# K C Chakrabarty: Crisis preparedness in interconnected markets – prevention is better than cure

Keynote address by Dr K C Chakrabarty, Deputy Governor of the Reserve Bank of India, at the Programme on Crisis Preparedness in Interconnected Markets, jointly held by the Centre for Advanced Financial Research and Learning (CAFRAL) and the Toronto Centre, Canada, Hyderabad, 16 January 2012.

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Over the last five years, a word became very popular around the world. It dominated discourses amongst policy makers. It consumed innumerable hours of prime time on television. It spanned across meetings in offices, dinner table conversations, and informal chit chat between friends. The word is "crisis". It has become almost a norm for speeches and addresses such as this to start with a reference to the crisis. This address, and indeed the subject of this seminar, is no different. Yet the subject remains as topical today as it was five years back when the global financial crisis first came to light.

The subject matter of this seminar – "Crisis Management in Interconnected Markets" – is indeed very apt. As recent experiences have shown, financial crises occur, albeit infrequently. When they do, the potential costs to all stakeholders – the financial system, the real economy, the governments and, above all, to the common man – are enormous. The recent crises have also driven home the fact that the world, as we know it, is shrinking, as *we* speak. Globalization is here to stay and no country can be immune from developments elsewhere in the world. The increasing interconnectedness of global markets, economies and institutions have only added to the potential of a crisis anywhere in the world to trigger contagion in the rest of the world. All of this has only underscored the importance of anticipating such low probability and high impact events, taking pre-emptive action for preventing crises and responding effectively to such events, once they have set in – all key components of any effective framework for crisis management.

I am happy to note that the coverage of this Seminar extends to all aspects of such an effective crisis management framework. In particular, I am sure that the crisis simulation exercises which have been designed as part of the programme will provide participants to don different hats, experiment with different aspects of the crisis toolkit available with policy makers and appreciate the importance of coordination between different authorities in dealing with and attempting to minimize the systemic consequences of a crisis.

## Crises and their origin

Let me begin first by attempting to define a crisis. The word crisis originates from the Greek word "**krisis**" – which means "decisive moment". The Oxford dictionary defines a crisis as "*a time of intense difficulty or danger*" while the Cambridge dictionary describes it as "*a situation that has reached an extremely difficult or dangerous point; a time of great disagreement, uncertainty or suffering*". The term financial crisis, to be more specific, is broadly applied to a range of situations which encompass banking panics, disorderly functioning of markets, stock market collapses, bursting of asset price bubbles, currency collapses, sovereign defaults, amongst others.

Crises can happen anywhere, at any time, and often occur when they are least expected. History is peppered with crises that have varying origins – starting from the Tulips mania of

the 17th century to the dot com bubble of the 2000s and to the 2007 sub-prime crisis and the latest brouhaha over the sovereign debt crisis.

Origins of a crisis are hard to pinpoint. They can be caused by an act of nature – an earthquake or a tsunami (as seen recently in Japan), for instance, which, within a very short span of time, can cause untold damage to the real economy, which can, in turn, affect the financial sector and governments. The origins of crises can also play out over a relatively longer period of building up of systemic risks in the macrofinancial system, as the recent global financial crisis demonstrated, shattering belief in what are now believed to be "myths" – the "Great Moderation" and the "Goldilocks Economy".

As central bankers and policy makers tasked with fostering financial stability, we are interested in both kinds of crisis. Both have the potential to cause financial instability. Both will need swift action if the fallout has to be managed and the collateral damage contained. But what interests us most are the crises which are a result of build up of risks over time and which we can take policy initiatives to influence and, perhaps, avert.

Each crisis has certain unique features and there is a tendency to consider each crisis as different. This illusion is furthered by the fact that each crisis originates in different markets, through varied products and is propagated through different sets of economic agents. But there are always similar strands which cut across these superficial differences. In any case, the cornerstone of any crisis is the same – aptly summed by Mahatma Gandhi who stated, albeit in a different context, that "There is enough in the world for everybody's need, but not enough for anybody's *greed*". When "greed" takes over "need" and a group of "mischievous elements" are able to hold the "good" to ransom, the seeds of a crisis are sown.

Each crisis is preceded by excesses e.g. excessive credit growth or excessive asset price spirals, for example. Each crisis leaves behind its own set of lessons. And as the dust settles on each crisis, these lessons are forgotten by all concerned. As Hyman Minsky aptly remarked, "As a previous crisis recedes in time, it's quite natural … to believe that a new era has arrived. Cassandra-like warnings that nothing has changed, that there is a financial breaking point that will lead to a deep depression, are naturally ignored in these circumstances."

