Real and Financial Sector Linkages and Global Economic Crisis: India and China

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1. Introduction

In a speech delivered on February 18, 2009 in Tokyo, Dr. Subba Rao, Governor of Reserve Bank of India, noted correctly that "with all the advanced economies – the United States, Europe and Japan – having firmly gone into recession the contagion of the crisis from the financial sector to the real sector has been unforgiving and total. Recent evidence suggests that contractionary forces are strong: demand has slumped, production is plunging, job losses are rising and credit markets remain in seizure. Most worryingly, world trade – the main channel through which the downturn will get transmitted on the way forward – is projected to contract by 2.8 percent in 2009". IMF projected in January 2009 that world growth would fall to just 0.5 percent in 2009, its lowest in 60 years. In the advanced economies output is projected to decline by 2 percent (annualized rate) in 2009. The U.S. GDP declined in all four quarters of 2008 and by a large 6.2 percent in the most recent fourth quarter. Unemployment rates climbed to 8.1% in U.S. in February 2009 capping a loss of 4.3 million jobs since the onset

of the recession in December 2007. These worrying trends in the month since his speech, if anything, seem to be accelerating.

Dr. Rao's speech was devoted to his analysis of the impact of the global economic (financial and real) crisis in India. Before turning to this important issue I would first like to spend a few minutes to explore the linkage between financial and real sectors in micro and macroeconomic theory and models (Section 2). To the best of my knowledge, there is no coherent economic theory and model that integrate financial and real sectors in an essential way that can be used to analyze both sectors meaningfully either in a descriptive or prescriptive mode, let alone use it for analyzing the current global crisis. However, the real world crisis continues to unfold whether or not economists have tools to analyze it. Even though the full dimensions of the current crisis is not known as yet, already some analysis of its possible contributory causes and the policy lessons they employ are available. I will briefly discuss them in Section 3. Section 4 is the impact of the crisis on India and China. Section 5 concludes.

2. Money in standard micro and macroeconomic theories and models.

In classical as well as neo-classical economic theory of static (or of steady state growth) equilibrium money was neutral.(Superneutral) This followed "from the principle that all the essential phenomena of economic life are capable of being described in terms of goods and services, of decisions about them and of relations between them. Money … so long as it functions normally, … does not

affect the economic process, which behaves in the same way as it would in a barter economy: this is essentially what the concept of Neutral Money implies. Thus money has been called a "garb" or "veil" of the things that really matter (Schumpeter, (1954, p. 277, as cited in Klausinger (1990)). Schumpeter, of course, knew that this characterization does not carry over automatically to the economic dynamics of adjustment when the economy is not in equilibrium. However, as long as the economy is in a static (steady state growth) equilibrium, money is neutral (superneutral) in the sense that the stock of money (rate of growth of the stock of money) affects only nominal variables such as prices, wages, exchange rates, etc. and not the real variables (the rates of growth of nominal variables such as rate inflation) but not those of real variables. This leads to the classical dichotomy that real and nominal variables can be analyzed independently of each other.[1] In the Arrow-Debreu formalization of general competitive equilibrium in a world of complete set of markets (spot and asset markets) the neutrality property holds. In this world of competitive equilibria and rational expectations the linkage between real and variables (real sector) and monetary variables (financial sector) is of no economic or behavioral significance.

Schumpeter, and other great economists of his era, knew that money can play an economically significant role in situations of disequilibrium, induced in part by unanticipated shocks and/or shifts in expectations. Theorists of incomplete markets in which resource allocations in competitive equilibria need

[1] A version of the classical quantity theory of money can be used to rationalize a unit of money as the unit of account or numéraire of the system. This is not essential in that any commodity that is valued in equilibrium can serve as the numéraire.

not even be constrained efficient (i.e., being efficient among feasible allocations given the restricted set of markets) knew that introduction of money could play an economic role in shifting the economy to an efficient equilibrium. However, to the best of my knowledge, the results on the economic role played by money in such models are dependent on the particular source of disequilibrium or the particular set of missing markets etc. so that little by way of general results for a monetary economy can be established.

In macroeconomics, the so-called equation of exchange, MV=PQ, where M is money supply, V is the velocity of circulation of money, P the general price level and Q the quantity of output, could be viewed as an accounting identity, i.e. given how three of the variables are defined, it defines the remaining variable. In this view, it has no economic or behavioral significance. On the other hand, monetarists (most prominent being Milton Friedman) have viewed it in effect as a behavioral equation with causation running from left to right so that money supply determines production, employment and price levels. Thus a linkage between a simple financial sector and a real sector is established in this framework. In their monumental work A Monetary History of the United States, 1865 – 1960, Friedman and Schwartz attributed the Great Depression to the U.S. Federal Reserve's contraction of money supply. Regardless of the temptation to compare the Great Depression to the current economic crisis, the obvious fact that in the contemporary world there are many financial instruments that substitute to varying degrees to the high powered money controlled by monetary

authorities, it is very unlikely that a plausible monetarist explanation of the origins of the current crisis, let alone a monetarist solution for it, could be found.

