# Duvvuri Subbarao: Responsible innovation and regulation in the financial sector

Keynote address by Dr Duvvuri Subbarao, Governor of the Reserve Bank of India, at the IDRBT (Institute for Development and Reasearch in Banking Technology) Banking Technology Excellence Awards Function, Hyderabad, 2 August 2013.

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1. Once again, it is my pleasure and privilege to be here at IDRBT for the annual awards for IT excellence in banking. Every time I come here, I am impressed by the passion and energy with which IDRBT pursues its mission of improving banking technology. Over the last five years, under the leadership of Director Sambamurthy, the Institute has made impressive progress in several areas. Apart from training junior and middle level officers, the Institute also engages Directors on the boards of banks on IT strategy so as to get buy-in at the leadership level for IT as a management tool. That, you would expect from an Institute of this type. But IDRBT performs beyond expectations. It goes beyond training in banking technology to evangelizing frontier aspects of technology that could bring efficiency gains to banks and safety to bank customers.

## IDRBT

2. I want to recognize here some of the many achievement of IDRBT.

- IDRBT has pioneered the development of common standards for various aspects of IT in banking – the latest being standards for smart cards and micro-ATMs which will go a long way in scaling up financial inclusion.
- IDRBT has established a unique CISO Forum which, among other things, is developing as a platform for sharing common concerns among banks.
- IDRBT has established a formidable reputation for the quality of its teaching programmes as evidenced by the placement record of its students.

3. In acknowledgement of this impressive performance along several tracks, I want to place on record the Reserve Bank's appreciation for the achievements of IDRBT and the earnest and enlightened leadership of Shri Sambamurthy.

## Innovation and regulation

4. At IDRBT here today, we are recognizing and celebrating financial innovation – innovations that we believe will contribute to making the financial sector more efficient and user friendly, and thereby, contribute to growth and welfare in the real sector. There cannot be a more appropriate platform for me than this one to share some perspectives on financial innovation and financial regulation.

5. From the discovery of fire to the invention of the I-Pad, innovation has been the wellspring of human progress. We all acknowledge instinctively that innovation best prospers in a *laissez faire* regime where innovators can expect to appropriate the benefits of their efforts. Equally, we all also recognize the need for regulation of innovation in order to correct for market failure which could occur for a variety of reasons – externalities, information asymmetries, moral hazard, adverse selection etc. For example, we all understand that new drugs should be tested before they are put on the market and that new models of aircrafts and automobiles should be regulated for safety standards. The case for financial regulation rests on the same logic although it is not as well appreciated.

6. Even as the logic for regulation is quite robust, the frequent criticism against it is that inappropriate or injudicious regulation would stifle innovation. The challenge for regulators

therefore is to protect public interest while at the same time ensuring that innovation that will potentially add value is not stifled. This is what I would call responsible regulation. The world view today is that it is this failure on the part of the regulators to check innovation and keep it socially responsible that resulted in the excesses that led to the crisis.

7. Against that background, in my address today, I want to focus on the following questions relating to innovation and regulation in the financial sector:

i. In what ways are financial markets different from other markets?

ii. What do these differences imply for responsible innovation and regulation in the financial sector?

iii. Is financial innovation good or bad?

iv. What is the Reserve Bank's approach to responsible financial regulation?

v. Does financial regulation have a role in promoting equity?

**In what ways are financial markets different from other markets?**

8. My first question: how are financial markets different from other markets? I want to cite four important ways in which financial markets differ from other markets.

9. First, financial markets are different because they are not self-correcting. One of the fundamental assumptions of capitalism, drawing intellectual origins from Adam Smith, is that in a competitive market, prices adjust to equate demand with supply. Even if there is disequilibrium, it will quickly and automatically adjust to equilibrium. It is argued that this competitive market dictum does not work in financial markets because financial bubbles can build up to dangerous levels before a price correction kicks in. Indeed one of the lessons of the on-going global financial crisis is that the financial system can contain pressure for longer than expected; so when an implosion happens, it can be disastrous, even catastrophic.

