

After the Crises: Assessing the Costs and Benefits of Financial Liberalisation

14th Chintaman Deshmukh Memorial Lecture

Reserve Bank of India, Mumbai

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Mr Governor, ladies and gentlemen, it is a great honour to have been invited to give the 14th Chintaman Deshmukh memorial lecture, and a great pleasure to be with you here in Mumbai. The Reserve Bank of India has a high reputation as a centre of thoughtful analysis of the important issues of financial stability and optimal policy which concern policy makers throughout the world, and a high reputation for having helped steer India through the recent financial turmoil. It is about the origins of that turmoil and how we respond to it that I will talk tonight.

In Autumn 2008, the world financial system suffered a huge crisis which imposed great harm on the world economy, and thus on the employment, wealth and welfare of many people throughout the world. In its wake, there is strong determination to learn the lessons of what went wrong and to build a more stable global financial system for the future. This has involved a new institutional structure, with the creation of the international Financial Stability Board, bringing together developed and emerging market central bankers, regulators and financial ministers. We are striving to ensure a strong and globally agreed response.

But we have been here before. Indeed, only 11 years before 2008, in Summer 1997, the global financial system had also been rocked by an enormous financial crisis – the emerging market and primarily Asian crisis of 1997-98. And after that crisis there was a determination to learn lessons, to improve the quality of regulation. And there were new institutional structures: the Financial Stability Forum, which was the direct precursor of the Financial Stability Board, was established in 1998, to ensure better surveillance of emerging risks, and identification of the policy responses needed to avoid future crises. Sadly that institutional response was ineffective.

In part that is because the latest crisis came from a quite different direction. And just as many generals are said to have a tendency to fight the last war, so regulators and central bankers may have a tendency to address the problems revealed by the latest crisis. We must avoid that mistake. And one way to avoid that mistake is to draw lessons not just from the latest crisis but from previous crises as well, identifying the general factors underlying both this latest manifestation of financial instability and crises that went before. So my aim this evening is to ask what common lessons we can learn both from the Asian crisis of the 1990's and the latest developed world crisis. And India is a very pertinent country in which to attempt that analysis, since India managed in both crises to escape with relatively little financial instability and relatively slight economic harm.

There are of course important differences between the two crises. 1997 was essentially a crisis of emerging markets and a crisis in which instability of cross border capital flows played a crucial role. Swings in nominal and real exchange rates, first

rising to unsustainably high levels and then crashing dramatically, played a key role. And the sudden depreciations

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produced inflationary pressures and capital flight, for which the prescribed medicine was tighter fiscal and monetary policies.

By contrast, 2008 was in its origins a crisis of the US and European financial systems: rooted in over-exuberant credit extension in developed markets, and in the development of complex and opaque forms of securitised credit and of new and risky forms of maturity transformation. Exchange rate movements and international capital flows played only an incidental role: capital flows to emerging markets did turn volatile in late 2008 but only in response to the crisis, having played no fundamental causative role. And the consequences of the crash were deflationary rather than inflationary, in price as well as in output terms – so that the prescribed medicine has been fiscal and monetary loosening.

But despite these major differences, the two crises also have strong common features, and in particular both were rooted in, or at least followed after, sustained increases in the relative importance of financial activity relative to real non-financial economic activity, an increasing “financialisation” of the economy.

The Asian crisis came after a strong upsurge in the scale of financial capital flows to and from emerging countries: an upsurge which was seen in equity portfolio flows, debt security flows, and cross border bank capital flows ([Exhibit 1](#)). This upsurge was also matched by a longer term growth of financial capital flows between developed nations ([Exhibit 2](#)). And after the setback of the 1997 crisis, these capital flows, both between developed countries and between developed and emerging countries, have resumed an even stronger upward path ([Exhibit 3](#)). Finally this upsurge has been accompanied over the last 30 years by a quite striking increase in the volume of foreign exchange trading activity relative to global GDP and trade. ([Exhibit 4](#)).

The crisis of 2008, meanwhile, came after several decades in which financial activity within developed economies – whether measured by total bank assets to GDP, or by the scale of credit and derivatives trading, or the scale of interest rate derivatives trading, had increased dramatically ([Exhibit 5](#)).