The Keynesian IS-LM model which did not claim to being micro-based or the New Keynesian models, some of which have pretentious but laughably simplistic micro-foundation such as the so-called menu-cost models, do not help much as analytical foundations for understanding the dynamics of linkages of real and financial sectors and their contribution to the global crisis. They are however useful for rationalizing massive aggregate demand stimulus. If output contraction is believed to be, though not necessarily shown to be, the response to negative shocks to aggregate demand, Keynesian aggregate demand stimulus through fiscal and monetary policies would indeed be appropriate. However, senior economic advisers for President Obama, such as Larry Summers and Christina Romer as well as his Secretary of the Treasury, Timothy Geithner, have called for a large and coordinated aggregate demand stimulus package by major economies of the world of the order of 2% of GDP in 2009 and 2010. Even by Keynesian lights this 'one size fits all' approach need not necessarily be appropriate. For example, as I will argue below in the case of India, if a country was experiencing a slow down from a period of unsustainably rapid (for reasons but of tightening domestic capacity and institutional constraints) growth to a still positive slower growth, an aggregate demand stimulus in that country will have little or no impact on domestic output or its growth, but would either stoke inflation if the economy is not sufficiently open to imports, or if it is, to a rise in

relative prices of non-traded goods and services such as for example real estate (i.e. to an appreciation of real exchange rate, measured as the relative price of non-traded goods in terms of traded goods prices). Without distinguishing between output growth slow down from unsustainable levels and an output contraction relative to full capacity and on that basis deciding whether to undertake policies of aggregate demand stimulation or of easing capacity and institutional constraints, recommending the former indiscriminately is inappropriate. This is not to say, of course, that the demand stimulus as already instituted in the U.S. and EU are unwarranted. But before engaging in further stimulus at a common rate as a percent of GDP by all major economies as the U.S. is suggesting for consideration at the forthcoming meeting of the Group of Twenty in London, and which the EU is resisting, much more thought and serious empirical evidence are needed.

The seriously micro-based macroeconomic models such as the dynamic, stochastic, general equilibrium (or real business cycle) models, not only do not incorporate financial assets[2] and shocks but also mostly involve a single representative consumer. Not withstanding their appeal as perhaps the only coherent macroeconomic model around, since their coherence seems to have been achieved at a considerable cost of abstracting from reality too much, and because they do not incorporate financial variables, they are not of much help in my view analyzing the current global crisis.

[2] The micro-based macro-models that introduce money through cash-in-advance constraints cannot be viewed as serious in incorporating money

Multi-equation time series econometric models that go back a long way to Jan Tinbergen's pioneering work, no longer play a role in macroeconomic research in universities, although economic forecasters continue to use them. From the perspective of their use as tools for making policy evaluation, the Lucas critique that their estimated parameters are contingent on the policy regime in place during the period when the data used in their estimation were generated, implies that they are useless in evaluating a different policy regime including any proposed one for dealing with the current crisis, whose build-up and extent is many ways unprecedented.

Much of the macroeconomic theory and models are of a closed economy, although no economy in the world is closed any more, if any was ever. Moreover, the extent of integration of economies, real (in terms of international trade in goods and services) and financial (in terms of cross border capital flows and investment) has grown rapidly, particularly since the 1980s. This is not to say that there is no theorizing or modeling of an open economy. After all, microconomic theory of international trade is by definition about open economies and their interaction. On open economy macroeconomics there are widely used text books, such as the one by Maurice Obstfeldt and Kenneth Rogoff that treat macroeconomic issues of open economy rigorously. Propositions such as the "open economy trilemma" which asserts that the three policy objectives of having a fixed exchange rate for the domestic currency, free international capital flows

and an independent domestic monetary policy (i.e., setting interest rate) are together inconsistent so that the pursuit of all three is infeasible and one of the three has to be given up, are well known. The intertemporal approach to balance of payments exposited in the work of Obstfeldt and Rogoff and others are basically variants of the real model of general equilibrium theory of microeconomics and do not incorporate financial aspects of assets and liabilities in an essential way. A typical example of this real approach is the paper of Obstfeldt and Rogoff (2005) on global imbalances on which I had commented (Srinivasan, 2005). In their model, nominal variables such as currency exchange rates are mechanically linked to their real counterparts. The enormous empirical literature on exchange rate regimes, while informative and influential on policy, nonetheless is not founded on coherent theoretical models with finance incorporated in an essential way.

Lastly, there are theoretical and empirical models of the literature on finance. Valuable insights about volatility and stability have been derived from these models. Yet their connection with the underlying macro and micro economic formulations is left either implicit or absent. They focus on the stochastic processes of financial variables and not on macroeconomics.

In sum, the available theoretical and empirical models (micro, macro and finance) do not provide coherent models and set of tools to understand and analyze the current economic crisis, let alone make policy suggestions for

climbing out of it. The failures of the economic profession in this regard are expressed well by the distinguished theorist and John Bater t Clark Medal Winner Daron Acemoglu(2009) as follows:

"The crisis is still evolving and there remains much uncertainty about what happened in the financial markets and inside many corporations. We will know more in the years to come. Already with what we know today, many of the roots of our current problems are apparent. But most of us did not recognize them before the crisis. Three notions impelled us to ignore these impeding (sic, impending?) problems and their causes.

The first is that the era of aggregate volatility had come to an end. We believed that through astute policy or new technologies, including better methods of communication and inventory control, the business cycles were conquered. Our belief in a more benign economy made us more optimistic about the stock market and the housing market. If any contraction must be soft and short lived, then it becomes easier to believe that financial intermediaries, firms and consumers should not worry about large drops in asset values.

Our second too-quickly accepted notion is that the capitalist economy lives in an institutional-less vacuum, where markets miraculously monitor opportunistic behavior. Forgetting the institutional foundations of markets, we mistakenly equated free markets with unregulated markets. Although we understand that even unfettered competitive markets are based on a set of laws and institutions that secure property rights, ensure enforcement of contracts, and regulate firm

behavior and product and service quality, we increasingly abstracted from the role of institutions and regulations supporting market transactions in our conceptualization of markets.

The third notion that has also been destroyed by recent events is at first less obvious. It is also one that I strongly believed in. Our logic and models suggested that even if we could not trust individuals, particularly when information was imperfect and regulation lackluster, we could trust the long-lived large firm~ -companies such as the Enron, Bear Stearns, the Merrill Lynch, and the Lehman Brothers of this world –to monitor themselves and their own because they had accumulated sufficient reputation capital. Our faith in long-lived large organizations was shaken but still standing after the accounting scandals in Enron and other giants of the early 2000s."

