Indian Financial Sector and the Global Financial Crisis

Jayanth R Varma

Though the Indian financial sector had very limited exposure to the toxic assets at the heart of the global financial crisis, it suffered a severe liquidity crisis after the Lehman bankruptcy. This liquidity crisis could have been averted with timely injection of liquidity into the system by the Reserve Bank of India, claims Jayanth Varma. Apart from the liquidity crisis, India also had to deal with the collapse of global trade finance; deflation of an asset market bubble; demand contraction for exports; and corporate losses on currency derivatives. Looking ahead, the paper argues that the crisis is a wake-up call for the Indian banks and financial system for better managing their liquidity and credit risks, re-examining the international expansion policies of banks, and reviewing risk management models and stress test methodologies. Rejecting the widely held notion that financial innovation caused the global crisis, the author offers examples from bond markets and securitization to establish the necessity of continuing with the financial reforms. While India has high growth potential, growth is not inevitable. Only the right economic and financial policies and a favourable global environment can make rapid growth a sustainable phenomenon.

The Indian financial sector had very limited exposure to subprime securities and other toxic assets at the heart of the global financial crisis. However, the Indian financial sector was impacted by the global crisis in several important ways.

- Before the crisis, India's current account deficit was being financed largely by portfolio (mainly equity) flows. A reversal of these flows during the crisis led to a sharp depreciation of the rupee. Capital outflows meant that liquidity was sucked out of the markets, and also that risk capital more or less disappeared.
- After the bankruptcy of the US investment bank, Lehman, global credit markets dried up and the Indian corporate sector and banks were unable to roll over their short-term dollar liabilities. This created a severe liquidity crisis in the rupee market which was exacerbated by the failure on the part of the central bank to respond to the problem quickly enough.
- The global reduction in liquidity and risk appetite triggered the deflation of a domestic asset market bubble (in equities and real estate) and this placed strains on the domestic financial system.
- The collapse of global demand impacted export-oriented sectors of the economy very badly and the resulting economic slowdown was another negative shock for the financial sector.
- The sharp appreciation of the Swiss franc and Japanese yen against the US dollar as well as the steep depreciation of rupee created severe stress for mishedged corporate borrowers and their bankers.

CAPITAL OUTFLOWS AND RUPEE DEPRECIATION

India has traditionally run a large deficit in its external trade in goods and services. This deficit was however more than made up by portfolio flows into the equity market as well as by remittances from non-resident Indians. As portfolio flows reversed sharply during the crisis, the currency depreciated as shown in Figure 1[1].

> The sharp appreciation of the Swiss franc and Japanese yen against the US dollar as well as the steep depreciation of rupee created severe stress for mishedged corporate borrowers and their bankers.

