Anand Sinha: Perspectives on risk and governance

Address by Mr Anand Sinha, Deputy Governor of the Reserve Bank of India, at the Risk & Governance Summit, organized by the Indian School of Business, Hyderabad and Deloitte, Mumbai, 23 August 2012.

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Mr. P R Ramesh, Chairman, Deloitte, Dr. Vikram Kuriyan, Director of the Investment Centre, Indian School of Business, Ms. Usha Thorat and Mr. V S Das, my erstwhile colleagues from Reserve Bank and other delegates. It is a pleasure for me to interact with you all, today at this Summit.

The theme of the Summit revolves around risk and governance, the two terms which are being looked at by policy makers with renewed interest and a fresh perspective in the aftermath of the global financial crisis. I intend to talk briefly on both risk and governance from a conceptual perspective before deliberating on the regulatory changes (Basel III) and conclude with a brief overview of the Indian perspective.

Risk is almost *God like* in qualities. It is omnipresent. You find risk everywhere ranging from simple things such as walking (you run the risk of tripping and falling) or talking (you run a risk of saying something inappropriate or getting misquoted) to more serious things such as flying airplanes, launching satellites or conducting surgeries. Unmanaged risk can prove disastrous and the recent global crisis is a continuing testimony of this fact.

Risk has a long history, perhaps as long as human history, and so does risk management. Reflecting on risks and risk management as it would have prevailed in the early ages, I am reminded of a beautiful quote which goes this way: "*Every day in Africa a gazelle wakes up. It knows it must run faster than the fastest lion or it will be killed. Every morning a lion wakes up. It knows that it must outrun the slowest gazelle or it will starve to death. It does not matter whether you are a lion or a gazelle. When the sun comes up, you better be running*." Understanding the risks and learning to manage them has been the mantra for survival in any age or in any realm of life. In fact, managing risks, I would say, is one of the critical attributes of human beings which differentiated them from the others and helped in their survival and development.

While risk is prevalent everywhere, I would focus my discussion on the financial world where there have been many attempts to quantify and manage risks in a major way. And there have also been major disasters.

II. Risk & risk management in financial world

Many times in the past, financial risks have resulted in major blowouts wiping out billions of dollars of wealth from the system and pushing people and economies into bankruptcy. Stock market crash of 1987, Asian crisis of 1997, dotcom bust of 2000 and the latest and still fresh crisis of 2007 are some of the notable examples of risks going out of control and are reminders of the potential impact of mis-management of risk.

Several factors, both macroeconomic and regulatory and supervisory have led to the crisis of 2007, of such large dimensions. However, in the ultimate analysis, risk measurement and management tools and methodologies have proved to be grossly inadequate despite tremendous development and sophistication brought about in risk modelling.

The gross under-estimation of risk resulted in high leverage during the period of great moderation. This, combined with over-reliance on short term wholesale funding, resulted in a downward spiral in asset prices once stress developed in the sub-prime mortgage market in

the US, dragging down the economies of the US and the rest of the world. The effect of the crisis has been severe and prolonged and it is difficult even to estimate when the world economy would likely be back to "*normal*". Clearly there was failure of corporate governance in not putting in place adequate systems to mitigate risk.

The crisis triggered an intense interest in the nature of quantitative financial models and their inability to predict the disasters. It is obvious that the risk models in use were highly inadequate. Most of the losses occurred in the trading books where the crystallized losses during the crisis were several times more than what the Value at Risk (VaR) models predicted. Moreover, there was a serious flaw in the conceptual framework, inasmuch as risk management was focussed almost exclusively on individual banks and financial institutions under the misplaced notion that individually strong financial entities would ensure a sound and strong financial system. This misplaced notion is known as the fallacy of composition and it resulted in the systemic risks not being accorded the much needed serious consideration. There was thus no framework to address systemic risk i.e., issues of procyclicality and inter-connectedness in the financial system.

It is, therefore, important to analyse the limitations of the quantitative models. For market risk the VaR model is widely used as it is simple and its mathematics is tractable. VaR models have regulatory approval from the Basel Committee on Banking Supervision (BCBS) and therefore from national regulators. This model works on two primary assumptions.

i. *Normality* – that is, asset values are assumed to follow a normal distribution. This is supposed to be an approximation to reality as indeed models are by definition abstractions from reality. However, in certain periods, particularly periods of high stress, the normality assumption is an unsustainable abstraction from reality.

ii. VaR models are not causal but statistical in nature and, therefore, they use the past data to predict the asset values in future.

Even for credit risk, the Vasicek model is typically used to determine the capital requirements under the Internal Ratings Based (IRB) Basel framework. In this model too, it is assumed that the underlying risk factors and, hence, portfolio losses are normally distributed.