3. Presumed causes of the financial crisis and its spread to the real sector

A number of papers with varying mix of serious analysis and outright speculation have appeared. One of the few who anticipated and warned of the onset of the crisis in his Nouriel Global Economic (RGE) Monitor was Nouriel Roubini. He has gained notoriety as Dr. Doom for his dire forecasts in ubiquitous appearances on television talk shows in the US. Unfortunately his forecasts have so far been close to what has been happening. Instead of summarizing and critically evaluating the analysis of Roubini and others, I will selectively draw on

the studies and research papers put out by he IMF and by Kenneth Scott on the crisis in the US and its contributory factors.[3]

The work by the IMF was requested by its policy steering committee (IMFC). It will serve as a background for the deliberations of the group of 20 (G-20) economies that are expected to result in a blue print for reforming the way financial markets are regulated and for making international financial institutions, such as the IMF and the World Bank more effective. (IMF survey online, March 6, 2009). I will come back to the report of the IMF on its work in Section 5.

The leaders of the G-20 economies met the first time at a summit in Washington in November 2008 at the invitation of the then U.S. President George W. Bush. The summit is scheduled to meet again in London on April 2, 2009. The U.S. President Barack Obama will participate. So will Dr. Mammohan Singh who participated also in the November 2009 meeting.

It is well known and widely accepted that the crisis began with collapse of what has since been described as a real estate price bubble. The peak of real estate prices that had been climbing steadily since was reached in mid 2006. The decline in prices that started them is still continuing with no end in sight.. According to RGE Monitor's the 2009 first quarter update of US economy outlook dated 11 March 2009, so far housing pries have fallen by more that 27% from their peak in mid 2006. New single family home sales are down by 76% from their July 2005 peak and total housing starts in January 2009 at a seasonally adjusted annual rate of 466 thousand are less than one-fifth of their

[3] Presentation by Kenneth Scott, Parsons Professor of Law and Business Emeritius, Standford University Law School entitled "The panic of 2008-A perfect storm?" at Waseda University Law School, Tokyo, March 13, 2009

peak value of 2.3 million in January 2006. Clearly the housing sector is still in serious trouble.

The crisis arising form the build- up and the collapse of housing price bubble in the US (and also the UK) is fundamentally a real sector shock was not contained within that sector. It had a significant impact on the US financial system ending up with credit markets ceasing to function. The crisis then spread from the financial sector back to real sector as a whole, initiating a recession in December 2007. As mentioned earlier the recession has continued through out 2008 and no recovery is expected until early 2010 at the earliest. To understand the contagion from the collapse of the real estate price bubble to the financial sector as a whole and the back to real sector as a whole, one has to describe the many factors that contributed to these outcomes.

The first is the era of high liquidity, low interest rates and increasing leverage in financial markets in the US, Europe and elsewhere. Ken Rogoff once termed the period since the 1980s as the era of great moderation globally with low real interest rates, low inflation rates and low output volatility. The period since the Asian financial crisis of 1997 is particularly relevant since it corresponds to the build up global imbalances, with China, India, Japan and South Korea to mention a few, accumulating huge foreign exchange reserves (above and beyond what would have been called for from the perspective of self insurance from external financial shocks) and investing them in US treasury bills and other low yielding assets. Since most of these economies also saved a high proportion of their GDP, in effect their running current account surpluses and

accumulating reserves contributed to a rightward shift in the global supply curve of finance. The demand curve also shifted to the right with the decline in domestic savings in the US since 1980 coupled with the dramatic shift from a rising fiscal surplus at the close of the Clinton Administration in 2000 to a growing fiscal deficit fueled by massive tax cuts and the costs of Iraq during the Bush Administration. However, apparently the rightward shift in supply dominated the demand shift so that equilibrium interest rates remained low. The monetary policy response of US Federal Reserve under Chairman Greenspan to the collapse of the dot.com bubble in 2001 by way reducing federal funds rate to 1% also contributed to keeping interest rates low. It should cause no surprise that the plentiful supply of liquidity at low interest rates encouraged the build-up of leverage ratios every where. It also increased the availability of mortgage finance and lowered mortgage rates thereby giving birth to the housing price bubble, though not recognized as such then.

The second, is the change in regulatory measures on mortgage lending and its contribution to the development of the sub-prime lending in the US. Briefly, banks were encouraged to make loans to low and medium income borrowers (LMI), and to promote affordable housing. In particular Government Supported Enterprises (e.g. Fanniemae and Frediemac) were mandated to raise the share of loans to LMI borrowers as specifically to increase lending to previously underserved areas an also to low income households. All this led to a lowering of lending standards and eventually to sub-prime lending of various forms, the most egregious one being the so called “option ARM” which let the

borrower pay whatever he chooses and were not ever required to provide any verifiable documents of their income or assets. Besides banks, the originators of mortgages included mortgage brokers and others who had no incentive to insist on borrower providing adequate down payment and proving his capacity to service the mortgage.

The third and most important factor was the financial innovation of securitization and tranching. Securitization involved putting a large number of mortgages (prime, sub-prime, etc.) into a pool, dividing the cash flow from the pool into various “tranches” so that the holder of the top most tranch have more seniority on the cash flow from the pool and hence earns a low return and carries low risk. Holders of the bottom most tranch became the category of residual claimants, or in effect, equity holders on the pool with high returns and risks. The pool of mortgages could be augmented with pools of other debt such as auto loans and consumer debt to create a larger pool of collateralized debt obligations or CDOs. Taken by itself this innovation is obviously beneficial in that it reduced average risk by putting mortgages with heterogeneous risks into a common pool (the diversification effect) and by distributing the lowered average risk according to risk bearing capacity (risk shifting effect), though unfortunately the mortgages also had correlated common risk besides the heterogeneous idiosyncratic risks that were diversified by the pooling. It turned out that the correlated common risk turned out to dominate the idiosyncratic risks of the pool in the crisis. Further the process of pooling was very complex involving exotic categories such as Special

Investment Vehicles, “CDO squared” etc. The tranches based on the cash flows from pools so created were sold to investors.