10. Second, uniquely financial firms are highly leveraged and interconnected. If a non-financial firm fails, only the stakeholders in that firm bear the damage; the externalities are limited. In contrast, financial firms are all interconnected; any pressure in one institution or one market rapidly transmits to the entire financial sector gathering momentum as the contagion spreads. The most vivid demonstration of this is the way a bubble in the US sub-prime housing market snowballed into the biggest financial crisis of our generation.

11. Third, a defining characteristic of financial markets is their procyclicality; financial firms exhibit a strong collective tendency to overexpose themselves to the same type of risk during an upturn, and become overly risk averse during a downturn. This is, of course, the familiar fallacy of composition. A particular business model may be profitable for a given bank; but if all banks follow the same business model, the build-up of procyclical risk can make the model collectively disastrous. In other words, a collection of healthy financial institutions does not necessarily make a healthy financial system.

12. Finally, financial markets are different because they are reflexive in the sense that our beliefs about what may happen often influence what does happen. As the *Economist* magazine asked some time ago, is a hurricane more likely to hit because more hurricane insurance has been written. Common sense says no. but in the financial world, that common sense does not hold. The more financial insurance is written, the more likely that the insured event will occur because people who benefit from the contingency can make it happen.

13. I have gone at length on these arguments to emphasize that financial markets are different from other markets in some fundamental ways warranting a different approach to innovation and regulation.

## What do these differences imply for responsible innovation and regulation in the financial sector?

14. That takes me to my second question: what do these differences that distinguish the financial sector mean for responsible innovation and regulation? Let me try and address that.

15. One of the fundamental assumptions of economics is that human beings are rational. This concept of a "rational human being" provides the intellectual foundation for the libertarian philosophy of political economy which believes that it is unnecessary, even improper, to protect people against their choices. Rational people should be free, and they should be responsible for the choices they make. The State should not interfere with the individual's right to choose unless those choices have a spillover impact and harm others.

16. The libertarian political philosophy has, of course, been challenged in both academic and public policy domains. The essence of the criticism is that the concept of a rational human being is a myth. A rational human being, "Econ" in text book terminology is, by definition, calculating, unemotional, selfish and fully informed. On the other hand, people are "Humans"; their decisions and actions are driven by emotions, biases, judgements, and they are handicapped by both lack of full information and inability or disinclination to process even available information into their decisions. The State, as a welfare maximiser, has to step in to nudge people towards making responsible choices.

17. It is these lessons from behavioural economics that provide the basis for consumer protection as an objective of financial regulation. As we discussed earlier, financial markets are different in several important ways. Financial products are complex and often opaque. Savers and investors are handicapped by information asymmetries; they make choices based on inadequate information and are driven by irrational emotions. Also, bubbles in financial markets are difficult to see in real time. When bubbles burst, savers and investors not only lose out because of their saving and investment going sour but also because, as tax payers, they have to bear the huge costs of financial instability.

18. The world learnt these lessons the hard way. The global financial crisis has taken a devastating toll by way of lost growth and foregone welfare. Among the important responses to the crises has been renewed focus on consumer protection which will be pursued through both prescriptive regulations as well as an obligatory code of conduct for financial institutions. This, in a broad sense, should lay the foundations and framework for responsible financial innovation and regulation.

## Is financial innovation good or bad?

19. Let me move on to the third question: is financial innovation good or bad?

20. This is admittedly a clichéd question and the boiler plate answer is that: "All innovation is good. It is not innovation *per se*, but how that innovation is used that makes it good or bad". This is true everywhere, including in the financial sector. Innovations can be misapplied or carried to excesses for a variety of reasons – greed, wrong beliefs or sheer inability to anticipate consequences.