On a whole series of measures, therefore, the sheer scale of financial activity has increased dramatically both in absolute terms and relative to real economic variables such as GDP, over the last 30 years. This followed several decades in which no such trend had been apparent.

Of course, that increasing scale of financial activity reflects in part the globalisation of world trade and long term capital flows, and the world of floating exchange rates which followed the breakdown of the Bretton Wood system in the early 1970’s. But it has also been deliberately fostered by policies of financial liberalisation, with the size and sophistication of financial sectors seen by an increasingly dominant conventional

wisdom – the Washington Consensus as it was labelled – as important positive drivers of national and global growth.

The crucial issue which we now need to address, after two terrible crashes in just 12 years, is whether this increasing scale of financial activity truly has been beneficial, which elements are beneficial and which harmful, and what trade-offs are required in public policy between any benefits of increased financial liberalisation and sophistication and the instability which seems at times to accompany it.

It is useful to begin that analysis by looking at the most macro and long-term indicators. Is there in economic history a clear correlation between the financial intensity of an economy – measured in all the different possible ways – and the overall rate of economic growth? The answer is that at this macro level there is no clear and universal positive relationship. Carmen Reinhart and Ken Rogoff in their recently published and excellent survey of eight centuries of financial folly, crashes and debt defaults (“This Time it’s Different”), identify the period 1945 to the early 1970’s as one of “financial repression” in which the role of the financial system was subdued in many countries.¹ And in some countries, for instance one might argue in India, that “financial repression” probably was one among a package of market restrictive policies which hampered economic growth. But equally there were countries which in that period achieved historically rapid growth with fairly “repressed” financial systems (for instance Korea), and in the developed economies – the US, Europe, and Japan – this period of financial repression was one of significant and relatively stable growth, comparing fairly well with the subsequent 30 years of increased financial activity and financial liberalisation.

And there does not appear to be any compelling proof that increased financial innovation over the last 30 years in the developed world has had a beneficial effect on output growth. Indeed a recent paper by Moritz Schularick and Alan Taylor documents the growth of leverage and credit extension which liberalisation and innovation has helped facilitate, but finds little empirical support for the proposition that this liberalisation and innovation has led to a corresponding increase in trend growth rates for the countries in their sample.²

So the broad historical macro facts do not provide compelling evidence that an increase in the financial intensity of market economies is necessarily and always and limitlessly beneficial for growth or welfare.

To progress beyond this very general conclusion, however, we need to consider both the economic theory of why, and under what circumstances, financial liberalisation might deliver economic benefit, and to consider the specific categories of financial activity which played important roles in, first, the crisis of 1997 and then the developed world crisis of 2007 to 2009.

This lecture is therefore structured in five sections:

¹ C. Reinhart and K. Rogoff *This time its different: Eight centuries of financial folly*, Princeton , 2009 ² M. Schularick and A.M. Taylor : *Credit booms gone bust: Monetary policy , leverage cycles and financial crises 1870-2008* ,NBER Working Paper No15512, November 2009

1. Contrasting economic theories: the neoclassical and the Keynes/Minsky approach
2. The Asian crisis of 1997: are short term capital flows economically value-added?
3. The developed world crisis of 2007-09: did financial innovation deliver economic value?
4. Possible implications for specific policies
5. Implications for our overall approach to financial deepening and liberalisation.

1. CONTRASTING ECONOMIC THEORIES : NEOCLASSICAL VERSUS KEYNES/MINSKY ASSUMPTIONS

The predominant neoclassical school of economics has perceived increased financial activity – greater market liquidity, more active trading, and financial innovation –as a broadly positive development.² This is because extensive financial activity is essential to complete markets. The first fundamental theorem of welfare economics, demonstrated mathematically by Kenneth Arrow and Gerard Debreu,³ illustrates that a competitive equilibrium is efficient. But this is only true if markets are complete i.e. if there are markets in which to strike all possible desired contracts, including insurance contracts and investment contracts linking the present and the future, as well as markets for current goods, services and labour. Therefore the more liquid are financial markets and the more extensive is financial innovation, the more efficient the economy will be. Thus :