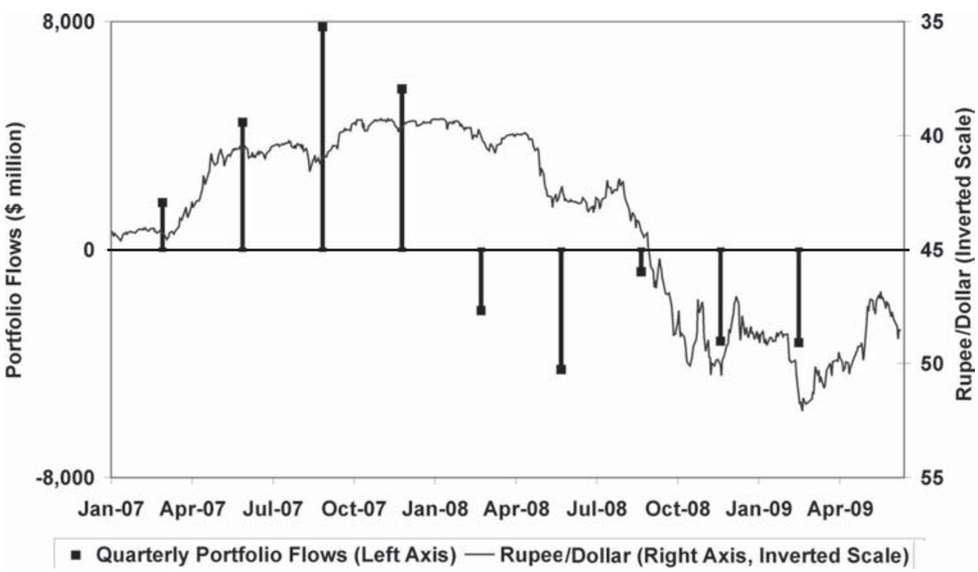
THE LIQUIDITY CRISIS OF OCTOBER 2008

At the onset of the crisis, the Indian corporate sector had short-term dollar liabilities of several kinds. A large part of it was in the form of trade finance (normal trade credit as well as suppliers' credit and other deferred finance arrangements). After the bankruptcy of Lehman on September 15, 2008, trade finance collapsed globally as international banks became wary of accepting even letters of credit issued by other large banks. The Indian corporate sector found itself having to repay a large amount of trade credit that would normally have been rolled over.

Meanwhile foreign branches of Indian banks had funded themselves in the short-term inter-bank market (largely in US dollars) as their deposit base in those countries was only a small fraction of their balance sheet. A significant part of the lending was to Indian companies. The collapse of the inter-bank market after the failure of Lehman left the Indian banking system in the position of having to repay large dollar liabilities that could no longer be rolled over.

Figure 1: Currency Depreciation during Global Crisis

The rupee depreciated as portfolio flows reversed during the global crisis



The Reserve Bank of India could have nipped this crisis in the bud by lending dollars to Indian banks out of its ample foreign exchange reserves. In the absence of dollar liquidity from the RBI, Indian banks and companies were forced to raise dollar resources by borrowing in rupees and converting the rupees into dollars. This process created a dramatic liquidity squeeze in the rupee money market and inter-bank interest rates shot up well outside the rate band set by the RBI.

[1] The data for this chart as well as the data on interest rates, forward premia, and stock prices later in this paper are from the Business Beacon and Prowess databases published by the *Centre for Monitoring the Indian Economy* (CMIE).

At the time of the Lehman crisis, the RBI's repo rate (at which banks can borrow from the RBI against eligible collateral) was 9 per cent and the reverse repo (at which banks can park their excess funds with the RBI) was 6 per cent. Normally, therefore the inter-bank rates must lie within this corridor of 6-9 per cent. Even before Lehman, liquidity was a little tight and the inter-bank rate averaged 8.9 per cent in the first half of September 2008. After Lehman, liquidity evaporated and the inter-bank rate averaged 11.6 per cent in the second half of September and 11.7 per cent in the first half of October. On the 10th of October, the rate hit 18.5 per cent.

> The Reserve Bank of India could have nipped this crisis in the bud by lending dollars to Indian banks out of its ample foreign exchange reserves. In the absence of dollar liquidity from the RBI, Indian banks and companies were forced to raise dollar resources by borrowing in rupees and converting the rupees into dollars.

To add to the problems, the forward premium on the dollar collapsed to zero and then turned negative. The one month forward premium averaged 3.9 per cent in the first half of September, fell to an average of 2 per cent in the second half of September, and then to –0.2 per cent in the first half of October. On the 6th and 7th of October, the forward premium averaged –4.1 per cent. The negative forward premium meant that the effective dollar borrowing cost was even higher than the rupee borrowing cost.

Even at these interest rates, there was no liquidity available. Short-term mutual funds facing redemption pressures found it difficult to sell even high quality assets and investors in these funds suffered heavy losses. Banks were reported to have blocked companies from drawing down sanctioned credit limits.

This entire liquidity crisis was completely avoidable as a proactive central bank would simply have injected liquidity into the system either in rupees or in dollars or both.