21. Let me illustrate this with an example from the financial sector. Use of quantitative techniques in finance has been a game changing innovation. It contributed enormously to the growth of the financial sector. The Black-Scholes options pricing model, for example, was more than a piece of geeky mathematics; it was transformational. It ended the anti-intellectualism of American finance, demonstrated that a more scientific approach to speculation is possible and converted financial markets from bull rings to quantitative power houses.

22. But there were obviously limitations to the applicability of quantitative techniques. They all involved some simplification of the real world and they were all based on some assumptions. When the abstraction of the model does not capture the essential aspects of

the real world or when the assumptions do not hold, the quantitative model fails. The big failure in using quantitative techniques was not so much that the techniques *per se* were bad innovations, but that we had misused them by forgetting to ask: "Does my model represent the real world? Do the assumptions underlying the model still hold?"

23. So, my simple answer to the question, "is financial innovation good or bad?" is that it is good only as long as it adds value to economic growth and societal welfare.

## What is the Reserve Bank's approach to responsible financial regulation?

24. The Reserve Bank is the regulator for banks, non-bank finance companies (NBFCs) and large segments of the financial markets. Our approach to regulation has been to preserve financial stability and promote consumer protection.

25. It is the obligation to balance these objectives that has cast a responsibility on the Reserve Bank to take a measured but constructive approach to financial innovation. It is possible, for example, to tighten regulation so much that financial stability and consumer protection are tightly secured, but that will entail a heavy cost in terms of growth. It will also stifle innovation that could promote economic activity. At the other extreme, it is also possible to be nonchalant and adopt a completely *laissez faire* approach to innovation, but that will lead to excesses, systemic pressures and an eventual implosion of the financial system. In my view, what responsible regulation entails is to draw the right balance between these objectives on a dynamic basis, and to do so with an open mind free of any ideological dogma.

26. I now want to illustrate how the Reserve Bank has applied this approach to responsible regulation in practice in several areas.

### *RBI's responsible regulation – proactive macroprudential policy*

27. One of the primary causes of the crisis, as we now well know, was the excess in the US sub-prime housing market. If I were to give a stylized description of the "excess", it was that banks lent irresponsibly for housing to borrowers whose repayment capacity depended entirely on the value of the house increasing on a perpetual basis. Inevitably, there was a bubble which burst when house prices slumped characterizing a classic Minsky moment – euphoria leading to panic and then to collapse.

28. Here in India, the Reserve Bank, under the leadership of my predecessor Dr. Y.V. Reddy, behaved responsibly. It took measures to prevent such excesses in the Indian real estate and housing sectors by proactively instituting countercyclical measures – by raising risk weights and provisioning norms for bank lending to the real estate sector.

### *RBI's responsible regulation – Basel III*

29. The Reserve Bank has taken a responsible approach to the implementation of Basel III. People have questioned the adoption of Basel III in India on two arguments. First, that Basel III is only required for advanced economy banks which have resorted to excesses, and not for Indian banks which have remained within prudent limits. The second argument is that Basel III standards will raise the cost of credit in India at a time when the credit intensity of our economic growth is going to increase.

30. My response to these arguments is that it would have been irresponsible on the part of the Reserve Bank to not implement Basel III. As a country rapidly integrating with the world, we cannot have a regulatory regime that deviates from the global model. After all, going forward, Indian banks will increase their foreign operations and foreign banks will come here to operate in India. This integration will be in India's long term economic interest. That interest can be hurt if our regulatory regime does not conform to the global standards. To the argument that implementation of Basel III will hurt growth, my response is only to cite

research by BIS economists which shows that even if Basel III imposes some costs in the short term, it will secure our medium term growth prospects.

### *RBI's responsible regulation – new bank licences*

31. An important characteristic of responsible regulation is not to be dogmatic but to be pragmatic, open minded and willing to change regulations to suit changing circumstances, provided larger public interest so demanded. Let me illustrate this.

32. A few months ago, the Reserve Bank released guidelines on licensing of new banks in the private sector. In contrast to previous rounds of bank licensing, in this round, we have decided to make corporates eligible for bank licences. We did so after extensive debate, consultation and deliberation.