- More liquid commodity futures markets are beneficial because they enable users and producers of commodities to hedge their risk more efficiently.
- Liquidity in the credit default swaps market enables investors and issuers of corporate debt to achieve and continuously adapt their desired risk profile.
- The complex structured credit markets which grew from the mid 1990s on were beneficial because they enabled investors to select precisely that combination of risk, return and liquidity which matched their specific preferences.
- And the wider the set of options for linking suppliers of funds with users of funds – including via the provision of market liquidity which enables investors' time horizons to diverge from the contractual maturity of the instruments themselves – the more efficient will be the allocation of capital.
- In each case therefore “innovation brings us closer to the Arrow-Debreu nirvana where all possible markets exist and are complete.”⁵

² I am indebted to Jonathan Portes , Chief Economist at the UK Cabinet Office for sharing with me an unpublished article which provides a particularly clear description of the differences between the Neoclassical and Keynes / Minsky approaches

³ K. Arrow and G. Debreu, Existence of an equilibrium for a competitive economy, *Econometrica*, vol.22, 1954 ⁵
The quote is from Jonathan Portes's paper

Moreover, these advantages of financial markets apply not merely within an economy, but between countries. The less restricted and the deeper the markets for capital flows between countries, the more efficient will be the international allocation of capital, with globalisation and financial liberalisation therefore naturally and beneficially linked.

Of course, these propositions do not mean that there is no role for regulation of financial services and financial markets. Neoclassical theory specifically identifies that competitive equilibrium conditions can be prevented by the existence of market imperfections, and recognises, as per the Lancaster- Lipsey conditions, that if a specific market is imperfect, liberalisation of other markets might be suboptimal⁴. But the neoclassical approach does tend to dictate a particular regulatory philosophy, in which policymakers ideally seek to identify the specific market imperfections preventing the attainment of complete and efficient markets, and in which regulatory intervention should ideally be focussed, not on banning products or dampening down the volatility of markets, but on disclosure and transparency requirements which will ensure that markets are as efficient as possible.

These propositions, and the strongly free market implications drawn from them, have played a somewhat dominant role in academic economics over the last several decades, though with dissenting voices always present. But they have been even more dominant among policymakers in some of the finance ministries, central banks and regulators of the developed world. Keynes famously suggested that “practical men, who believe themselves quite exempt from any intellectual influences, are normally the slaves of some defunct economist”. But the bigger danger may be that the reasonably intellectual men and women who play key policy- making roles, are often the slaves to a simplified version of the predominant conventional wisdom of the current generation of academic economists. Certainly in the case of the UK Financial Services Authority, the idea that greater market liquidity is in almost all cases beneficial, that financial innovation was to be encouraged because it was likely to expand investor and issuer choice, and that regulatory interventions have to be specifically justified by reference to the specific market imperfections which they are designed to overcome, formed key elements in our institutional DNA in the years ahead of the crisis. And the predominant tendency of the International Monetary Fund, both at the time of the Asian crisis and in the run up to 2007-09, was to stress the advantages of free capital flows and financial innovation, making reference to theories of market completion and allocative efficiency.

However, this benign view of limitless financial deepening - of increased trading activity and innovation - is rejected by the Keynes/Minsky school of thought. Keynes, most famously in Chapter 12 of *The General Theory*, argued that liquid financial markets did not ensure allocative efficiency through the attainment of a rational competitive equilibrium, but were instead subject, for inherent and unavoidable reasons, to self-reinforcing herd/momentum effects. Professional investment was, he famously said, like a “pick the prettiest girl photo competition”, in which the successful competitor was the one who correctly and most rapidly predicted the preferences of the other competitors. “It is not a case of choosing those which, to the best of one’s judgment,

⁴ Richard Lipsey and Kelvin Lancaster “*The General Theory of the Second Best*”, *Review of Economic Studies* 1956

are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees".⁵

Keynes therefore believed that the professional investor or trader, be it in equity markets, currency markets, or, he would have said today, the CDS market, is "forced to concern himself with the anticipation of impending changes, in the news and in the atmosphere, of the kind by which experience shows that the mass psychology of the market is most influenced". And he argued that pure speculation, unattached to fundamentals, could drive self-reinforcing bubbles, which not only served no useful allocative role, but which produced important destabilising effects.