DOMESTIC ASSET MARKET BUBBLE

As in the rest of the world, the period from 2003-2007 was a period of rising asset prices in India as well. Abundant liquidity created by foreign portfolio inflows and rapid economic growth in India created a sense of euphoria. Stock prices (as measured by the Sensex) rose by over 500 per cent (compound annual growth of about 45%) from an average of 3,250 in January 2003 to an average of over 20,000 in December 2007. Real estate prices also rose sharply. Anecdotal evidence suggests that property prices tripled in most urban areas, but there is no reliable time series of home prices in India. The compound rate of growth of 30 per cent per annum was much higher than the 10 per cent annual appreciation in the US real estate bubble of the same period. Historically, Indian property prices had grown at this rate only during periods of double digit inflation.

The real estate boom led to huge investments in real estate-intensive businesses like shopping malls, urban infrastructure projects, hotels, and special economic zones. The banking system benefited hugely from the real estate boom (coupled with reforms in credit rights – SARFAESI) as erstwhile defaulters repaid their loans so that they could monetize their real estate assets.

> The deflation of the asset market bubbles threatened the loans that the banking system had extended to property developers, to commercial real estate and to real estate-intensive businesses. The problem was exacerbated by the difficulties that many of these borrowers faced in rolling over their short term borrowings.

The deflation of the asset market bubbles threatened the loans that the banking system had extended to property developers, to commercial real estate and to real estate-intensive businesses. The problem was exacerbated by the difficulties that many of these borrowers faced in rolling over their short-term borrowings.

The bursting of the stock market bubble and the withdrawal of foreign portfolio investors meant that the principal source of risk capital had vanished. Companies that had initiated large investment projects with the intention of raising equity capital at later stages found themselves confronting serious uncertainties regarding their financing.

ECONOMIC SLOWDOWN AND AN OVEREXTENDED CORPORATE SECTOR

Exports of goods and services are a much lower percentage of GDP for India than say, China. Yet, the demand contraction for these sectors led to a significant economic slowdown. Scaling back of investment plans by the corporate sector also contributed to the slowdown. This was only partly offset by a large fiscal stimulus (including an unintended stimulus from a huge pay hike for government and public sector employees) and robust government spending on infrastructure.

Exports of goods and services are a much lower percentage of GDP for India than say, China. Yet, the demand contraction for these sectors led to a significant economic slowdown. Scaling back of investment plans by the corporate sector also contributed to the slowdown.

Nevertheless, industrial production grew at about 5-6 per cent until the Lehman crisis. From October, the growth rate of industrial production dropped to virtually zero (slightly negative in some months and slightly positive in some others). Inflation (as measured by wholesale prices), which was almost 13 per cent in early August 2008, dropped to single digits in November, to below 5 per cent in January 2009 and to below 1 per cent in March.

Job losses and vastly diminished salary expectations for the Indian middle class meant that the large expansion of consumer credit during the boom years actually became a problem for the banking system. Default rates on unsecured personal loans and credit cards soared. Default rates on automobile loans also rose, but less sharply and home loans held up quite well despite the drop in property prices. Some banks and non-bank finance companies with large exposures to consumer credit faced mounting losses and the markets became uneasy about their financial health.

The Indian corporate sector was also over-extended – many companies were in the middle of large capital investments and faced the prospect of commissioning new capacity even as demand was falling. Some investment which was in early stages was postponed or abandoned while others faced funding difficulty.

Meanwhile, large international acquisitions by Indian companies came back to haunt them. Some acquisitions were at the top of the cycle at inflated prices in industries that were now collapsing. For the really large acquisitions, the deterioration in cash flows was bad enough to threaten the health of the entire group. It is true that in most of these cases, virtually all the acquisition-related debt was in special purpose vehicle without recourse to the parent. In practice, however, it is hard for a large business group to walk away from non-recourse debt.

All of this clearly has implications for the health of the banking system. Non-performing loans have been rising, but are not yet large enough to be a matter of concern except for a few institutions. However, loan losses tend to peak several quarters after the bottom of the economic cycle and there could be further pain ahead.

EXOTIC/TOXIC DERIVATIVES

The unusual volatility of exchange rates in the wake of the global financial crisis has produced large losses for companies that used exotic derivatives to speculate on currencies. The losses of the Indian corporate sector are not as large as those of Brazil or even Korea, but they still run into billions of dollars.