33. The main arguments against admitting corporates into banking were the following. First, banks are entrusted with large public deposits; corporates would misuse this large and cheap money for private gain by connected lending to their own units or to customers and suppliers. Second, the ownership structure of large corporates will open opportunities for regulatory arbitrage in case the promoter of the bank at the apex level is an unregulated entity. That could potentially lead to gaps in risk assessment and heighten the risk of contagion from the corporate to the bank and from there to the wider financial system. The third argument against corporates has been that banking in the hands of corporates would lead to concentration of economic power and political influence. Fourth, people asked why we need to take unnecessary risk by opening banking to corporates since there are enough potentially strong applicants outside of the corporate sector.

34. Indeed the criticism has been much more varied and nuanced than the way I have put it. My idea was just to give you the broad picture. At several stages over the last three years, we have responded to this criticism. Let me briefly summarize that.

35. The main reason we have allowed corporates is to leverage on their proven entrepreneurial talent and management expertise. Indian corporates have been innovative in penetrating into the hinterland, and the expectation is that the same spirit of enterprise will lead to innovation of new business models for financial inclusion. Large corporates will also bring vast pools of capital that will go into strengthening financial intermediation and making our banking sector more competitive. Moreover, corporates have been operating in other regulated sectors such as telecom, airports, power etc. They have also been allowed into other segments of regulated financial activities such as mutual funds, asset management, insurance etc.

36. In short, over time, the balance of arguments for and against corporates in the banking sector has changed. It is in response to this changed situation that the Reserve Bank took a pragmatic view and determined that allowing corporates into the banking sector would be net positive.

37. I want to acknowledge though that the arguments of the critics were non-trivial and we have been sensitive to that. That is the reason we have built several safeguards into the licensing regime by prescribing demanding criteria for the corporate structure, fit and proper criteria, corporate governance norms, exposure norms etc. There are requirements for dilution of the promoter group's shareholding over time. There is also the in-built safeguard that corporates have large business interests at stake, and will be loathe to compromise their business reputation by mishandling the banking segment of the business. Finally, the Banking Regulation Act has since been amended to vest powers with the Reserve Bank to take action against the bank management should the Reserve Bank determine that the management of the bank has been detrimental to public interest or to the interest of depositors.

38. Again, I have gone at length on this issue of new bank licences to illustrate the Reserve Bank's approach to responsible regulation.

### *RBI's responsible regulation – financial markets*

39. Reserve Bank's approach to regulation of financial markets is informed by the same sense of responsibility. In regulating financial markets, we have followed three broad principles. First, the menu of financial products available to hedge emergent risks should be widened. Second, the introduction of new products should follow a graduated process dictated by the acceptance of the product by market participants. Lastly, the robustness of the market infrastructure for trading, settlement and reporting of existing as well as new financial products should be improved.

40. Let me illustrate this by our approach to the regulation of currency markets. We first introduced OTC derivatives (currency forwards) in order to meet the hedging needs of the real sector by requiring that participants have an underlying exposure. At the same time, we imposed limits on positions to prevent excessive risk taking.

41. After the currency forwards market had stabilized, we focused on the development of the currency futures market to deepen the market. Being exchange traded, the futures market was meant to enhance the efficiency of price discovery and also to provide access to retail customers. We started with USD-INR futures and extended that gradually to other currency pairs with the rupee – the euro, pound and yen.

42. In recent weeks, RBI and SEBI have together imposed some restrictions on the futures market by way of raising the margins and limiting the positions that market participants can take. Also, proprietary trading by banks was prohibited. As we explained in the relevant circular, these measures were instituted to curb undue speculation that was resulting in the volatility of the exchange rate. As indicated in our quarterly policy review earlier this week, we will roll back these measures only after we determine that stability has been restored to the foreign exchange market. In the Reserve Bank's view, undue volatility of the exchange rate is harmful for growth and stability and such volatility should be curbed.