Under the normal distribution, the probability of occurrence of events farther removed from the mean outcome (more than 3 standard deviations or sigma) fall rapidly. For example, the probability of a 5-sigma loss on any given day would mean that such an occurrence should happen once in about 14,000 years (assuming 250 trading days in a year) that is much longer than the period of time that has elapsed since civilisation evolved.[1] During the crisis however, the Wall Street Journal (2007) reported that events that models predicted would happen only once in 10,000 years, happened everyday for 3 days. David Viniyar, Goldman Sachs' Chief Financial Officer was quoted in Financial Times (2007) saying "*We were seeing things that were 25-standard deviation moves, several days in a row. There have been issues in some of the other quantitative space. But nothing like what we saw last week.*"[2] Such large sigma movements have happened earlier also. During the European Exchange Rate Mechanism debacle in 1992, 50 sigma moves in interest rates were witnessed, while 1987's Black Monday was a 20 sigma event. During summer 1998 upheavals that eventually brought down the Long Term Capital Management (LTCM), 15-plus sigma deviations became the norm.[3] It is thus clear that the assumption of normality in the probability distribution does not correspond to reality, particularly, in highly stressed situations.

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1 Dowd, Kevin and Hutchinson, Martin, "*Alchemists of Loss*", Times Group Books.

2 Danielsson, Jon, "*Blame the Model*", Journal of Financial Stability 4 (2008).

3 Triana, Pablo (2009), "*Lecturing Birds on Flying*", John Wiley & Sons, Inc.

The underlying assumption behind normal distribution is that it represents a collective view of markets by a large number of participants who act rationally and largely independently, and their behavior is stable across time zones, which enables the past data to predict the future. On a closer examination, this assumption is highly inaccurate because the economic agents react to news and information and suffer irrational behavior bias when the news is either very good or very pessimistic. In fact, their behavior is conditioned by "*disaster myopia*" and, hence, when pessimism takes a grip, they act in a herd, driving down the asset prices very sharply resulting in fat tails in the distribution: that is, the losses are much higher than what the VaR model would predict. In a financial crisis it is the large swings in correlation that are of key importance and using a model that does not allow for such changes is of limited use. CDOs are the classic example of the failure of risk modelling during the crisis as the models failed to take into account the correlated defaults once the stress in the subprime mortgage segment set in. It is due to this psychology and the burden of debt carried from the boom period that growth has not picked up in the advanced economies despite all the stimulus. It has been our experience too that after the onset of the crisis when the monetary and macro prudential measures were eased sharply, it did not lead to any significant credit offtake.

As regards the past being a good indicator of the future, the assumption is highly flawed. With the rapid development of technology, increased integration of markets and entry of sophisticated players, the present and the future are much different from the past and it would be very naïve to predict the future based on the past data. Pablo Triana in his book "*Lecturing Birds on Flying*" very succinctly argues that when LTCM tried predicting the future with its sophisticated models, it went awfully wrong in not realizing that a LTCM-less past could not be a reliable guide to an LTCM-dominated present.

Besides the above two issues with VaR models, the data horizon is also an issue. As regards market risk for which high frequency data is available, reliance on a short time horizon from the past becomes misleading as it may fail to capture the stress period data. Even if such data could be captured as is now required to be done under the modified market risk framework of BCBS in the aftermath of the crisis, it is unlikely that the future would be predictable with significantly enhanced accuracy because it is very difficult to predict and model the human behavior. In credit risk modelling, there is an additional issue of paucity of enough default data.

Too much faith and undue reliance on risk models, despite all the inherent weaknesses which have been in evidence, has been the undoing in risk management. The recent episode of JP Morgan derivative losses in their Chief Investment Office (CIO) is another reminder of the fallibility of the risk models, and of their inability to accurately estimate the risks associated with the complex derivative products as well as of the failure of risk governance. It is an irony that the trades undertaken to hedge the bank's risks and protect it from losses, themselves led to losses. Reportedly, the new VaR model employed by the firm, which had been able to navigate the crisis quite well, was at least partially responsible for the mishap. It is clear that we have been dazzled by the sophisticated mathematics and made the mistake of equating sophistication with quality. The mistake has been in elevating quantitative finance to the status of physics – it is stated that economists suffer from physics envy. There are very fundamental differences between physics and quantitative finance. Physics deals with the laws of nature governing the universe. The objects have unique physical attributes (i.e. position, velocity, temperature, etc.) and the universe evolves according to the immutable laws of nature. Any observation or measurement of physical attributes does not change them or even if it does, it does so in a predictable way so that the true value of the attribute before measurement can be known with complete accuracy. The physics of the microscopic world (quantum mechanics) is far too complex and there are no settled views on the nature of reality. Even then, the microscopic world evolves according to defined laws in a deterministic way. However, during measurement interactions the results are not deterministic but follow a probability distribution which, however, is stable. On the other hand, in finance, there is no such law of financial markets. The "values" of assets are not inherent attributes of the