Keynes's argument received strong empirical support from Charles Kindleberger's analysis of market manias, panics, and crashes through the ages.⁸ Hyman Minsky developed a theory of the dynamics of the capitalist economy and of its financial institutions, in which sustained good economic times were likely to produce a shift in the relative balance of financial activity away from hedging and rational allocative activities towards purely speculative activities, which in turn could lead to sudden collapses in values, debt deflation traps and major real economic disruption.⁶ And indeed some of the world's most successful financial speculators – in particular George Soros – have themselves argued that major liquid financial markets are not driven to equilibrium by fundamental factors, but are subject to endlessly reflexive disequilibrium dynamics.⁷

There are different ways of explaining these disequilibrium dynamics:

- Keynes himself stressed the importance of inherent irreducible uncertainty as to the future, under which condition a detached and nonrecursive assessment of future market prospects is close to impossible⁸.
- Other writers stress the role of market imperfections such as disruptive principal/ agent relationships as between end investors and the agents making trading decisions on their behalf⁹. These principal/agent relationships can make it rational for individual decision-makers to act in ways which result in price movements which in their collective effect appear irrational and which cause economic harm. In a sense therefore, these writers draw on the "rational economic man" assumptions of the neoclassical school, but differ simply because they believe that the imperfections are so deep rooted as to be inherent and that no amount of clever regulatory intervention will ever overcome them: the potential instability and self-referential nature of liquid financial markets therefore being for all practical purposes inherent even if not absolutely inherent in the way that Keynes implied.

⁵ John Maynard Keynes , *The General Theory of Employment , Interests and Money* , 1936 , Chapter 12

⁸ Charles Kindleberger , *Manias,panics and markets* , 1978

⁶ Hyman Minsky, *Stabilising an Unstable Economy* , 1986

⁷ George Soros, *The new paradigm for financial markets* , 2008

⁸ The distinction between mathematically modellable risk and inherent irreducible uncertainty is fundamental to this insight . See Frank Knight *Risk, Uncertainty and Profit* ,1921 , for the classic statement of this distinction

⁹ See e.g *An institutional theory of momentum and reversal*, Vayanos and Woolley, LSE , November 2008

- Finally, the school of behavioural economics, associated in particular with the work of Daniel Kahnemann, stresses the fact that human decision-making, for reasons rooted in evolutionary biology and the design of our brains, cannot be seen as an entirely rational process, but is at times inherently instinctive and influenced by crowd psychology effects.

It is therefore notable that the school of thought which we can broadly label as Keynes/ Minsky is not characterised by a single unifying theory equivalent to that of neoclassical equilibrium. As a result, as I will discuss in Sections 4 and 5, it is not easy to derive from this way of seeing the world a simple and universally applicable set of criteria for deciding appropriate regulatory intervention, such as can be derived from the neoclassical approach. But I will argue in Section 5 that it is better to live in the real world of complexities imperfectly understood, than to construct for ourselves an intellectually elegant set of assumptions which do not fit real world phenomena. And the evidence of the crises of 1997 and of 2007-09 to which I will now turn, suggest that we should be highly sceptical of the benefits of general and limitless financial liberalisation.

2 .THE ASIAN CRISIS OF 1997

In respect to the 1997 crisis, the crucial contested issue in economics is the benefits and disadvantages of short term financial capital flows. As already shown, these flows increased dramatically in the decade running up to the 1997 crisis and the dominant conventional wisdom of the time – as expressed for instance in the attitude of the IMF – was that these flows were positive. This was based on the neoclassical argument that capital flows in general (including short term portfolio flows as well as long term direct investment) help achieve a more efficient global allocation of capital, linking savers to business investments in a more efficient fashion¹⁰.