In the initial round, most of the losses were in derivatives tied to the dollar-yen and dollar-Swiss franc exchange rates. Prior to the crisis, low interest rates in the yen and the Swiss franc made them favourite carry currencies in which speculators borrowed to finance investments in risk assets around the world. Many Indian companies not only borrowed in these currencies, but also entered into exotic derivatives that required large payments if the Swiss franc or Japanese yen appreciated beyond a certain barrier against the US dollar.

During the global crisis, the yen and the Swiss franc appreciated dramatically as the carry trades were unwound in a general flight from risk assets. As the currencies surged past the barriers specified in their exotic derivatives, Indian companies incurred large losses. In the case of some companies, the losses were so large in relation to their net worth or cash flows that the banks that had sold them these derivatives had to provide for significant credit losses on these derivative deals.

In later stages of the crisis, rapid depreciation of the rupee against the dollar caused large losses to exporters who had hedged their export receivables. In most cases, this was a problem for their shareholders rather than for their banks.

In later stages of the crisis, rapid depreciation of the rupee against the dollar caused large losses to exporters who had hedged their export receivables. In most cases, this was a problem for their shareholders rather than for their banks.

THE WAY FORWARD

Management of Banks and Financial Institutions

The global crisis has been a wake up call for Indian banks to manage their liquidity risks and credit risks a lot better. During the boom years from 2004 to 2007, many banks acted on the assumption that India was on a permanently high growth path, and ignored the possibility that the high growth might be a cyclical rather than a secular phenomenon. The global crisis and its impact on India have led to a reassessment of this assumption.

Indian banks need to consider organizing their foreign operations as subsidiaries that have full access to the liquidity and deposit insurance support of the host country.

While it is doubtless true that India has the potential to grow at high rates, it is now more widely accepted that this growth is not inevitable. The growth potential can be realized only if right economic policies are pursued and the global environment is favourable.

In the mid-2000s, many banks also assumed that they had a short window of opportunity to build sufficient scale and market share. This led to an aggressive pursuit of market share in the belief that market share will ultimately lead to profits or will allow the bank to be sold at a high valuation. This strategy has now given way to more sustainable business models.

The international expansion of many Indian banks without building up stable deposit bases in those countries also needs to be re-examined. Indian banks were not alone in pursuing this approach. European banks played this game on a vastly bigger scale, and lent hundreds of billions of US dollars to their customers on the strength of their ability to borrow this money in the wholesale markets or in the swap market.

The global crisis has highlighted the risks inherent in the liquidity mismatch of this strategy. Moreover, this liquidity mismatch requires a lender of last resort not in the bank's domestic currency, but in a foreign currency. European banks survived the crisis because of the unlimited swap lines that the US Federal Reserve provided to European central banks allowing them in turn to act as lenders of last resort to their banks in US dollars. Indian banks survived because India's comfortable reserve position allowed the RBI to meet dollar liquidity needs.

Going forward, Indian banks need

to consider organizing their foreign operations as subsidiaries that have full access to the liquidity and deposit insurance support of the host country. During the crisis, a UK subsidiary of any bank from anywhere in the world had access to the various support schemes of the Bank of England, while a UK branch of a foreign bank did not. The higher prudential standards and capital requirements of a subsidiary may be a price well worth paying for this comfort.

> As India enters a period of low inflation due to economic reforms, the upward trajectory of nominal property prices could be far more muted and loans against property could be riskier than thought earlier.

Banks also need to review their risk management models and stress test methodologies in the light of global experience. Indian banks had only a minor exposure to the securities that were under greatest stress during the crisis. But the lessons that US and European banks have learnt from the experiences in their markets are relevant to all countries and all markets. It is wiser to learn from the experience of others than to wait for an opportunity to learn from first hand experience.

> Just as the Asian Crisis ended very quickly in 1998, when the US flooded the world with liquidity to deal with the aftermath of the LTCM crisis, the crisis for emerging markets faded away as the world's largest central banks opened the floodgates of liquidity to deal with problems in their own markets. The experience of 2008 is therefore a poor guide to the severity of future crises that are more India-centric.