financial instruments and the economic agents are not outside observers of the financial system. In fact, it is the human mind, its ambitions, drive, competitiveness, caprice and greed which drive the actions of the economic agents and it is these actions which determine the value of the financial instruments. Thus, unlike in physics, in finance, it is the observers who provide value to the financial instruments. There is no unique value: it is determined by the collective psychology of economic agents and hence such valuations tend to be on the extreme when there is a collective feeling of euphoria or pessimism. Financial risk modelling, therefore, is far more complex than modelling in physics. As Pablo Triana mentions in his book,[4] "*There are no immutable laws when it comes to the values of financial assets… In finance there is no truth. A new reality is created every minute through the unpredictability of utility seeking humans.*"

The above discussions point to the need for a paradigm change in risk modelling. There has been rightly an increasing emphasis on stress testing and scenario analysis to supplement the risk model outputs so as to factor in the risks arising from rare but plausible events and prepare the financial institutions to survive these. While this is an improvement from the "micro" perspective, modelling systemic risk is that much harder because these are created endogenously within the system as a result of the responses of participating economic agents. This gap could potentially be filled up by the systemic regulators set up in the aftermath of the crisis: Financial Stability and Development Council (FSDC) in India, Financial System Oversight Council (FSOC) in the USA, Financial Policy Committee (FPC) in the UK and European Systemic Risk Board (ESRB) in Europe etc. International efforts are on to widen and deepen the financial data available to systemic risk regulators. These data can possibly be combined using behavioural rules of economic and financial system and balance sheet constraints to build models of systemic risk.[5] These are very early days for systemic risk modelling and with time considerable improvement would happen. In the meantime, from a regulatory perspective, additional capital requirements and resolution mechanisms to deal with Systemically Important Financial Institutions (SIFIs) and countercyclical capital requirements to deal with procyclicality issues have been devised. The move for the migration of Over the Counter (OTC) derivatives to Central Counter Party (CCP) set up is designed for reducing the systemic risk arising out of interconnectedness in the financial markets.

Despite all the criticisms and deficiencies, quantitative models still have a very important role to play in risk management. They provide a very good starting point but should be treated as a supplement to decision making. Primarily, qualitative judgement, experience and common sense should be the guiding factors in dealing with risk. This becomes all the more important if it is realised that there are risks beyond those that are measured by risk models. These are: uncertainties (i.e. unknown risks which can be identified but cannot be measured, such as reputation risk) and unknowable risk (the existence of the risk is not predictable, such as 9/11). While it is hard to devise defences against unknowable risks, the best way to deal with uncertainty is to be aware of its existence and of the inability to quantify it and act accordingly – may be take preventive action. The Senior Supervisors' Group's Report "*Observations on Risk Management Practices during the Recent Market Turbulence*" (March 2008) confirms that the financial institutions which survived the crisis better were those who had, among others, informative and responsive risk measurement and management reporting and practices. The blend of qualitative and quantitative analysis provided a high level of insight and consistent communication to management of evolving conditions enabling the firm to respond effectively to emerging opportunities and risks. It is clear that such firms did not rely exclusively on the quantitative risk models.

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[4] Triana, Pablo (2009), "*Lecturing Birds on Flying*", John Wiley & Sons, Inc.

[5] Haldane, Andrew G (2012), "*Tails of the Unexpected*".

This brings us to the question of the role of regulators/ supervisors in ensuring sound risk management systems. It is apparent that they have to ensure that the risk models used by banks are robust. The implementation of Advanced Approaches to Basel II casts this responsibility on regulators before approving use of internal models by banks. Inevitably, this means that regulators set minimum standards for risk modelling and in a way become "*risk modellors of the last resort*".[6] This brings about uniformity in risk management while, arguably, heterogeneity would be more desirable because uniform approach to risk management can accentuate market movements by increasing correlation in the financial system which may result in larger systemic risk. At the moment, however, there does not seem to be any solution to this dilemma.

Regulators also have a significant role to play in containing the downside of competitive pressures. With sharp focus on short term performance i.e. quarterly, half yearly or annual, there is intense competitive pressure on banks which leads to their indulging in risky behavior (may be even by manipulating the risk models) despite being fully aware of the risks they are undertaking and it is as if the banks secretly wish that the regulators step-in and prohibit overtly risky activities. I quote from the book "*On the Brink*" by Paulson who was the Treasury Secretary in US when the crisis erupted. The setting is a dinner on June 26, 2007 (just before the beginning of the financial storm), attended by Mr Paulson himself and the heads of some of Wall Street's biggest firms:

"*All (i.e. all the CEOs) were concerned with excessive risk taking in the markets and appalled by the erosion of underwriting standards. The bankers complained about all the covenant-lite and bridge loans they felt compelled by competitive pressure to make. I remember Jamie Dimon, the JPMorgan Chairman and CEO, saying that such loans did not make sense. Steve Schwarzman, the CEO of Blackstone, a dominant private-equity firm, acknowledged he had been getting attractive terms and added that he was not in the business of turning down attractive money.*

Chuck Prince, the Citigroup CEO, asked whether, given the competitive pressures, there wasn't a role for regulators to tamp down some of the riskier practices. Basically he asked: Isn't there something you can do to order us not to take all these risks?"