The fourth factor was that the purchasers of securitized pool tranches were mainly institutional investors who were lured to buy them on the rating basis of the securities by the reputed ratings agencies such as Moody’s, S&P, Fitch, etc. The upper tranches rated by them as the best quality and highly liquid AAA securities and were bought by insurance companies, mutual funds and banks in the U.S. and globally.

The fifth factor was that the process of securitization and tranching was not only complex but also opaque. Their purchasers lacked information needed to understand and assess the changing risk-return characteristics of their holdings.

The sixth and last factor was the massive incentive problems created by securitization across the board. With little equity of her own in them, an ARM mortgage borrower could sell or refinance her home if home prices continued to rise and walk away from it if it did not! The availability of such risk-free one way gambles naturally increased the demand for such mortgages. Mortgage originators, since they sold the mortgage to the bank or any other sponsor of the mortgage pool, naturally had little or no incentive either to screen borrowers or to monitor them once the mortgage had been signed. The pool servicers, i.e.,

those to whom borrowers paid their mortgage service payments for onward transmission to owners of various tranches of securities essentially received fees for their services from pool sponsors and had no incentive per se in the underlying mortgages and securities. The rating agencies had conflicts of interest in that those who sought their ratings also paid them for the rating services. Finally borrowers and investors, given the complexity of the process of pooling and tranching as well its opacity, did not fully understand the securities let alone do due diligence on them.

The massive incentive problems of securitization came home to roost once the house price bubble burst. Although economists such as my colleague, Robert Shiller, had understood the building up of the bubble and of the inevitability it would collapse sooner or later, even they did not fully comprehend the havoc that ensued the collapse.

Going back to my title for this talk, I would argue that the linkage between the real and financial sector that was otherwise weak, was made much stronger by the securitization. Simply put, had the conventional mortgage financing system (which itself dates back to the housing price collapse during the Great Depression and the reforms and new institutions created by President Roosevelt in response) continued, a mortgage would be held until maturity by the originating bank. The bank would then have the incentive to be selective ex-ante in deciding among applications for a mortgage and also to insist on a sufficient

down payment so as that the borrower has equity on the house that will induce him to service the loan, rather than default and be foreclosed. In addition it would have the incentive ex-post to monitor the borrower and to help him if he faced a temporary adverse shock. Moreover, both the bank and the borrower would have the incentive to renegotiate and modify the terms of the mortgage if there is a large fall in house values so that the dead weight loss associated with the process of default and foreclosure are avoided. This meant that a price shock originating in some geographical area is likely to remain local. If it is not extreme, it would be addressed by the borrower and his bank through appropriate renegotiations and would have very little spill over effects on the capital base and lending base of other financial institutions.

The innovation of securitization destroyed this entire incentive structure. The originator no longer had the same incentive to be selective in choosing the borrower, insist on a down payment and monitor. With the various tranches from mortgage pools being held widely by many financial institutions, banks, pension funds, municipalities, hedge funds as well as some large investors located around the world, the stage was set for what could have remained a local real sector price collapse (i.e., housing price collapse) to balloon into a global crisis of the financial and real sectors. In particular, these institutions had no way of knowing the value the securities they were holding and whether their capital base was adequate for covering their vaguely understood risks. The outlines of the rest of the story are well known. The general lack of confidence in each other's

solvency among banks, as well as their deleveraging, notwithstanding the infusion of large amounts of capital by the central banks, led to credit flows being severely curtailed. No wonder this led to the real sector dependent on credit for working capital, trade, etc. to contract and the contraction to spread globally. How to get out this predicament? I will come back to this after discussing the impact of the crisis on China and India.

4. Impact of Global Financial Crisis of 2008[4]

4.1 India

In mid 2008 as the oil price was racing towards a peak of $147 a barrel and other commodity prices were also peaking, and as the financial crisis triggered by sub prime mortgages in the United States was gathering momentum, many in India were more concerned by the rising domestic inflation, particularly the rise in food prices than by financial crisis. The widespread belief then was that the impact of the crisis on India would be modest and policy makers would be able to weather it. In a speech delivered on July 1 2008, Dr. Venugopal Reddy, the Governor of Reserve of India, India's Central Bank said that "India has by and large been spared of global financial contagion for a variety of reasons. The credit derivatives market is in an embryonic stage: the originate – to–distribute model in India is not comparable to the ones prevailing in advanced markets; there are restrictions on investment by residents in such

[4] Section 4.1 is based on my remarks at the session on Japan and India: Facing Political Change and Economic Trauma at the 2009 winter Round Table of the Pacific Pension Institute held at La Jolla, CA. February 25-26, 2009.I thank Rakesh Mohan for his comments on this section. He is not responsible for my use of them and none of the statements should be attributed to him.

products issued abroad; and regulatory guidelines on securitization do not permit immediate profit recognition. Financial stability in India has been achieved through perseverance of prudential policies which prevent institutions from excessive risk taking, and financial markets from becoming extremely volatile and turbulent. As a result there are orderly conditions in financial markets, the financial institutions, especially banks, reflect strength and resilience". Dr. Reddy raised a number of broader issues in concluding his lecture without taking a position on any of them, including the issue whether financial liberalization and globalization have lower returns relative to costs as compared to liberalization of trade in goods and services. Many distinguished economists including Jagdish Bhagwati believe this to be the case though neither he nor others have provided a rigorous model incorporating shocks to trade and finance to support their case.[5]