### *RBI's responsible regulation – benchmark rates*

43. Let me give you another illustration of how we implement responsible financial regulation. You are all aware of the LIBOR rate fixing scandal that surfaced last year. The charge against some London banks was that they were reporting wrong data on the money market interest rate in order to cover up their weakening position and deteriorating creditworthiness and to protect their balance sheets. The aftermath of the scandal led to a vigorous debate internationally on what went wrong, how it might be fixed and what role, if any, might central banks and regulators have in ensuring the data reported by banks is accurate and that the process of estimation of the benchmark rate is robust.

44. A parallel in our system is the foreign exchange reference rate that the Reserve Bank puts out every day. Can we have problem similar to LIBOR here in India? The counterpart of LIBOR in India is the less used MIBOR which is set by FIMMDA-NSE. Although, this rate is set through polling, the transparent system of execution and dissemination of more than 90% of trades through electronic order matching system acts as an important safeguard.

45. The Reserve Bank, on its part, compiles and publishes every day the reference exchange rates following a robust statistical method. Earlier on, we used to set the rate by averaging the mean of the bid/offer rates polled from a few select banks as at 12 noon on every working day. A few months ago, we changed the method. Now we poll a few banks from an expanded list at a randomly chosen five minute window between 11.45 am and 12.15 pm and then put out the reference rate. We periodically review the procedure for selecting the banks and the methodology of polling so as to ensure that the reference rate remains a true reflection of market activity.

46. Recently, we constituted a committee under the chairmanship of Vijaya Bhaskar, one of our Executive Directors, to comprehensively study the process of computation and

dissemination of major financial benchmarks in India with a view to assessing the integrity of the process and the governance standards in the institution responsible for the benchmark. After the Committee gives its report, we will take further action as may be necessary.

### Does financial regulation have a role in promoting equity?

47. Having explained the Reserve Bank's approach to responsible regulation, let me now turn to the final question on my list: does regulation have a role in promoting equity?

48. The dichotomy between growth and equity is standard stuff of development economics. For a long time, the orthodoxy was that if we took care of growth, equity followed automatically *a la* a high tide raising all boats. Experience has taught us that reality is more complex. Received wisdom today is that growth is a necessary, although not a sufficient, condition for equity. To achieve equity, we need growth that is poverty sensitive – that is growth *to* which the poor contribute and growth *from* which the poor benefit.

49. How does this standard question translate in the context of financial sector regulation? This is a question that we, as a regulator, struggle with. Should stability and consumer protection be the sole objectives of our regulation, with other instruments being deployed to achieve equity? Or should equity be a variable in the objective function of regulation?

50. To seek answers, we must ask a variant of the above questions. Is the financial sector inherently equity promoting, or at least equity neutral? Our experience has been that left to itself, the financial sector does not have a pro-equity bias. Indeed, it is even possible to argue that the financial sector does not necessarily reach out to the bottom of the pyramid.

51. Our response to counter this bias has been to use regulation to encourage socially optimal business behaviour by financial institutions. Let me just list a few of our affirmative action regulations. We have a directed credit scheme, priority sector lending, whereby all banks are required to ensure that at least 40 per cent of their credit goes to identified priority sectors like agriculture and allied activities, micro, small and medium industries, low cost housing and education. We have a "Lead Bank" scheme under which there is a designated commercial bank identified for each of the over 600 districts in the country with responsibility for ensuring implementation of a district credit plan that contains indicative targets for flow of credit to sectors of the economy that banks may neglect. We have largely deregulated licensing of bank branches; banks are now free to open branches freely in population centres of less than 100,000 – with two stipulations: first at least a quarter of the branches should be located in unbanked villages with a maximum population of 10,000; and second, their performance in financial penetration will be a criterion for giving banks branch licences in metro and large urban centres.