## Crisis and interconnectedness

This global financial crisis has brought to the fore the importance of interconnections – amongst the banking system, financial markets, and payment and settlement systems. It has underlined the fact that focussing on only one part of the financial system can obscure vulnerabilities that may prove very important from the perspective of systemic stability.

Concomitant with the rapid financial globalization of the past three decades – reflected in the manifold increase in the external assets and liabilities of nations as a share of GDP, has been an increase in the degree of financial interconnectedness. According to BIS data, consolidated banking assets have risen from US $13.2 trillion in 2002 to over US$ 30 trillion. Financial linkages between countries have been increasing exponentially, especially since the mid-1990s, through an intricate web of claims and obligations which link the balance sheets of sovereigns, financial institutions, and corporations. The trend has only been reinforced by rapid growth in cross border capital flows. In the last decade or so, the proliferation of sophisticated financial products has further heightened the complexity of these balance sheet connections.

A highly interconnected world tends to increase both the probability and the impact of crisis. The potential for systemic risks increase, for example, due to potential build-up of leverage and liquidity mismatches at the same time or due to exposures to common networks of intermediaries. This leaves the financial system vulnerable to adverse changes in the macrofinancial environment, on the one hand, while, on the other, pervasive interconnections can result in a rapid transmission of adverse shocks across the global financial system at an

amplified speed. The system dynamics of a set of networked markets and institutions can, thus, play a critical role in the amplification as well as the propagation mechanisms of shocks.

The potential of interconnected markets to render more severe the reach and impact of financial crisis through contagion has been demonstrated time and again. In the case of the Mexican crisis, a number of other Latin American countries felt pressures and were forced to intervene and/or raise interest rates. This, despite the fact that they had virtually no trade and investment links with Mexico. In East Asia, the crisis that began in Thailand spread throughout the region and reverberated as far away as South Africa, the Czech Republic and South America. The financial crisis of 2007–09 began in the sub-prime market in the US but had soon engulfed the global economy through real, trade and financial channels. The European debt crisis is proving to be no different. The crises in the 1990s originated in the emerging market economies but affected the advanced economies. In the 2000s, the crises originated in the developed economies but soon engulfed the developing world.

## Management of crises

The recent financial crisis has emphatically demonstrated the potential impact of a crisis. The sub-prime crisis, which originated in the financial sector, left deep scars on the real economy affecting growth in advanced and emerging nations alike. The buck, not surprisingly, stopped at the common man, especially in emerging markets such as ours, who was left to bear the brunt of any crisis. The potentially devastating impact of financial crises gave rise to a felt need to manage such crises, in particular, to put in place a framework to manage crisis, if and when they arise.

A key attribute of the crisis situation is that it calls for decision and action with a view to managing and containing the fallout of the consequences of the crisis. Management of financial crisis typically involves some basic phases, as discussed in the case of the 2007 global financial crisis in a Congressional Research Service Report.[1] Management of crisis would involve intervention to contain the contagion and restore confidence in the system in the first phase. The second phase would typically involve coping with the secondary effects of the crisis, for example, recession, if any, flight of capital, etc. The third phase of this process would involve affecting changes in the financial system to reduce risk and prevent future crises.

Simultaneously, the other key features of a crisis situation, viz., the unpredictability associated with the event, the speed with which it typically unfolds and the uncertain but dangerous outcomes that it can spawn, suggest that it is necessary to lay down a comprehensive contingency plan which envisages, in a given context, all possible crisis situations of varying gravity and possible decisions and actions as well as the framework under which decisions can be taken and implemented.

## A crisis management framework

Evolving events since August 2007 have put to test arrangements for crisis management and financial stability across the globe. Swift and proactive action was indeed taken once the contours of the crisis started becoming clearer. Once the crisis broke, central banks, governments and other regulators across the globe, including in India, managed to coordinate effectively to improvise solutions to the problems they faced. The experience, however, also revealed several shortcomings in the arrangements in place to manage the crisis, ahead of the crisis.

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[1] The Global Financial Crisis: Analysis and Policy Implications, Dick K. Nanto, Coordinator, October 2, 2009.

Drawing from the lessons learnt during this crisis, let me lay down some broad attributes, which I believe, are key to the design of an effective crisis management framework. Let me confess at the very outset, however, that this list is far from exhaustive. Crisis management remains an inexact science and I, along with all of you in central banks and other policy making institutions, continue to learn.