Dr. Reddy's successor, Dr. Subba Rao, spoke three months later on October 11, 2008 on the lessons from the global financial crisis from the perspectives of India and Emerging Markets Economies. He reiterated Dr. Reddy's main point that the Indian financial sector had not been affected by the

[5] Dr.Reddy in a private communication to me pointed out that "(a) The crisis has shown that some countries, which are some what vulnerable on current account and fiscal account such as East Europe, are having serious problems in external sector and to some extent financial sector. As you are aware India has vulnerability on both the accounts. But India has fewer problems now by virtue of the defenses built in the RBI's policies and (b) experience shows that cost of banking crisis is higher and time taken to restore normalcy is longer than other crisis in financial sector. Hence India's strong banking sector, even private sector by global standards, is an advantage for India. In other words India's banking system is strong not only due to the public sector component but by the nature of private sector banks and foreign banks as also systematically non-banking financial companies.

contagion. This remains true till today: Indian banks are all profitable, they are all well capitalized, Indian money markets have been functioning efficiently and without break all through, etc. bank credit growth has remained healthy (around 20 % year on year) though it has tended to slow down in the last few weeks. It is true, of course that the stock market has been affected, the exchange rate has been affected, and access to external borrowing has been affected, because of reversal of capital flows. Unlike Reddy who did not mention the likely impact of the crisis on India's growth, Rao said that India with its strong domestic drivers for growth may escape the worst consequences of the crisis. He repeated Dr. Reddy's argument that Indian banks have very limited exposures to the US mortgage market either directly or through investments in derivatives issued by failed and stressed financial institutions.

However, he recognized that through equity and foreign exchange markets global crisis can spread to India. In addition money, debt and credit markets in India could be affected indirectly by the rising cost and lower availability of external funds so that Indian Corporate, depending on them for credit would raise their demand for domestic credit rises. Reduced capital inflows as well as the lowering of demand for exports because of global recession, would adversely affect India's rate of growth. In his view these indirect impacts of the financial crisis could not be dismissed as insignificant or trivial and could rise if the crisis further worsened.

I already referred in the introduction to Governor Rao's lecture in Tokyo on February, 2009 and his reference to very worrying trends in global growth and trade. After correctly debunking the once prevalent fad of "decoupling" theory which claims that in emerging market economies, particularly China and India, growth was no longer driven by external factors, but by largely domestic factors. Thus their rapid growth, instead of being driven by global growth, was instead driving it. If this theory were to hold, the global crisis and recession would have negligible effects on the growth of emerging market economies and by continuing to grow rapidly they would help moderate recession elsewhere. As always, reality proved an effective antidote this fad and fancy of theory. Before discussing the slow down in India, let me draw on Dr Rao's analysis some more. He asked four questions relevant to my discussion and provided answers. First, why has India been hit by the crisis? After all the assets owned by the public sector banks exceeds 75 percent of the total assets of India's commercial banks excluding foreign banks. These banks continue to be safe with the government known to be ready to recapitalize them if needed. Besides, Indian banks did not hold securities based on sub-prime mortgages or collateral based obligations or others issued by failed institutions abroad. Clearly this channel of possible contagion could not have operate in the Indian case.

Second, as compared to other emerging market economies, such as China, India's recent growth has been driven primarily by domestic investment and consumption. Gross investment at nearly 35 percent more of GDP is largely financed by domestic savings of households (including unincorporated

enterprises and charities) and by private corporate sector. Exports of goods and services still account for only 21-23% of GDP as compared to 40% in China. With so little dependence on external demand, why did not decoupling hold? Dr Rao's answer, and I agree with him, was that India's financial integration with the global economy has been more rapid than real integration. The share of exports and imports of goods and services in GDP, the measure of real integration, rose from 23% of GDP in 1990 to 49% in 2006. Financial integration, measured as the sum of gross flows on the current and capital accounts, grew from less than 25% of GDP in 1990 to over 117 % in 2007-08. The corporate sector's access and use of external funds had increased substantially in the era of globally low interest rates. Thus, when external funding for Indian Corporations and the foreign institutional investment in Indian equity markets came down significantly after the onset of the crisis, the spread of contagion to India through the financial channel was unavoidable. The contagion also spread through the real channel, though it is premature to assess the extent and depth of it given the long lags in data availability. The contagion through the so called confidence channel is difficult to quantify, let alone rationalize, given the sound state of India's financial sector and the economy more generally.

Briefly, through the financial channel India's equity, money, foreign exchange and credit markets have all come under pressure with domestic participants trying to substitute domestic finance for the drying of external finance. With the foreign institutional investment flows turning into net outflows by a significant amount, foreign exchange markets came under pressure. Both the

central government and Reserve Bank of India responded to the contagion from external shocks basically in two ways, as elsewhere in the World including the US. The government's response was a fiscal stimulus of the order of around 2-3% of GDP so far. Some have argued that this woefully inadequate. I also believed this to be the case but I am not sure anymore, though one cannot be sure of this without a deeper analysis of the factors contributing to the slow down. The response of the Reserve Bank has been monetary accommodation and some regulatory forbearance.

The Reserve Bank reduced policy rates such as the cash reserve ratio to 5% from its peak of 9% in September 2008 and the statutory liquidity ratio to 24% from an earlier 25 % Currently the repo rate is 5% (as against 9.0% a year earlier) and the reverse repo rate is 3.5% (as against 6% a year earlier). The overnight interbank money market rate has come down from 9% in September 2008 to around 3.5-4 % now. Deposit rates are currently between 7.50-9%, not very much lower than earlier. Yet as in the US the significant reduction in policy rates and quantitative easing have not reduced bench mark prime lending rates, which continue to be 12.75% and 13.25%, although 80% of lending is at lower rates.