Not long after, I remember, Prince was quoted as saying: "*As long as the music is playing, you have to get up and dance.*"

The recent LIBOR scandal is a case in point. The realisation that LIBOR, the mother of all indexes, which was held sacrosanct till the other day and was used for pricing of about $ 800 trillion worth of financial instruments (reportedly 11 times the GDPs of all nations on earth), could be rigged is a shock to many. The episode highlights the ill effects of excessive competition and the need for regulatory oversight (i.e. oversight of the rate setting process in this case).

Now let me focus on governance issues in the context of risk management

III. Corporate and risk governance issues

History is replete with instances to prove that poor corporate governance, especially weak risk governance systems, have been the major causes of financial crises over and over again. The global financial crisis and the attendant lessons from the excessive risk taking by banks and other financial institutions, poor Board and senior management oversight, inadequate understanding of the risk build-up and irrational compensation packages have once again catapulted the corporate and risk governance issues to the forefront.

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[6] Danielsson, Jon, "*Blame the Model*", Journal of Financial Stability 4 (2008).

Risk governance can be explainedas a component within the overall corporate governance framework and defined *as an integrated framework laid out to provide guidance for comprehensive assessment and management of risks.* An effective risk governance framework ensures that the firm is able to achieve its stated goals within the chosen risk appetite framework.

IV. Why risk governance is important in banks

Banks are very special. In their role as intermediaries, they perform a very critical function of risk transformation which results in warehousing of risks by banks. Further, banks' business model of accepting deposits for lending, leads to significant leverage (a leverage of about 18 times of banks, during 1995–2010, against the leverage of 3 times of non-financial firms[7]). Liquidity risks can be very critical even for well capitalised banks, a lesson the global crisis has emphatically demonstrated.

The banking business has become far more sophisticated and complex. Risk too, has increased in proportion to this sophistication and complexity. The risk taking behaviour of banks has high potential for contributing to and amplifying systemic risk and consequent contagion. This can have severe repercussions for financial and economic fragility as witnessed during and in the aftermath of the global financial crisis.

Given their unique business model and also the special role played in the financial system, sound internal governance for banks is essential, requiring Boards to focus even more on assessing, managing, and mitigating risk. Banks operate on the foundation of public confidence and any small breach in that confidence can lead a run on the bank and to an eventual failure.

V. Lessons from the global financial crisis in governance failure

The global crisis has taught that no financial institution can be resistant to all possible crises and no quantitative model can fully capture all the risks. This realisation has prompted the focus to shift to strengthening of the risk governance by strengthening the risk culture, risk awareness and appreciation. Governance has been brought to the centre stage and there are many initiatives under way to plug the gaps and loop-holes in the governance framework that presumably amplified the financial crisis. The Senior Supervisors' Report, Group of 30 Report, Walker's Report etc., are some of the initiatives in this direction. The Basel Committee has also issued a revised framework for corporate governance in banks in 2010.

Highlighting the role played by gaps in governance framework in precipitating the global crisis, the Senior Supervisors' Group in its report – "*Risk Management Lessons from the Global Banking Crisis of 2008*" observed that "*despite firms' recent progress in improving risk management practices, underlying weaknesses in governance, incentive structures, information technology infrastructure and internal controls require substantial work to address*". The Report brings out that the Board of Directors and the Top Management in the affected institutions failed to recognise and initiate corrective action on both the excessive build-up of risks in the individual institutions or their contribution to the risk, and the disproportionate level of leverage in the system. There was a general disconnect between the risks being taken by the banks / other financial institutions and those that their Boards of directors perceived them to be taking.

Robust governance systems differentiated successful firms from others during the crisis. Organisations with good risk governance systems were able to respond with more flexibility[8]

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[7] Caruana, Jaime (2012), "*Shareholder Value and Stability in Banking; Is there a Conflict?*"

[8] Senior Supervisors Group (2008), "*Observations on Risk Management Practices during the Recent Market Turbulence*".

and tide over the crisis. While no financial institution appears to have fully anticipated the magnitude of the crisis, the way in which institutions were able to respond – and to influence their outcomes – depended, in large part, on the strength and configuration of their internal risk governance structure. The Boards of the institutions better able to weather the storm, generally received timelier, more complete, and enterprise-wide risk information, enabling them to make critical decisions to curtail risk earlier – before asset values plummeted and market-based sources of funding became inaccessible.[9]

The Group of Thirty (G30) report "*Toward Effective Governance of Financial Institutions*", too brings out that management teams, boards of directors, regulators and supervisors, and shareholders all failed, in their respective roles, to prudently govern and oversee systemically important financial institutions.