Indeed it was right in the middle of the Asian crisis – at its Hong Kong meeting in September 1997 – that the IMF proposed that capital account liberalisation should be made a binding commitment of IMF membership, going beyond the commitment to current account convertibility included within the IMF's original founding articles.

But while this was the conventional wisdom, a wide variety of studies have cast doubt on whether free movement of capital, and in particular of short term capital, is at all positive for growth. The challenge has been launched on both empirical and theoretical grounds.

- The empirical evidence has been very usefully assessed by a working group of the Committee on the Global Financial System (CGFS) , chaired by Rakesh Mohan, former deputy governor of the RBI.¹¹ It notes that “despite the numerous cross country attempts to analyze the effects of capital account liberalisation , there appears to be only limited evidence that supports the notion

¹⁰ See Stanley Fischer *Capital account liberalisation and the role of the IMF in Should the IMF pursue capital accounting convertibility*, Essays in International Finance, Princeton 1998.

¹¹ *Capital flows and emerging market economies* , CGFS Papers No 33, January 2009

that liberalization enhances growth” and some of the protagonists in this debate, such as Dani Rodrik and Jagdish Bhagwati would go further and say that there is no compelling evidence at all.¹²¹³ Even those who broadly support capital account liberalization have therefore tended to argue that liberalization could be beneficial under specific circumstances, rather than that it has been demonstrably beneficial in all cases

- Rodrik and Subramanian have highlighted one reason why the apparent case for financial globalisation might not apply in today’s circumstances. In the first period of financial globalisation – the 40 years or so before the First World War – international capital flows to a significant extent took the form of outflows from rich developed countries (in particular the UK) and inflows to commodity producing countries which lacked adequate domestic savings to develop their industries. But as Rodrik and Subramanian point out, this is not the recent pattern. Net capital flows indeed have been as likely to be from poorer developing countries to rich developed ones as vice versa, and developing countries’ savings rates have usually not been a binding constraint on growth. The case in favour of capital flows therefore has to assert that intensive two-way flows of capital facilitate a more efficient allocation, rather than asserting that net flows of finance to developing countries is key to the development process.
- Meanwhile many analyses have illustrated that short-term financial capital flows (into debt securities and via cross border bank lending) can be extremely volatile, subject to what Reinhart and Rogoff label “bonanzas” followed by “sudden stops”. Bonanzas seem to be strongly influenced by self-reinforcing herd effects, with some investors caught up in over optimistic stories about a country’s prospects while others quite rationally seek to ride the self-reinforcing appreciation of the local currency or asset markets for as long as the bonanza lasts.. Sudden stops and outflows meanwhile are even more strongly self-reinforcing, with a contagious collapse of confidence affecting not only countries where there is a least some new information which might reasonably carry inference, but other countries treated by investors as in the same broad category. As a result, not only domestic asset markets in emerging countries, but foreign exchange markets as well, can be characterized by multiple and fragile equilibria , such as we saw illustrated in the movement of Thai bhat, Korean won and Indonesian rupee rates in 1997 ([Exhibit 6](#)) .
- In addition volatile short-term capital flows can complicate the conduct of domestic monetary policy, facing authorities with a choice between allowing undesirably rapid growth of domestic credit and money, or of accepting an exchange rate appreciation which can undermine the competitiveness of traded sectors in a fashion not justified by long-term fundamentals. Moreover, short term capital inflows, in particular of bank debt, can drive disruptive asset price booms in local markets such as commercial real estate.

¹² D. Rodrik and A. Subramaniam, *Why did financial liberalisation disappoint* , March 2008

¹³ J. Bhagwati, “*The capital myth: the difference between trade in widgets and dollars*” , Foreign Affairs, May 1998

- As a result, a compelling argument has been developed that the balance of benefits and disadvantages of capital flows varies by type of flow – an argument well summarised in the CGFS paper. This suggests a hierarchy in which long term capital flows are better than short term; direct investment is better than portfolio; equity is better than debt; with short term inter bank flows the least beneficial and potentially most disruptive.