The crisis is also an occasion to think carefully about property market bubbles. Emerging markets are often characterized by a belief that in the long run, property prices are bound to rise substantially. There is a belief that as per capita incomes rise, the prices of houses must rise in line with incomes.

The global crisis has led to much greater attention being paid to long-term trends in property prices. Shiller (2008) has argued at length that rising nominal property prices are almost entirely the result of inflation. Similarly, Ambrose *et al* (2008) present data on 355 years of home prices in Amsterdam showing that while real prices fluctuate a lot, there is no upward trend at all. In particular, during the period from 1650 to 1750, when the newly independent Holland transformed itself into the richest nation in the world, real home prices were stagnant.

Banks must therefore consider whether the experience — of India and other emerging markets — of long-term rising nominal home prices is driven to a great extent by inflation. As India enters a period of low inflation due to economic reforms, the upward trajectory of nominal property prices could be far more muted and loans against property could be riskier than thought earlier.

Foreign Exchange Reserves

India was relatively unscathed by the global crisis and the total drain of foreign exchange reserves during the period was very modest in relation to its reserves. The drawdown of reserves during the last quarter of 2008, according to the balance of payments data, was only $18 billion. Net intervention by the central bank during this quarter was $22 billion and the total gross intervention was only $28 billion. These amounts are tiny compared to the total reserves of $247 billion at the end of the quarter[2]

This low drawdown in relation to total reserves has led to a view that India's reserves are excessive and that a large part of these reserves could either be eliminated or invested in risky assets. There are however, several counter arguments that need to be considered.

[2] All the data in this paragraph is from the RBI Bulletin of August 2009 published by the Reserve Bank of India.

First, while the crisis of October 2008 to March 2009 was very acute, it was very short-lived. Just as the Asian Crisis ended very quickly in 1998, when the US flooded the world with liquidity to deal with the aftermath of the LTCM (Long Term Capital Management) crisis, the crisis for emerging markets faded away as the world's largest central banks opened the floodgates of liquidity to deal with problems in their own markets. The experience of 2008 is therefore a poor guide to the severity of future crises that are more India-centric.

Second, the reversal of capital flows and decline in exports that took place during this period was also accompanied by a fall in oil prices that tempered the adverse impact on the balance of payments.

Third, whether there is a run on the currency is itself a function of the size of the reserves. If the reserves are seen to be adequate, there is no run at all and it might appear that most of the reserves are superfluous. Even a modestly lower level of reserves might have greatly increased the chances of a run.

If India were to create a sovereign wealth fund, it would be more in the nature of a sovereign hedge fund. The global crisis has demonstrated that this is rather risky.

A good reference point in this context is South Korea which had somewhat smaller reserves than India (as also a slightly smaller economy) and a somewhat greater degree of vulnerability. During the last quarter of 2008, the reserves fell by only $38 billion to $200 billion (IMF, 2009). But South Korea faced a severe scare that was alleviated only by swap lines from the US Federal Reserve and other central banks totalling $90 billion (of which $16.4 billion was drawn down at the peak). Thus a reasonable interpretation of the South Korean experience is that reserves (including swap lines) of about $300 billion were sufficient while $200 billion would have been insufficient. Looking only at the peak drawdown in South Korea would make one think that even $50-100 billion of reserves would have been sufficient for that country, but this is a gross underestimate of the required reserves.

This argument is also relevant to the question of putting a part of the reserves into a sovereign wealth fund. What the crisis has demonstrated is that reserves that are meant to be used in a crisis must be highly liquid. Korea is again a good example of this need. Some of Korea's problems during the early stages of the crisis were due to the fact that some of their reserves were invested in Agency securities carrying the implicit (but not explicit) guarantee of the US government. The illiquidity of these securities became a problem for Korea in early 2008.

The other issue with a sovereign wealth fund is that it is a vehicle for investing wealth; and wealth is by definition something that one owns. The big sovereign wealth funds (Abu Dhabi, Norway, Singapore, Kuwait, China, and Russia) all invest wealth accumulated through current account surpluses which clearly do not have to be paid back to anybody. India's reserves, on the other hand, are the product of capital flows that are in principle to be repaid at some point of time, and are not wealth at all. Thus if India were to create a sovereign wealth fund, it would be more in the nature of a sovereign hedge fund. The global crisis has demonstrated that this is rather risky.