Governance failures leading to the global financial crisis are largely being explained to the weaknesses in board level oversight. The Boards were not actively involved in setting of the risk appetite for the firms. Incomplete risk information to the Boards hampered both the complete understanding / appreciation of the firm wide risk profile of the institution and the effective decision making in this regard at the board level leading to a sense of complacency regarding the risk management frameworks in place. Also, there was a fundamental lack of expertise among the directors, especially the independent directors, to understand or respond to the risks in the desired manner.

Governance practices suffered from similar weaknesses at the senior management level. Senior management failed to adopt and integrate the necessary systems to identify, manage, and report risk.[10] There were lacunae observed also in the MIS in capturing the level and nature of aggregate risk arising in rapidly evolving balance sheets. Further, risks were not properly priced which resulted in improper allocation of capital, inadequate preparation for tail risk events eventually leading to the precipitation of the crisis.

Another area of imbalance was the risk reward and remuneration framework. The compensation packages encouraged risk taking behaviour with short term profit objective as the immediate goal at the expense of the long-term financial health of the organization. The compensation structures did not factor in appropriate safeguards to check or mitigate the adverse consequences or losses that could materialise in the long run from the imprudent or excessive risk taking and jeopardize the safety and soundness of the organization.

The crisis also highlighted the absence of enterprise wide risk decision making process. The risk management framework was based on silos rather than the enterprise level, thus missing on the comprehensive enterprise wide picture including an understanding of the interplay of risks across the organisation. As the overall picture of the risks was not available with the Boards or the Top Management, the consequent controls and mitigating measures also turned out to be inadequate and ineffective which hindered effective risk management.

VI. Building a robust risk governance framework – the way forward

There is an enhanced realisation that the risk governance demands a holistic approach and that risk appreciation should start at the top. A strengthened management information system (MIS) supported by robust information technology platform is a necessary pre-condition for enhancing Board efficiency in oversight and decision making. Similarly, augmented skill sets and experience at the level of independent directors would go a long way in enhancing the Board capacity. Strong MIS facilitate risk reporting to the boards in an

[9] The World Bank and International Finance Corporation (2010), "*Bank Governance: Lessons from the Financial Crisis*", Note Number 13.

[10] The World Bank and International Finance Corporation (2010), "*Bank Governance: Lessons from the Financial Crisis*", Note Number 13.

effective and comprehensive manner, which in turn enhances transparency and causes informed decision taking. Robust information technology systems are a necessary condition for supporting the MIS framework as the quality of risk information that the Boards and the top management receive depends largely on the quality and robustness of the information technology systems.[11]

In addition to prescribing the risk appetite for the institution, the board also needs to lay down appropriate risk strategy and ensure that this is institutionalised throughout the organization. This would entail, aligning risk management processes with the overall business strategy, clearly defining the roles and responsibilities down the hierarchy, establishing accountability and reinforcing change with communication and training. The Board and the senior management oversight must be supplemented with effective leadership by the Chairman and the chief executive officer (CEO), and informed non-executive directors. The Boards must get much more intimately involved in risk matters and have a firmer understanding of the key risks faced by the business.

Effective risk governance also demands that each director is aware of the breadth of risks faced by the bank. Directors add value to the Board when they have financial expertise, are aware of risk fundamentals and techniques, and are able to manage dynamics with executives.

Board level risk committees have an important role to play in the overall risk governance framework. Apart from monitoring the firm's strategic-risk profile on an on-going basis, such committees would also be responsible for defining the firm's overall risk appetite; approving major transactions above a firm's risk threshold, and; establishing limit structures and risk policies for use within individual businesses.

Presence of a Chief Risk Officer (CRO) is expected to strengthen the risk management framework. However, independence of the CRO, with necessary stature to influence decisions, would be a critical element in ensuring the effectiveness of the post in risk management process as also the strategic risk management related decisions. The CRO must report directly to the CEO and the Board and be responsible for all risks, risk management and control functions. Another important requirement is integrating risk with business strategy and compensation. Risk – and return on risk – need to be core component of any performance measure, and should be explicitly factored into incentive and compensation schemes. Compensation must be formally aligned with actual performance, such as through adding more rigorous risk-based measures to scorecards. This would also involve moving to longer vesting periods, and increasing deferred compensation.

The fragmented organisation of risk data into separate silos slows down risk management process and hinders the capability to respond to new regulatory requirements. The financial crisis has pushed both supervisors and market players to move towards an integrated approach to risk data that brings down the silos in organisation. Only by integrating data models, processes and methodologies can a bank achieve higher performance in terms of data quality.

