowding out the private sector from high-quality bonds, particularly GSECs.

Overall, some participants argued that there needed to be a fundamental reorientation of regulators and state-owned enterprises away from the long-standing mindset of seeking to control the economy and private sector. A number of participants expressed optimism that the current federal administration was seeking to do exactly that, although inevitably some investors and private-sector financial institutions would consider the pace too slow. Still, no one expected that the endpoint of current efforts toward liberalization would be a *laissez-faire* system, as long-standing traditions of government leadership remained strong throughout government and society.

Foreign Investors

A number of participants focused on the potential role of foreign investors in helping to develop India's bond markets. In addition to bringing needed capital to India's growing economy, they argued that foreign investors could add to liquidity, price discovery, and market deepening. Moreover, unlike major Indian institutional investors such as insurance companies and pension funds, whose investment strategies were constrained by prudential regulations, foreign investors could be in a position to invest in a broader range of securities. This could contribute to opening up financing opportunities to a broader range of issuers, as opposed to the AA and AAA-rated corporations that dominated Indian bond markets.

However, foreign investors remained wary of Indian bond markets for many of the reasons already noted. Concerns over bankruptcy and dispute resolution discouraged them from being interested in a market for high-yield bonds—or even A-rated bonds—weakening their possible contribution to expanding credit availability beyond blue-chips. Regulatory fragmentation increased costs and uncertainty. And lack of hedging instruments (as discussed in Session 3) reduced the scope for risk management. On top of those generic challenges of Indian financial markets, foreign investors also faced a range of capital controls. Moreover, the challenge of lack of supply and liquidity of bonds (particularly in GSECs) was exacerbated by investment limits on government bonds. These factors constituted considerable constraints on foreign investment in INR bond markets. After all, participants observed that, unlike many domestic institutional investors, foreign investors had a choice of whether to invest in Indian bond markets or turn their attention elsewhere.

There was also considerable discussion of capital controls in the context of bond market development. Many participants saw capital controls as an essential tool of macroprudential regulation. Citing the example of the Asian Financial Crisis, they argued that hot money needed to be controlled in order to prevent inflow surges and capital flight. Others countered that bond investment tended to be more long-term-oriented than portfolio investment in equity markets, and questioned whether capital controls were really protecting the country from a currency crisis. Rather, they argued, India was foregoing the opportunity to bring in much-needed funding for infrastructure and capital investment.

On a related issue, participants discussed the effects of the offshore "masala bond" markets. They had contrasting views of the benefits of the offshore market. Some focused on the potential of the offshore markets to contribute to onshore market development over the longer term. They saw the offshore bond market as an interim step on the way to debt market development, as it offered foreign investors less onerous regulatory burden and provided the opportunity for Indian issuers to learn about how global investors would rate their risk and price their debt. Thus, it could provide a learning opportunity for both issuers and investors, but at a relatively low cost and without exposing the domestic economy and financial markets to excessive risk.

Others were more skeptical of the benefits of separate onshore and offshore markets. They noted that separating pools of capital could lead to different pricing, with offshore markets being less liquid but more volatile and seasonal than onshore markets. Also, although offshore liberalization could certainly be a stepping stone on the way to greater onshore liberalization and market development, as had been the case with China, it could also delay such development. The separation of markets also raised the perennial question of sequencing, and perhaps exacerbated it. Overall, several concluded, masala bonds would not be a miracle cure for the weakness of onshore Indian bond markets.

Session 3: Building Profundity of Resilience in India's Derivatives Market

In Session 3, participants discussed the development of India's derivatives markets. While recognizing the potential benefits of robust derivatives markets, including risk management and price discovery, many participants remained wary, noting their reputation as "financial weapons of mass destruction." Discussions therefore addressed how India should balance the benefits and risks in order to build derivatives markets that would aid credit allocation and support the economy.

Development of Indian Derivatives Markets

Despite a long history of commodities futures in India, their use diminished in the post-war period, and in 1969 futures in many commodities were banned. Following gradual relegitimization and reintroduction of commodity futures in the 1980s and 1990s, it was only in 2002-05 that broader categories of derivatives, including equity derivatives, were launched. Since then, India had grown quickly to be one of the top-ten derivative markets in the world, with a range of products including forwards, futures, options, and swaps.

Still, participants evaluated Indian derivative markets as relatively underdeveloped. One reason was the weakness of markets in the underlying products. Given the limited size and liquidity of corporate bond markets, there were clear limits to the near-term potential to develop bond futures or interest rate swaps. Capital controls also prevented the development of onshore currency futures and swaps. The best developed currency derivatives market was offshore, in non-deliverable forward contracts, but a number of participants worried that the bifurcation of the market would retard its development. Even in terms of commodities derivatives, which were the best established products, challenges in warehousing and delivery of commodities had retarded more widespread use.