52. By far our most high profile development campaign of the Reserve Bank in recent years has been our aggressive pursuit of financial inclusion. Why is financial inclusion important? It is important because it is a necessary condition for sustaining equitable growth. There are few, if any, instances of an economy transiting from an agrarian system to a post-industrial modern society without broad-based financial inclusion. As people having comfortable access to financial services, we all know from personal experience that economic opportunity is strongly intertwined with financial access. Such access is especially powerful for the poor as it provides them opportunities to build savings, make investments and avail credit. Importantly, access to financial services also helps the poor insure themselves against income shocks and equips them to meet emergencies such as illness, death in the family or loss of employment. Needless to add, financial inclusion protects the poor from the clutches of the usurious money lenders.

53. The extent of financial exclusion is staggering. Out of the 600,000 habitations in India, less than 100,000 have a commercial bank branch. Just about 40 per cent of the

population across the country have bank accounts, and this ratio is much lower in the north-east of the country.

54. These statistics, distressing as they are, do not convey the true extent of financial exclusion. Even where bank accounts are claimed to have been opened, verification has often shown that the accounts are dormant. Few conduct any banking transactions and even fewer receive any credit. Millions of households across the country are thereby denied the opportunity to harness their earning capacity and entrepreneurial talent, and are condemned to marginalization and poverty.

55. Over the last few years, the Reserve Bank has launched several initiatives to deepen financial inclusion. Our goal is not just that poor households must have a bank account, but that the account must be effectively used by them for savings, remittances and credit.

56. Even as much of the development mandate of the Reserve Bank is driven by moral suasion, we have not shied away, where necessary, from using our regulatory authority to drive development objectives. Even though purists might question this, in the Reserve Bank, we believe this is "responsible financial regulation".

## Conclusion

57. Let me now conclude by summarizing what I've said so far. I started with explaining the logic for regulation in general and then explaining how the financial sector is unique, requiring a different and more careful balance between regulating for stability and safety and encouraging innovation. I then spoke about good and bad financial innovations; and how good innovations are those which add value to the real sectors of the economy. After that, I explained the Reserve Bank's approach to responsible regulation and illustrated this with examples from several activities of the Reserve Bank. Finally, I posed a question – "does regulation have a role in achieving equity?", explained the Reserve Bank's approach to that question even as I may have raised some new questions in the process.

58. Last year, the Reserve Bank was awarded the Dufrenoy Prize for Responsible Innovation by the Observatory for Responsible Innovation in Paris. The Dufrénoy Prize was instituted jointly by the Observatory for Responsible Financial Innovation and Mines Paris Tech, a well-known education and research institution set up in Paris in 1783 to recognize remarkable and outstanding initiatives in the area of responsible innovation in finance.

59. The Dufrenoy Prize was awarded to the Reserve Bank for its calibrated approach to the introduction and regulation of financial products. Let me quote from the citation:

> "The responsible character of the Reserve Bank of India's commitment in the financial services industry lies in an original and innovative regulatory approach of financial products. One of the Bank's priorities has been to calibrate the introduction of specific financial innovations in order to assess their behaviour before larger scale diffusion, a pioneering approach at a time when the idea of considering markets as real scale testing sites for financial innovation with the necessity of implementing specific protocols is not yet prevalent in the financial area. The RBI's calibrated approach introduces elements ....a series of precautions, and pre-marketing and post-marketing surveillance that can stand as exceptional benchmarks for other countries."

60. The award of the Dufrenoy Prize pleased us immensely. But it also reminded us of our responsibility – of ensuring that we continue to encourage innovation in the financial sector without compromising financial stability and consumer protection. In the Reserve Bank, we are aware that we are not yet the "best practice" in this regard, but will spare no effort to get there.

61. Regulation and innovation must go hand in hand. Regulation is the responsibility of the Reserve Bank. Innovation should be the driving force of IDRBT and all the banks present here. Together, we can make our financial sector resilient and make it an aid to the growth of our economy and welfare of our people.

62. Once again, hearty congratulations to all the award winners today and compliments to IDRBT for its efforts to recognize excellence in innovation by banks.