These arguments together make a compelling case for:

- i) Believing that the positive benefits of short term capital flows may be very slight even in the absence of shocks.
- ii) Believing that these benefits can be significantly outweighed by the adverse impact of financial shocks.

Against this criticism, the counter defense of capital flow liberalization has not sought to deny the reality of potentially volatile capital flows, but has argued that this potential arises only because of fundamental deficiencies in, for instance, the credibility of government's fiscal and monetary policy, or the quality of domestic financial system regulation and governance. These arguments recognise – in line with the Lancaster and Lipsey second best theory – that market liberalisation can be harmful if applied in a context where many other market imperfections and distortions exist. But this insight is then used to support the argument that capital flow liberalisation can be a good thing, provided that appropriate supplementary reforms are made, and in the appropriate sequence. An argument which enables believers in the free market creed to hold that the faults in the system revealed by 1997 ultimately lay not in too much market liberalisation, nor in the inherent instability of markets, but in inadequately complete application of good free market precepts.

This argument between those who believe that the potentially harmful volatility of financial markets is inherent and unfixable, and those who believe that it can be fixed if credible policies are in place and well communicated, is an old one. In 1943, in a paper which input to the Bretton Woods deliberations, the economist Ragnar Nurkse reviewed the floating exchange rate regimes of the early 1920s, and concluded in particular that movements in the French franc exchange rate between 1924 and 1926 illustrated “the dangers of cumulative and self- aggravating movements... (which)... instead of promoting adjustments in the balance of payments, are apt to intensify any natural disequilibrium and to produce what may be termed “explosive” conditions of instability.” But Nurkse’s account was met by the counter-argument of Friedman et al, that this apparently self-fulfilling unstable speculation was a rational response to the uncertainties of French policy, and that the key lesson therefore is the need for policy to be appropriate, well communicated and credible¹⁴.

Faced with these alternative arguments it becomes impossible, as Barry Eichengreen has noted, ever to prove which argument is correct except if we were able to look directly into the minds of financial speculators and possibly not even then. But while

¹⁴ See Barry Eichengreen *Globalising Capital*, Princeton 2008 page 49-55 for discussion of this debate.

proof is ultimately unattainable there are three compelling arguments for not seeing the “conditions and sequencing” argument as at all conclusive:

- Rodrik and Subramaniam’s point that even if such “conditions and sequencing” could in theory remove the disadvantages of short term capital flows, we have to make decisions in a real world where governments are equipped with imperfect tools and are subject to short term political pressures, and where therefore their ability ever to get “conditions and sequencing” right is inherently imperfect.
- The evidence of economic historians such as Kindelberger who have documented the tendency of many different types of markets to be subject to manias, panics and crashes.
- And the explanations advanced by Keynes, Minsky, Soros, Kahneman and others, as to how a combination of rational incentives and psychological tendencies can be expected to produce self-reinforcing momentum effects.

Overall, therefore, I believe that the case that short term capital flow liberalisation is beneficial is, as Jagdish Bhagwati argued in his famous 1998 article “The Capital Myth: The Difference between Trade and Widgets and Dollars” based more on ideology and argument by axiom than on any empirical evidence. Though also undoubtedly, as Bhagwati argued, based on interests. For what we saw in respect to capital flow liberalisation in the 1990’s (as in respect to domestic financial liberalisation in developed countries) was the assertion of a self-confident ideology which also happened to be in the direct commercial interest of major financial services firms with powerful political influence in the major and developed economies and in particular in the US.

That combination of ideology and interests has proposed an over-simplistic conventional wisdom of self-equilibrating exchange rates and optimal capital flows. Instead we need to recognise that in global short-term capital and related FX markets we face the risk of potential instability and overshoot. What we should do about that is less obvious. It does not necessarily follow that comprehensive capital flow controls are the required answer: there is a reasonable argument that while the theoretical and empirical case against constraints on short-term capital flows is quite poor, the pragmatic case against them (or at least against their comprehensive application) is quite strong, simply because they may be unenforceable and tend to produce other distortions¹⁵. But I will return to that issue in Section 4, simply arguing for now that foreign exchange markets and short term capital flows are not self-equilibrating, but at times subject to inherent and self reinforcing instability.