Participants also spoke about the limited base of players in the derivatives markets. Many were concerned that the lack of market participants was reducing liquidity and attractiveness of potentially useful hedging products. For example, RBI regulations prevented banks from trading derivatives on exchanges. Some participants called for easing entry barriers for end-users and financial institutions engaged in hedging, but raised concerns about the possibility of having markets be driven by speculators. Others countered that there was not a useful distinction to be made between hedging and speculation, and that it was in any event essential to bring "speculators" into the market in order to ensure sufficient counterparties for end-users and to improve price formation.

Overall, despite the rapid growth and growing sophistication of Indian derivative markets, they suffered from many of the same weaknesses as other aspects of the financial system. Participants identified market and regulatory fragmentation, overregulation, the dominance of state-owned banks, underdeveloped bond markets, capital controls, and lack of institutional investors as roadblocks to further development.

Regulation and Infrastructure

Much of the discussion of derivatives markets revolved around the themes of regulation and infrastructure. Participants commented on areas of progress and remaining obstacles to building efficient and robust markets.

Starting with the G20 agenda, a number of participants commented on progress in trading and clearing. With regard to trading, it was noted that currency futures were often traded on exchanges, but other products were generally traded over the counter. It was suggested that the OTC nature of much of the derivatives market remained a challenge to trading liquidity and consistency of pricing, however. Also, for certain derivative products, such as those based on agricultural commodities, warehousing and storage issues led to geographically fragmented markets.

Participants also observed that central clearing had been strengthened considerably, with facilities offering settlement of many types of derivatives. While this was seen to help pool risks and reduce transaction costs, however, there were some concerns about concentration of risk. Also, some participants argued that there needed to be more clearinghouses to accommodate trading across the country.

With regard to regulation, several participants argued that the legal structure and potential market size were essentially in place, although there were some important gaps in the regulatory framework. In particular, participants spoke of a lack of regulatory depth and capacity. Regulatory bodies lacked sufficient numbers of trained personnel to accommodate larger or much more liberalized markets—indeed, some suggested that India had been very lucky not to have experienced large-scale misconduct so far.

As in Sessions 1 and 2, an additional concern about derivatives market regulation was its fragmented nature. Many participants agreed that consolidation of regulators would vastly improve matters by reducing complexity, increasing consistency, and concentrating expertise. While some advocated a UK-style unified financial regulator, others felt that having a single regulator at least for derivatives would have a big impact on the quality of regulations and markets. While a unified regulatory framework was achieved in 2012, several gaps remained—for example, futures markets regulation was seen as inadequate and commodities spot markets remained largely unregulated.

Because regulators were aware of their lack of capacity, they had focused on restrictions rather than promoting derivatives market expansion and innovation. This was seen to have contributed to high costs for participants in derivatives markets, which was compounded by exchange rate issues, tax law, and lack of clarity as to how to account for derivatives. As a result, it was argued, many issuers and users of derivatives had shifted their transactions away from exchanges, and even outside the country to Dubai or Singapore.

One potential solution to the challenge of excessive regulatory caution was to shift more of the effective monitoring and regulation of derivatives markets to self-regulatory organizations (SROs). Some participants pointed to the CME as an SRO that effectively regulated its markets in a technically adept way that allowed for significant innovation. While a number of participants considered SROs to be an attractive way of managing the challenges of regulatory capacity and the need for innovation, it was also noted that legislation to allow financial SROs had lagged. Some participants expressed the opinion that SEBI and RBI should make establishment of financial SROs a priority.

A number of participants also urged greater foreign participation as a means of improving India's derivatives markets. One example offered was that of China, which had allowed foreign investment in local brokers in order to introduce up-to-date technology and practices. These participants argued that foreign institutional investors could bring experience and provide liquidity, which in turn could lower spreads and reduce volatility. Some also suggested that foreign investment in clearinghouses and exchanges could be an effective means of introducing global standards and best practices to those critical functions. However, other participants urged caution in opening local derivatives markets. They worried that global players might take advantage of relatively inexperienced local financial institutions and end-users, leaving the Indian government or local market participants to pay for the clean-up. They preferred a slower approach, starting with separate offshore markets that could over time be integrated with onshore markets.

Finally, participants agreed on the need for investor education and financial literacy. While derivatives offered the promise of de-risking for banks and end-users and a means of hedging exposures, lack of knowledge could lead to serious troubles—indeed, in 2007 the RBI had to intervene when some SMEs got in trouble in currency futures. Moreover, it was argued that in some cases, derivatives were a means not of spreading or hedging risk, but of moving risk from more sophisticated to less sophisticated investors. The global financial crisis showed, moreover, that even among sophisticated investors, serious problems could arise as a result of excessive buildup of exposure, insufficient collateral, errors of risk management and valuation, interconnectedness and complexity, and lack of transparency. For all these reasons, they called for vigorous efforts to educate regulators and market players as a prerequisite to continued market expansion.

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