Financial Sector Reforms

The global financial crisis has led to a backlash against financial innovation. One prominent blogger went so far as to write that "Net-net, financial innovation is a bad thing: the downside, during times of crisis, is higher than the upside in more normal years" (Salmon, 2009).

Mainstream opinion, while less extreme, has also become sceptical about financial innovation. For example, the Turner Review in the UK (Turner, 2009) stated: "A reasonable assessment is that while there are some inherent reasons why financial services tend to grow in importance as income per capita rises, the increase over the last 10 to 15 years has also been driven by unnecessary and undesirable factors which raise questions about the value of some financial innovation and about appropriate regulatory responses."

At a time when India is still mid-way though the process of financial sector reforms, this kind of thinking could lead to the slowing down or even reversal of reforms. This would however be a mistake for two reasons.

First, the gap between India and the developed world in term of financial sector sophistication is so large that even if the US and the UK were to significantly reduce the complexity of their financial sectors, they would still end up at a level much more sophisticated than India is today. Second, the claim that the global crisis was caused by financial innovation simply does not stand on closer analysis. This is elaborated below with two examples of much needed financial sector reform in India.

Securitization

Securitization was identified early on in the crisis as one of the problem areas because most of the losses of global financial institutions came from their exposure to subprime securities. By mid-2009, however, it was becoming clear that securitization was a red herring. The main reason why securitization appeared to be the culprit early in the crisis was that the stringent accounting requirements for securities made losses there visible early. While potential losses on loans could be hidden and ignored for several quarters until they actually began to default, losses on securities had to be recognized the moment the market started marking their prices down in the expectation that they may default sometime in the future.

During the second quarter of 2009, losses in many global banks have come from unsecuritized loans rather than securities. The Congressional Oversight Panel (COP) set up by the US Congress to "review the current state of financial markets and the regulatory system" estimated that losses on troubled whole loans in the US banking system would be between $627 billion and $766 billion. (Congressional Oversight Panel, 2009, p 35)

It went on to state that "recent reports and statistics published by the FDIC indicate that overall loan quality at American banks is the worst in at least a quarter century, and the quality of loans is deteriorating at the fastest pace ever. The percentage of loans at least 90 days overdue, or on which the bank has ceased accruing interest or has written off, is also at its highest level since 1984, when the FDIC first began collecting such statistics." (Congressional Oversight Panel, 2009, p 17).

Securitization was identified early on in the crisis as one of the problem areas because most of the losses of global financial institutions came from their exposure to subprime securities. By mid-2009, however, it was becoming clear that securitization was a red herring.

Two years into the crisis, the situation in the US is becoming more and more like an old-fashioned banking crisis in which loans go bad and therefore banks become insolvent and need to be bailed out.

During 2007 and 2008, it was argued that securitized loans were of lower quality than whole loans and that at least to this extent securitization had made things worse. But this statement is true only for residential mortgages and not for commercial mortgages, where the position is the reverse. Securitized commercial mortgages (CMBS) are of higher quality than whole loans. (Congressional Oversight Panel, 2009, p 55).

In this context, any attempt to slow the development of securitization (from its current very low base) in India would be a mistake. As the Turner Review stated: "A reasonable judgement therefore is that future system for credit intermediation will and should involve a combination of traditional on-balance sheet mechanisms and securitization. The challenge is to design regulatory responses which will produce a safer version of the securitized credit model – less complex, more transparent to end investors, with less packaging and trading of securitized credit through multiple balance sheets, more true distribution to end investors and more real risk diversification."

The reforms that the Turner Review mentions are important and need to be carried out quickly, but a reformed securitization process has the potential to improve the housing finance in India. While US home owners have access to 30 year fixed rate mortgages that can be prepaid or refinanced at any time, without any penalty, Indian home loans are of shorter maturity (20 years or less) and the few 'pure fixed rate' loans involve stiff prepayment penalties. Without securitization and deep derivative markets that allow lenders to manage the interest rate risks, it is difficult for lenders to offer the home owner a safe and attractive home loan product.