India's foreign exchange reserves are currently around $250 billion in early march 2009 down from $320 billion earlier in part because of the policy response to reduced foreign exchange availability but mostly due to revaluation effects arising from the strengthening of the dollar against most reserve

currencies from foreign institutional investment and rising trade deficits because of slowing of export growth.

The impact on the real sector has been significant as well. The rate of growth of real GDP, after recording over 9% per year for three years in a row from 2005-06, was projected in early February 2009 to slow down to 7.1% during 2008-09 that ends in March. It now seems that is unlikely to be attained given the latest report that the rate of growth during the third quarter is down to 5.3%. It has to exceed 7.5% in the fourth quarter, an extremely unlikely event, if 7.1% for the entire year is to be attained. It is projected to slow down further to 5% in calendar 2009. The Bombay Stock Market, sensitive index BSE is now around 8800, a nearly 50% fall from its peak of over 18000. General Index of Industrial production during April 2008-January 2009 grew by 3% over the corresponding period in 2007-08. This is a considerable slow down compared to 9% in the previous year. Manufacturing production index also showed a similar fall. In January 2009 both indices fall by 0.4% and 0.8% respectively compared to the previous month. The only redeeming element in this depressing scenario is the moderation of wholesale price inflation, although consumer prices inflation does not show a decline yet.

What about the future outlook, in particular, about India becoming among the first economies to break out of the crisis? I am not very optimistic for several reasons.

First, the slow down in growth rate of GDP began before the financial crisis hit. It was caused by structural problems in the Indian economy particularly

poorly functioning infrastructure and inadequate investment is it. Although India's gross investment is currently at 35% of GDP, largely financed by domestic household savings, this high ratio is misleading. Nearly half of the investment estimated as a residual, is done directly by the households without their going through financial intermediation. The productivity of this investment is not known, though believed to be much lower than other investment in the economy. Not much has happened by way of Public-Private partnership in the funding of infrastructure investment. It is not evident that even taking into the falling rate of growth of exports, growth in aggregate demand has slowed significantly. This being the case, it is arguable that domestic constraints (e.g. infrastructure, labour market regulations etc) have made sustaining growth rates of 8-9% very difficult and until these constraints are adequately addressed, a growth slow down as is happening was inevitable. If this is a reasonable hypothesis, then the bulk of the stimulus package oriented towards boosting domestic demand seems misdirected and could end up stoking inflation instead.

Second, the facts that a large share (exceeding 75%) of the total assets of the banking system is still in the public sector banks and government directives on their as well as that of private sector banks to the so called priority sectors credit allocations continue to be significant, are in my view a major constraint on developing an efficient, safer and growing financial intermediation.

Third, undoubtedly India has benefited enormously from its opening from the heavily controlled economy that was once insulated from competition from

imports as well as among domestic producers. Yet the commitment of Indian politicians to a liberal, open and market oriented economy is not very deep. This is reflected in not only India's dragging its feet on the Doha Round, but also its continuing use of anti-dumping measures and the raising of tariffs such as on import steel recently.

Fourth, India's fiscal deficits will constrain any further stimulus and public investment. When India opened the economy in 1991 its gross fiscal deficit was 9.5% of GDP. In 2008-09, it is likely to be significantly higher. With a public debt to GDP ratio over 75%, India does not have much room for fiscal expansion in India in contrast to China

Fifth on employment, a large majority of India's labour is not only self-employed but also in low productivity primary activities including agriculture. This reflects the legacy of India's pursuit for three decades or more of a soviet style heavy industry strategy and an emphasis on import substitution across the board and on public ownership. India bypassed the tried and tested development strategy of all successful developers of past and present that emphasized labour-intensive manufacturing for supplying growing domestic and foreign markets. The recent shift away from this failed strategy and towards greater emphasis on labour-intensive manufacturing is running into institutional constraints such as draconian labour and bankruptcy laws.

Last and sixth, India's parliamentary elections are being held in May 2009. There is a great deal of uncertainty about their outcome. In particular whether or not the coalition led by Indian National Congress that has governed during the

last five years would be voted back to power is not easy to predict. In a worst case scenario for stability of economic policy a weak coalition of diverse regional parties with no coherent economic view could gain a small majority.

The long term growth prospects of India, however, continue to be bright however once the current global crisis fades away, hopefully reasonably soon and needed domestic reforms and investment are undertaken, rapid growth will resume.

4.2 China

The impact of the global financial on China's financial system has been limited as in the case of India for similar reasons. China's banks have modest exposure to sub-prime assets and controls on external capital flows are in place. Unlike India, China runs significant current account surplus exceeding 11% of GDP in 2007 and projected by the World Bank to be close to 9% of GDP in 2008 and 2009. Foreign exchange reserves are close to $2 trillion as of February 2009. These are far higher than India's $1.25 trillion. Chinn's real integration with the global economy with a share exceeding 70% of its GDP is much higher than Indis 's. So is its financial integration.

It is no surprise that for an economy that is far more integrated with the rest of the world with a much larger share of exports of goods and services in its GDP compared to India' China has experienced much greater impact of the global crisis on its economy operating through the real channel. The spread through

financial channel has been muted than in India. The average growth rate of 9% of GDP in 2008, itself a significant fall compared to the previous year, msrks the annualized growth of only 2.8 percent in the fourth quarter of 2008. Job loss by migrant workers were estimated at 20 million in February 2009 double what was estimated in December 2008 and an addition of 7 million of rural residents were expected to join the migrant work force Export growth on a year to year basis fell by 2.8 percent 2008 and 17.5 percent in January 2009. Industrial production grew by only 5.7 percent in 2008 from double that level a year earlier. It would seem that, China as it is to be expected, experienced a greater impact through the real channel on its GDP, industrial and export growth than India.