- First, there should be a clear assignment of responsibility for financial stability. Where this responsibility is shared amongst different agencies, roles and responsibilities need to be clearly delineated and the protocol for coordination during crisis clearly spelt out.
- Crisis management plans need to be flexible. The characteristics of a crisis can always differ from earlier crises, so authorities need to be prepared to apply flexibility rather than working from a set framework.
- Effective crisis management hinges on the authorities identifying and addressing problems at an early stage implying that the processes that enable early identification of emerging systemic risks need to be strengthened.
- The framework for crisis management needs to strike an appropriate balance between rules and judgment. While rules foster transparency and aid in avoiding moral hazard, use of judgment is critical as crises or crisis like situations differ from one another and warrant suitably "customised" solution.
- Availability of accurate, relevant and timely information is key for any effective framework for financial stability. It is even more critical for crisis management where time is of the very essence. A framework for managing crises must, therefore, take cognisance of need to ensure availability of timely and relevant information by addressing legal and other hurdles to information collection and obstacles to information-sharing among the agencies.
- A crisis management framework needs to be dynamic and responsive to the evolving macrofinancial environment and developments in the financial markets. Most importantly, the framework should be, and should continue to remain, commensurate to the degree of complexity in the financial system.
- The crisis management framework needs to take cognisance of global interdependence and integration. Certain crisis actions may need to be internationally coordinated and without adequate preparation and groundwork, efforts to manage crises by authorities in different countries could become a demonstration of the Prisoners' Dilemma where each country looks out for itself.
- Above all, a crisis management framework must enable nimble footed decision making. This will necessitate the creation of a framework which involves all the agencies that will be involved in the decision making process, with clearly defined responsibilities and mechanism for information exchange and coordination.
- Also critical for the management of crises, would be an effective strategy for communication. Measured transparency, especially during a crisis, can help prevent panic and also add to credibility of policy initiatives.
- Finally, the framework should include a continuous program of work on crisis preparation including ensuring that effective coordination and information-sharing arrangements are in place and that crisis management tools remain up-to-date and are tested to meet any potential risks to financial stability.

There are two further points I would like to make in respect of some of the tools which form a critical part on any crisis management framework. The first is the lender of last resort function of the central bank and the second relates to the recovery and resolution planning of financial institutions in distress.

The first important tool at the disposal of crisis management is the role of the central banker as a lender of last resort. The recent financial crisis, during which central banks in the advanced economies used tools through a series of conventional and unconventional measures underscored the importance of the lender of last resort function of the central bank for crisis management. Going forward, it would be important to clearly define principles for access to emergency liquidity assistance from the central bank. The principles will need to balance the imperatives of ensuing capacity to provide adequate liquidity support during the crisis while ensuring that perverse incentives for lax liquidity management are not built up in the banking system. The principles may also need to address issues relating to collateral standards, given the experiences of recent crises.

The spectre of "too big to fail" institutions raised its ugly head during the 2007 global financial crisis focusing attention on the lack of the necessary arrangements for orderly resolution of such institutions. A crisis management framework will need to be alive and open to the possibility of failure, if only to prevent the associated moral hazard problems. For the "no-failure" perception to be altered, robust arrangements, which allow orderly resolution and mitigate systemic consequences of such failures will need to be put in place, especially for the resolution of cross border financial firms. The Financial Stability Board has recently released the "Key Attributes of Effective Resolution Regimes" that would lay down the essential features and tools that national resolution regimes for financial institutions, including non-bank financial institutions, should have. For the large and complex financial institutions, ex ante resolution plans, or "living wills" are one solution being contemplated internationally in this regard. Recent initiatives towards introducing contingent capital instruments may also potentially play an important role in banks' recovery and resolution plans, going forward.

## Crisis prevention

While the subject of this seminar is Crisis Management, let me emphasize that the most preferable approach to fostering financial stability is crisis prevention.

A series of reforms to the regulatory architecture and plethora of reforms are underway globally which seek to reduce the probability of a crisis occurring. The Basel III reforms aim at increasing the resilience of banks through prescription of a higher quality, quantity and consistency and better risk coverage of capital. The set of reforms for Systemically Important Financial Institutions are aimed at reducing the probability of failure of these large and complex financial institutions and at putting in place a robust resolution framework so that the institutions can be winded down in an orderly manner, should they fail. Regulatory perimeter issues are being addressed by putting in place a regulatory framework for the shadow banking system. Another set of reforms are aimed at addressing issues in the OTC derivatives markets by ensuring that the transactions in these markets are reported, centrally cleared and, where possible, settled through a central counterparty. Compensation structures are being streamlined to ensure that compensation is aligned to the risks assumed. Financial market infrastructures are being strengthened and deposit insurance systems reformed to take cognisance of the lessons of the crisis. A macroprudential overlay to the entire regulatory framework is being proposed to address issues related to procyclicality and the cross sectional dimensions of systemic risks. Most importantly, organized frameworks for pursuit of financial stability and crisis management, which promote inter agency cooperation, are being put in place both nationally and internationally.