Bond Markets

The Raghuram Rajan Committee made a strong case for "creating deep and well-functioning markets in all financial asset classes and derivatives" in India (Committee on Financial Sector Reforms, 2009, p 122). This report was prepared even as the global financial crisis was unfolding and yet it proposed a significantly enhanced role for financial markets.

> The existence of vibrant corporate bond markets and well-functioning equity markets help insulate the real economy from a dysfunctional banking system. The economy functions better than it otherwise would because corporations are able to raise money in the markets to finance their investments and operations.

The Committee stated: "The near meltdown of the US financial sector seems to be proof to some that markets and competition do not work. This is clearly the wrong lesson to take from the debacle. The right lesson is that markets and institutions do succumb occasionally to excesses, which is why regulators have to be vigilant, constantly finding the right balance between attenuating risk-taking and inhibiting growth. In the United States, they clearly failed this time. But this is not to say they cannot find the right balance elsewhere. At the same time, well-functioning competitive markets can reduce vulnerabilities – the US equity, government debt, and corporate debt markets, despite being close to the epicenter of the crisis, have remained far more resilient than markets in far away countries."

Both during the present crisis and the Asian crisis a decade ago, it has been seen that the existence of vibrant corporate bond markets and well-functioning equity markets help insulate the real economy from a dysfunctional banking system. The economy functions better than it otherwise would because corporations are able to raise money in the markets to finance their investments and operations.

Vibrant corporate bond markets require well-functioning government bond markets and interest rate derivative markets for price discovery and risk hedging. This in turn would require that government borrowing shift from captive borrowers to willing borrowers so that a liquid government bond market can emerge. A professional debt management office independent of the central bank helps bring this about.

These are all much needed reforms and it would be a pity if the global financial crisis induced us to go slow on them.

REFERENCES

Ambrose, Brent W; Eichholtz, Piet MA and Lindenthal, Thies (2008). "House Prices and Fundamentals: 355 Years of Evidence," Available at SSRN: http://ssrn.com/abstract=1439735

Committee on Financial Sector Reforms (2009). "A Hundred Small Steps: Report of the Committee on Financial Sector Reforms," Government of India, Planning Commission, New Delhi http://planningcommission.gov.in/reports/genrep/rep_fr/cfsr_all.pdf

Congressional Oversight Panel (2009). *August Oversight Report: The Continued Risk of Troubled Assets*, http://cop.senate.gov/documents/cop-081109-report.pdf

International Monetary Fund (2009). "Republic of Korea: 2009 Article IV Consultation—Staff Report" http://www.imf.org/external/pubs/ft/scr/2009/cr09262.pdf

Salmon, Felix (2009). "Financial Innovation," http://blogs.reuters.com/felix-salmon/2009/07/20/financial-innovation/

Shiller, Robert J (2008). *The Subprime Solution: How Today's Global Financial Crisis Happened, and What to Do about It*, Princeton: Princeton University Press.

Turner, Adair Lord (2009). *The Turner Review: A Regulatory Response to the Global Banking Crisis*, Financial Services Authority, http://www.fsa.gov.uk/pubs/other/turner_review.pdf

Jayanth R Varma is currently a Professor in the Finance and Accounting Area at the Indian Institute of Management, Ahmedabad where he teaches courses in capital markets, international financial management and corporate finance. He has been a full-time Member of the Securities and Exchange Board of India (SEBI) for a year and has chaired several regulatory committees relating to risk management and other aspects of financial markets. Prof. Varma has carried out extensive research in the field of Indian financial markets and finance theory and has authored books on portfolio management and on derivatives and risk management.

e-mail: jrvarma@iimahd.ernet.in

From my perspective, it's a little too early to predict that what we're seeing is in fact a ***slowdown*** *in any (national) economy, ... Having said that, if in fact (an* ***economic slowdown****) does happen, I think what you'll see is a reallocation of technology spending dollars, not a diminution."*

— Louis Gerstner