Turning it to China's response to the adverse shocks through the real channel and the livelihood that it will recover, perhaps earlier than the rest of the world, first, China announced a stimulus plan of RMB 4 trillion ($ 585 billion) in November 2008. In his "work report" to the National Peoples Congress in March 5 2009,Premier Wen Jiabao promised an 8 percent rate of growth in 2009 which he claimed was realistic although the global financial crisis was deepening. Although, he was widely expected to announce an addition stimulus plan he did not announce any new plan, He left no doubt however, that such additional stimulus would be announced if necessary.

Second, as noted earlier China is in a stronger fiscal position than India and its external reserves are far higher than Indi's to be able to finance the stimulus

announced in November 2008 and any addition that may be announced. In the very same speech, Mr.Wen announced that China would run a fiscal deficit RMB 950 billion or 3 percent of GDP, far less than the higher level of Indi's fiscal deficit in 2009-10.

Third, some observers (e.g. Albert Keidel of the Carnegie Endowment for International Peace) hold that China has an especially effective financial system consisting of three parts to carry out the economic situations: the first the market versed component of the financial system, though still immature and not up to Hong Kong's level of sophistication, is improving. It has been prevented from making unwise investment by China's tight management of international investment flows. This is analogous to the Reserve Bank's tight supervision of India's foreign investment flow; the second, is policy-directed lending from state-owned banks for infrastructure and public investments, which will be increased by the stimulus. The Indian government's directive to the large state-owned Indian public sector banks as well as the rest of the banks to lend to priority sectors is analogous; third and last, the most important source of investment in China competitive for profit, companies. This financing is market-based and results-oriented and presumed efficient. Pieter Botellier of Johns Hopkins School of Advanced International studies, in his presentation at a panel on "Is China's Economy Tanking? Understanding New Data" on January 30, 2009 at the Carnegie Endowment for International Peace, predicted that although China faces serious challenges, particularly on unemployment, it will not experience a

growth collapse in 2009, and its current recession will bottom out in the second or third quarter of 2009 and GDP growth in 2009 will not fell below 7% in 2009.

At the same panel Donald Hanna of Citi Group noted that US economic growth is essential to China with a 1% decline in US growth leading to 1.3% decline in China's growth and that the rapid slow down in industrial production and focus generation and exports as well as drops in consumer and producer prices could pose a deflationary threat. He felt that because it still contributed 43% of fixed asset investment and 60% of total banking assets, the stae wields disproportional influence in the economy and can compel the drivers of China's economy to adopt growth-oriented policies, although this runs the risk of reversing market-oriented reforms that have contributed so much to recent growth. He expected China to experience a soft landing from the crisis and recover soon.

The issue of RMB/US Dollar exchange rate and the claim that the Chinese government is" manipulating it" continue to be raised, as the need for the continuing finances of US current account deficits grows as the US has to borrow for its rising fiscal deficits. The analytical basis for the currency manipulation claim is weak to non-existent. On the other hand, in his speech on March 13, 2009 ahead of the scheduled G-20 Finance minister's meeting later in London,. Wen Jiabao, the Chinese Premier, noted that China is holding $1 trillion in US Government debt, the world's largest holding. He expressed his "worry" over the Chinese holding of US treasury bounds and other debt and that

China was watching US delay. He urged the Obama administration to offer assurance that the securities would maintain their value. Mr.Wen did not explain whathe meant by “maintaining” the value of US securities nor did he sound as if he was threatening to withhold the China’s future purchases of US securities,let alone unload its current holdings. In any case, with the size of the debt so large, it is not clear that China as a creditor has much leverage over US as the debtor on this issue. What is clear is that any major disruption of its purchase or unloading a significant share of its current holdings by China would have major consequences for the global capital market.

5. Policy implications and conclusions

In a very interesting recent paper Rogoff and Reinhart compared the aftermath of severe financial crises, focusing on systemic crisis after the second world war including the ‘big five’ developed crises and also a number of emerging market crisis including the 1997-98 Asian crisis as well as two earlier cases of Norway in 1899 and the United States in 1929. Central to their analysis is historical housing price data. In an earlier paper they had analysed 18 major banking crises in the developed world, again in the post second world war era.

Three major findings of the comparisons of Rogoff and Reinhart are: (1) Asset market collapses are prolonged and deep. Excluding six currently ongoing crisis, housing prices declined (peak to trough) by 35.5 per cent on an average. The decline of 27% in the US during the current ongoing crises, is already more than twice what it experienced during the great depression. Duration of housing price declines is long (6 years on an average) with the decline in Japan extending 17 consecutive years. Equity price declines are far steeper (average 55.9%) though of shorter duration (average 3.4 years). Keeping the severe data comparability

problems in mind, and excluding on-going crises, unemployment rates increased by about 7 percentage points over five years. Interestingly emerging market economies (particularly the Asian ones) do better in unemployment than advanced economies. The average decline in real GDP per capita at 9.3 per cent is very deep but of short duration of only two years. The advanced economies do better in GDP fall probably because they depend less on foreign capital that is prone to come to a sudden and unanticipated stop. Finally, real public debt increases by 86% on an average in the three years following a banking crisis. Clearly the aftermath of severe financial crises consists of deep and lasting effects on asset prices, output and employment. While comparisons with historical averages overlook the fact that authorities have more flexible policy frameworks to address crises in the current world of flexible exchange rate regimes globally, still one should not overestimate the value of this flexibility. After all the belief that in part because of policy flexibility and in part because of improved analytical capabilities, business cycles have been tamed turned out to be premature.