The risk management systems must take into account technical limitations of risk models, such as Value at Risk (VaR). Stress testing and scenario analysis need to be established as truly effective management tools and should be integrated and standardized across business lines, types of risk and asset classes.

[11] Group of Thirty, "*Toward Effective Governance of Financial Institution*".

VII. Redesigning of regulations impact

A large scale overhaul of the regulatory framework has been undertaken to plug the gaps in regulation observed during the crisis and also to make the financial system more resilient. The new set of regulations, popularly called Basel III, seeks to address both firm specific and broader systemic risk. The measures relate to enhancing the quality and quantity of capital, liquidity risk management, valuation practices, dealing with procyclicality issues and with systemically important banks including enhanced resolution mechanism for systemically important banking groups. It also covers compensation policy, stress testing, disclosures to enhance transparency, and reducing systemic risk in the financial markets by encouraging OTC derivatives to move to central clearing and settlement mechanism, etc.

The new regulations enhance the requirement of equity capital substantially. Compared to the requirement of a minimum of 2 per cent equity capital as percentage of risk weighted assets, the new dispensation under Basel III stipulates 7 per cent equity capital, inclusive of capital conservation buffer of 2.5 per cent. In addition there is a requirement of countercyclical capital buffers which will be required to be built up under certain conditions as also of additional capital requirement for Global Systemically Important Financial Institutions (GSIFIs). Higher equity capital is envisaged to contain risks in the financial system and make it more resilient. Along with the higher capital requirements, the new regulatory framework also widened the risk coverage especially those related to capital market activities; trading book, securitisation products, counterparty credit risk on OTC derivatives and repos. All these would result in a substantially larger capital requirement for the banking sector.

Internationally, and particularly in the Emerging Market Economies (EMEs), there has been concern over the feasibility of mobilising such large amount of capital and the impact such enhanced capital requirements could have on the output growth and also on banks' profitability. Let me touch upon these two important issues here.

The macroeconomic impact of capital regulation could flow from the possibility that given the higher costs of mobilizing capital, banks may either increase the interest rates on lending or ration the quantum of lending. The studies conducted by BIS involving nearly 100 simulations, however, indicate that bringing the global common equity capital ratio to a level that would meet the agreed minimum and the capital conservation buffer (i.e. raise it by 1.3 per cent) would result in a maximum decline in GDP, relative to baseline forecasts, of 0.22%, which would occur after 35 quarters. In terms of growth rates, annual growth would be 0.03 percentage points (or 3 basis points) below its baseline level during this time. This is then followed by a recovery in GDP towards the baseline growth path. The estimated maximum GDP impact per percentage point of higher capital is 0.17% during these 35 quarters. This trade off between growth and financial stability is considered to be affordable. The reason why Basel III is to be implemented over a long period (January 1, 2013 to December 31, 2018) is to minimise the impact on growth and the simulations seem to support the time frame for implementation.

As regards the impact on profitability of banks, there is no denying the fact that the higher capital requirements would impact banks' profitability by increasing the costs. There will be shift in the banks' capital structure with a greater emphasis on equity than before, resulting in higher cost of capital. Ideally, going by the Modigliani-Miller theory, the shift in the capital structure should not impact the cost of funds. An increase in the proportion of equity, which will always be more expensive than debt, would be exactly offset by a decrease in the costs per unit of both debt and equity in recognition of the lower risk of insolvency. But that is under idealized conditions. In real world, where there are differential tax treatments between debt and equity and also explicit and implicit guarantees on deposits, debt financing is considered cheaper compared to equity financing. Therefore, there is reluctance to modify the capital structure by reducing leverage.

The argument, therefore, is that the higher capital requirements would have an adverse impact on banks' profitability and dissuade investors from banking stocks. From a long term

perspective, the arguments are misplaced. One should not look at the returns on a standalone basis. It is the risk adjusted return that depicts a more realistic picture and is what drives the investor expectations. Better capitalised banks should be able to raise both debt and equity capital at lower cost due to the reduced risk.

Higher leverage, while it may give excessive profits in the short term, does not lead to sustainable profitability. A recent study by BIS[12] indicated that during periods that comprise the worst 20% of stock market performance, banks do worse than most other sectors. The study also suggests that despite banks being about six times more leveraged than non-financial firms, the average return on equity in banking has not been greatly different from that of others. The return on equity for banks at 12.2 % in the study sample compares not very differently from 11.7% of non-financial firms during the period 1995–2009. This is due to the fact that the excess returns of banks during good times are more than off-set by the lower than average returns during crisis period due to high leverage. This is to say that the profits that were earned during good times at the cost of higher risk are actually the risk premia and should have been treated as expected losses and not current income that was distributable. Reducing leverage, by increasing the equity capital is, therefore, not likely to cause adverse impact in the long run, on investor sentiment once these perspectives set in.