Notwithstanding the improvements in the regulatory framework, putting in place a robust system for the assessment of systemic risks which enables identification of emerging excesses and facilitates timely intervention to prevent such risks from materializing, is critical for an effective crisis prevention framework. In order words, putting in place a robust Early Warning System is a *sine quo non* for any effective crisis prevention framework.

Frameworks for systemic risk identification are taking place around the world as part of an overall framework for macroprudential framework even as there is a growing realization that systemic risks are complex and measuring them with precision may be challenging – exercise of judgment is hence critical. Notwithstanding the complexities, there is a need for the framework for systemic risk assessment to be comprehensive; to take cognizance of interconnectedness, risk concentrations and the channels for cross-sector and cross-border spillovers; to identify key risk drivers; and to conduct periodic stress tests to check the capacity of financial institutions to withstand severe shocks.

Central banks around the world are engaged in developing tools and techniques to accurately assess such risks to the financial system. In India too, upgrading technologies and adding to its existing toolkit for identifying and measuring systemic risks is a continuing endeavour.

Concomitantly with the setting up of an Early Warning System, an Early Action System also needs to be put in place. There is, thus, a need for greater emphasis on remedial measures e.g. through pre-resolution and supervisory intervention to ensure that identified risks are managed well before they reach their respective tipping points.

A number of countries are in the process of introducing a framework for such early intervention, especially in case of financial institutions. Denmark, for instance, proposed to introduce the "Diamond framework" from 2013. Under this framework, a set of five quantitative indicators relating to, inter alia, credit growth, lending to real estate, large exposures, funding ratio and liquidity coverage, have been defined and the supervisor will take remedial action in case the limits are breached by any financial institution. The Canadian framework consists of five stages viz., a "normal" stage, an "early warning" stage, a "Risk to financial viability or solvency" stage, a "Future financial stability in serious doubt" stage and a "Non-viability/insolvency imminent" stage. Each stage is identified by a set of conditions and a number of options for supervisory measures. In India, an early intervention system in the form of a Prompt Corrective Action based on three indicators – Capital to Risk weighted Assets, Non performing Advances and Return on Assets, has existed since 2002. Threshold values for each of the indicators have been defined along with associated structured and discretionary actions.

Interconnectedness as a potential source of crisis was recognized in India much before the onset of the crisis and, as a result, in March 2007, RBI limited a bank's Inter Bank Liabilities to twice its net worth. A higher IBL limit of 300 per cent of net worth is allowed for banks whose CRAR is 11.25 per cent. Further, crisis prevention has been an integral part of regulatory framework in India.

More recently, we set up the Financial Stability Unit (FSU) within the Reserve Bank to inter-alia carry out macroprudential surveillance. Since its formation in 2009, the FSU has published four Financial Stability Reports (FSRs) on a biannual basis. In the most recent report published in December 2011, we introduced the Financial Stability Indicator based on a combination of Financial Market Stability, Macroeconomic Stability and Banking Stability Indicators. We also introduced new tools for risk assessment such as the Systemic Risk Survey and the Systemic Liquidity indicator in addition to improving the coverage of the network model analysis introduced in the previous FSR.

Most people are aware of RBI's counter cyclical policies that won us accolades in our management of the crisis. However, we have also taken several measures to address systemic risk arising out of interconnectedness amongst financial institutions such as placing prudential limits on call borrowing and lending, limits on banks cross holdings of bank's ownership, limits on exposure to single and group borrowers, etc. The further use and development of a macro-prudential policy toolkit to manage systemic risk is actively being pursued within the Bank.

## Concluding remarks

Recent experiences have clearly demonstrated that resolving a financial crisis is complex and costly. This holds true regardless of what caused the crisis, and regardless of the solution. The best crisis management framework is one that prevents crises. Having said this, no financial system can be completely immune from episodes of financial instability from time to time and there will be a need to manage crisis. As central bankers and regulators carrying the responsibility of fostering financial stability, the best service we can do to our objective, therefore, is to remain prepared to manage crisis. There are important lessons to be learnt from each crisis. Yet, we can count on each crisis to be sufficiently different from every other crisis so as to make their identification a challenge. We can but be alert and flexible to evolving risks. Let me conclude with an extract from Carmen M. Reinhart & Kenneth S. Rogoff's book "This time is different: Eight Centuries of Financial Folly"

> *"This time many seem different, but all too often a deeper look shows it is not. Encouragingly, history does point to warning signs that policy makers can look at to assess risk – if only they do not become too drunk with their credit bubble-fueled success and say, as their predecessors have for centuries, "This time is different"."*

I wish you successful deliberations over the course of the next few days.