How soon will the current crisis end? The historical perspective suggests caution in making confident predictions. However, it would be appropriate in taking some comfort in the signs that at least in the United States, where the current crisis began, that an upturn by the end of 2009 is likely. Robert Hall, distinguished macroeconomist at Stanford argues that the recession in the US is not as serious as many claim and points out the private consumption, the dominant source of demand in the US is holding up well. Durables consumption stabilized around October 2008 and the decline in non-durables consumption has probably bottomed out as well. In his view the US is poised to come out of the current global real decline ahead of others. Ben Bernanke, chairman of the Federal Reserve Bank of Governors, in a televised broadcast on Sunday March 15, 2009 also saw the recession ending probably in 2009 though he expected the recovery to be slow, dependent as it was on having the backing of the law makers and the public for the policies adopted for addressing the crisis.

Bernanke had said earlier of the stimulus plan, as it was being considered by the Obama administration prior to its taking office, that fiscal stimulus alone would not be enough to sustain a rapid recovery unless they are accompanied by strong measures to further stabilize and strengthen the financial system. He reiterated this at the interview by saying that the lesson of history is that a sustained economic recovery is not possible as long as the financial system is in crisis, adding that he is working on a plan for getting it stabilized.

It is no surprise that some who were not enthusiasts of a market economy to begin with, see the current crisis as a capitalism of crisis. The financial Times has been publishing a series of articles by eminent economists on this issue. It seems that this view is much too overblown. It is true, the global economy is experiencing a severe crisis since the onset of global integration of markets for goods and services as well as finance in the eighties. It is true also that there have been excesses and fraudulent behavior in markets. But to say that all this spells the end of the market system is to underestimate the capacity of the governments to take corrective action to curb the excesses, while retaining the proven potential of the market system for innovation and sustained improvements in human welfare.

In a series of papers on the lessons from the crisis, the IMF researchers identified the root of market failure in the optimism and complacency bred by a prolonged period of high growth, low real interest rates and volatility as well as policy failures in national regulators not seeing the systemic risks induced by financial innovation and macroeconomic policy markers in not fully absorbing in their policy making, the build-up of the systemic risks in the financial system and housing markets and also the weakness of the fragmental global surveillance system. The proposals for reform by the IMF researchers follow from this diagnosis.

Before turning to the proposals of IMF and others it is worth making a precautionary remark. While it is to be expected that a severe crisis would naturally elicit many proposals for reform including some for dismantling the existing system entirely and radically remaking it, some reflection and caution is essential not to undertake myopic actions at the exigency of the crisis that could not only potentially increase the probability of recurrent of the crisis in an even more severe form in the future and also in some way foreclose some possible future policy responses to crises. Keeping this in mind, I would briefly review some of the many proposals that have been made.

It is widely accepted that recent rapid pace of financial innovation exceeded the growth of analytical capacity to understand the associated risks, not only for individual and institutional participants in financial markets but also the build-up of systemic risks on the part of regulators. From a policy point of view the implications for addressing systemic risks are obviously central. I am afraid as yet no rigorous framework is available for modeling of the build up systemic risks at national and global levels. Even were one on hand, I fear that the available data series is too short to 'stress test' The model so to speak, of alternative ways of reforming the risk assessment and response systems. It is not clear to me therefore, whether and how, any rigorous evaluation of reform proposals could in fact be undertaken. Be that as it may, let me proceed.

First, as is well known, the recent massive policy interventions such as those that forced the restructuring of Bear Stearns and infusions of large amounts of public resources in the insurance giant A.I.G in the USA and equally the decision to let Lehman Brothers go bankruptcy were also rationalized by the presumed serious systemic consequences of not taking these actions. To some extent such rationalizations are inherently self-serving since the asserted serious consequences are basically counterfactual. Yet if the need for taking such actions in the future is to be contained, one has to address in part the issue of how to prevent the growth of institutions to an extent that they become too large

to be allowed to fail. This size issue is not the conventional one of a firm growing large enough to acquire power to influence prices in a particular market. It is more one of involvement of a firm in several interconnected markets that gives it the ability to create systemic risks. The fact that the network of interconnected markets is global restricts the capacity of national regulators to take preventive actions. Put it simply, paraphrasing the remark about politics of a famous politician in the U.S. the late Tip O'Neil, "All regulation is rational, but potential sources of risks are global".

It has been proposed that national central banks be given authority to monitor systemic risks nationally and take appropriate action and at the global level, the mandate of the IMF be restricted to stability of the global financial system, given authority to intervene in global financial markets and provided adequate human capital and financial resources to discharge the mandate effectively and efficiently. The proposals of IMF researchers also are of a similar nature. These include: (i) extending and broadening the perimeter of regulation and making it more flexible with enough disclosure to determine the systemic importance and degree of needed oversight (ii) adoption by central banks of a broader macro-prudential view encompassing asset price movements, credit booms, leverage and the build-up of systemic risk in their decision making and (iii) addressing the fragmentation globally of the expertise and authority to undertake actions to promote global stability. Finally, the European Union will be presenting its proposal for extending the scope and extent of regulation of financial markets at the forthcoming meeting of the G-20 summit in London on April 2.

Undoubtedly these proposals have valuable elements that are worth pursuing. But it is too premature to embrace any of them without fleshing them out concretely and evaluating them with the best available tools. Needless to say, further research on these issues is essential.

In conclusion, let me express the hope that the proverbial light at the end of the tunnel is visible and the global economy will begin to recover before the end of 2009. I hope also that Governor Subba Rao's reported remark on the eve of his departure to the meeting G-20 Finance Ministers in London that India's growth will pick up will be faster than rest of the world is much more than mere wishful thinking and morale-boosting.