VIII. Reserve bank's approach to risk management:

Before concluding let me briefly touch upon the Reserve Bank's approach towards risk management. Even at the height of belief in the self correcting nature of free markets, which has now been debunked in the aftermath of crisis, Reserve Bank maintained a stance of conscious gradualism in fostering innovation and permitting sophisticated products in the markets. Reserve Bank's approach is more guided by the imperatives of ensuring that finance remains linked to the real sector and does not derive dynamics of its own. Given the nature of our economy with wide disparities in the income levels, education and sophistication and the pressing need for ensuring inclusive growth, the market development strategy has been carefully calibrated so as to avert any excesses which could lead to market failures. New products were introduced taking into account the preparedness of the financial markets in particular and the economy in general. The products are initially made open to a select set of well regulated participants and only after the products are stabilised and fine tuned, other participants are permitted. Only regulated entities such as banks have been permitted market making in derivate markets while others are permitted to use such products for only hedging risks on their balance sheet and not for punting. The opening up of markets, thus, has followed a gradualist strategy. This has kept us in good stead with no major market seizure even during the height of global financial crisis. In recognition of the precautionary approach to the regulation of the derivative market in facilitating financial innovation in a responsible manner, Reserve Bank has been awarded the 2012 Dufrenoy Prize for responsible innovation.

Even in the context of prudential regulation of financial system, Reserve Bank adopted a considered approach of limiting the systemic risk originating from both the procyclicality as well as interconnectedness dimensions. The countercyclical measures were adopted as back as 2004 when specific sectors were observed to be heating up. The risk weights and provisioning ratios were increased for sensitive sectors such as capital market, housing, commercial real estate during the period when the boom was building up. The ratios were brought down post Oct 2008 when the economy started slowing down on the back of global turmoil. Such macroprudential approach, which was not widely prevalent then, saved the domestic economy from the adverse shocks during the height of the crisis. Several measures have also been taken to reduce the inter-connectedness among banks on the one hand and

[12] Caruana, Jaime (2012), "*Shareholder Value and Stability in Banking; Is there a Conflict?*"

between banks and NBFCs on the other, and limits have been placed on exposures to sensitive sectors to address the cross-sectional dimension of systemic risk.

In the implementation of Basel III guidelines also, we have adopted a cautious approach inasmuch as the minimum capital requirement has been kept at 1 percentage point higher than that stipulated under Basel III to address the possible inadequacies in the capital allocation process and also the model risks in banks. The implementation schedule is also marginally advanced by 9 months, to be complied by March 31, 2018 against the Basel requirement of January 01, 2019.

Having deliberated on Reserve Banks' approach towards risk management, I would now like to touch upon some of the contemporary issues in the context of Basel III implementation in India as well as some other issues.

Why implement capital regulations?

There is an argument that why an emerging economy like ours which neither was a direct cause nor the direct victim of the global crisis, should adopt onerous regulation such as Basel III which could, potentially, have a negative impact on output growth. The rationale for adopting these standards are two fold: One, we cannot remain non-complaint with international standards especially when Indian banks are venturing abroad and our markets are opened for international participants. Two, even while our financial system is much simpler and does not have much of the features which led to the crisis, we are vulnerable to the contagion from global economy as we are witnessing today and higher defences built under Basel III will provide our financial system the much needed resilience.

Issues with liquidity

Basel III requires a high level of liquidity to be maintained through a pool of unencumbered liquid assets. While Indian banks maintain a large pool of liquid assets in compliance with the Statutory Liquidity Ratio, they may not technically qualify as liquid assets under Basel III as these are not freely available to banks for liquidity purposes. Requiring banks to maintain liquid assets over and above the SLR could put them in a competitively disadvantageous position. We are, therefore, considering as to what extent the SLR can be reckoned towards Basel III requirements for holding liquid assets.

Countercyclical capital

While the idea of maintaining countercyclical capital to withstand the impact of vagaries of business cycles is theoretically appealing, its implementation has certain issues. The metric "*Credit to GDP ratio*" used by BCBS framework may not be suitable in the Indian context, given our traditionally low Credit to GDP ratio and the structural changes that our economy is experiencing on the back of financial inclusion and relatively high growth. The sectoral approach that we had adopted in the past (i.e. altering the risk weights and provisioning requirement for sectors witnessing very high growth) seems more suitable. Deviations from the Basel framework are permissible in the "comply or explain" framework. The risk, however is that markets may interpret such deviation as non-compliance. Communication, therefore, during peer group review by Basel Committee as well as with markets assumes great significance.

Leverage ratio

Basel III prescribes a leverage ratio (ratio of Tier I capital to book value of assets including off-balance sheet items) as backstop arrangement to supplement the capital adequacy ratio. Our view has been that since, for Indian banks, the SLR requirements are substantial and carry little risks, these should be kept out of the leverage ratio. However, this was not accepted by BCBS. But the comforting news is that the leverage ratio of Indian banks is modest compared to the levels being contemplated. Additionally, since under Basel III

liquidity framework, all banks will have to maintain liquid assets, the perceived competitive disadvantage of Indian banks would get addressed substantially.

Implementation challenges in Basel II advanced approaches (skills, technology)

While all commercial banks in India have adopted standardised approaches under Basel II by March 2009, the implementation of advanced approaches is under various stages. As the advanced approaches are technology intensive and also require highly skilled workforce, it is going to be challenging for banks going forward. Availability of data for building and testing advanced models and for building scenarios would be another serious challenge.

Compensation policy

Perverse incentives fostered by irrational compensation policies were one of the causes attributed to the outbreak of global financial crisis. The compensation policies encouraged employees to increase short term profit without adequate recognition of risks and long-term consequences that their activities posed to the organisation. To address these concerns, Reserve Bank issued guidelines on compensation practices for private and foreign banks, based on the international initiatives.

Corporate governance

To strengthen the corporate governance and bolster risk management practices in banks, various capacity building measures in the form of trainings and workshops are held by RBI. In order to leverage on the Core Banking Solution (CBS) platform built by commercial banks and address, inter alia, potential operational risks arising out of technology adoption in the banking sector, Reserve Bank released an IT Vision Document for 2011–17 emphasising the need for risk controls, risk mitigation systems, fraud detection and prevention and business continuity plans (BCP). The establishment of the Centre for Advanced Financial Research and Learning (CAFRAL) should boost the capacity building efforts as well as promote research in regulation and supervision – an area in which India has to do a lot of catching up.

Financial stability reviews and reports

To create awareness of the vulnerabilities in the system and to initiate prompt corrective action, Reserve Bank periodically brings out Financial Stability Reports and reviews sharing the results of its macroprudential surveillance. These reports have become very crucial in assessing the systemic risk build up especially in the light of the fast changing global and domestic scenario.

Dynamic provisioning

Building of countercyclical provisions is prudential measure which goes a long way in strengthening the resilience against the cyclical shocks. BCBS is working on an expected loss-based countercyclical provisioning methodology in consultation with IASB which is likely to take time. In India, banks have a stock of floating provisions which we have not permitted to be used, except under a situation of systemic stress. While the floating provisions may serve the purpose of countercyclical provision, a framework is necessary for allowing its use. As an interim measure, we have developed a methodology based on the Spanish dynamic provisioning system which has been put up for public comments.

Securitisation

In the light of the lessons learnt from the global crisis the securitisation guidelines have been extensively redesigned to dissuade the "*originate to distribute*" model and to build the "*skin in the game*" by prescribing Minimum Holding Period (MHP) prior to securitisation and Minimum Retention Requirement (MRR) after securitisation.

Financial Stability and Development Council (FSDC)

One of the prominent lessons taught by the crisis is to have a systemic view of risk and to be in readiness to take corrective action as and when required, which calls for a close coordination among different regulators. In order to have a formalised coordination mechanism, a Financial Stability and Development Council (FSDC) under the Chairmanship of the Finance Minister has been constituted. A sub-committee of FSDC under the chairmanship of the Governor, Reserve Bank of India ensures coordination amongst the regulators during normal times.

Setting up of holding companies

At present, most of the financial groups in India are led by banks and organised under the Bank Subsidiary model. This model, however, puts the onus on the parent bank for corporate governance, performance and capital requirement of the subsidiaries. Besides, the parent carries very substantial reputational risk. The Working Group on "Introduction of Holding Company structure in India for banks" has recommended migration of major financial conglomerates to the holding company structure to address these limitations to some extent. Necessary legal amendments will have to be put in place for facilitating such migration.

Financial Sector Legislative Reforms Commission (FSLRC)

Sound and unambiguous legislative framework is a prerequisite for an efficient regulatory system. At present, in India, there are about 60 Acts and multiple rules and regulations, many of which are archaic and the large number of amendments have made the laws ambiguous and complex. Government of India has constituted a Financial Sector Legislative Reforms Commission (FSLRC) to rewrite and streamline the financial sector laws, rules and regulations to bring them in harmony with India's fast growing financial sector.

IX. Concluding thoughts

I have presented my random thoughts on the issues of risk and governance. I have also attempted to provide you the flavour of regulatory response to the crisis, and the issues surrounding implementation of Basel III both from the international and Indian perspectives. Risk and governance are still evolving concepts and I am sure deliberations such as these would provide valuable inputs for policy formulation. I congratulate ISB and Deloitte for their initiative of organising this Summit and wish the deliberations all success.

Thank you

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