¹⁵ See Richard Cooper, “ *Should capital-account convertibility be a world objective?*”, in “*Should the IMF Pursue capital account convertibility?*”, Princeton 1998, for a discussion of this argument .

3. THE DEVELOPED ECONOMIES' FINANCIAL CRASH OF 2007-09

Acute awareness of that potential instability, revealed by the 1997 crash, produced a policy reaction in some emerging market countries which played a contributory role in the origins of the 2008 crash. Developing countries sought to insure themselves against future crises via policies which delivered large current account surpluses and the accumulation of Forex reserves. And the investment of these reserves in low risk instruments – such as US treasury bonds and agency debt – drove down global risk-free rates, facilitating credit extension in several developed countries – in particular the US – and provoking a search for yield uplift which was met (so it seemed) by the cleverness of complex financial innovation.

But these macro imbalance-driven developments interacted with, and gave further impetus to, trends in developed economy financial systems which were already underway and whose common feature was a quite startling increase in the scale and complexity of financial activities. I showed earlier ([Exhibit 4](#)) the huge increases in the value of foreign exchange trading activity relative to global GDP from the early 1970s on: some of this related to emerging market currencies, but most of it to the currencies of the major developed economies. I also showed the huge increase in inter-financial institution balance sheet claims which began in the 1970s and continued up to the crisis. ([Exhibit 5](#)) From the 1980s and 1990s on, these trends were accompanied by:

- The emergence of a huge market in interest rate derivatives, with the notional value of OTC interest rate contracts rising from close to zero in 1987 to over \$400 trillion in 2007 ([Exhibit 7](#)).
- Huge growth from the mid-1990s in a series of inter-related credit markets. New “technologies” of pooling and tranching enabled the growth of an over \$2 trillion market in private label asset-backed securities, supporting a new “originate and distribute” model of credit extension ([Exhibit 8](#)). Global credit derivative contracts (CDS) outstanding grew from zero in the mid 1990s to over \$60 trillion in 2007, with the scale of this “hedging” activity massively outpacing the growth of the underlying credit instruments which CDS enabled investors or issuers to hedge ([Exhibit 9](#)). And Collateralised Debt Obligations grew from zero in the early 1990s to over \$250 billion by 2005, with the notable development of synthetic CDOs – credit exposures manufactured through the use of the CDS market, rather than out of the underlying liabilities of non-financial counterparties ([Exhibit 10](#)).
- And the immense growth of commodities futures trading, with the volume of oil futures trading, for instance, growing from far less than the volume of physical oil produced and consumed in the world in the early 1980s to over ten times the volume in 2008 ([Exhibit 11](#)).?

As with the growth of international capital flows and of related Forex trading, so with a whole series of other financial activities, the last two decades has thus seen a dramatic

increase in the scale of financial activity relative to the real economy, accompanied by a wave of complex financial innovation.

And as with international capital flows, so with increased financial intensity and innovation, the predominant official point of view before the crisis was that this increased financial intensity had delivered important economic benefits.

A chapter in the IMF's Global Financial Stability Review (GFSR) of April 2006, devoted to assessing "The influence of credit derivatives and structured credit markets on financial stability" set out clearly the policymakers' conventional wisdom which in turn rested quite explicitly on the key assumptions of neoclassical theory:

- It noted with approval that credit derivatives "enhance the transparency of the market's collective view of credit risks... [and thus]provide valuable information about broad credit conditions and increasingly set the marginal price of credit". In the neoclassical model, such price transparency delivers greater market efficiency and thus takes us closer to the efficiency-maximising equilibrium.
- It also noted with approval that such greater transparency "improves market discipline", mirroring the arguments for short term capital flows which see market discipline on domestic policy makers as a strongly positive function.
- And it argued that these benefits, far from being accompanied by any dangers of instability, were likely to be accompanied by greater financial stability, since more complete markets make possible a better dispersion of credit and liquidity risks to those investors whose preferences and own liabilities make them the most suitable holders. "There is a growing recognition", it therefore noted, "that the dispersion of credit risk by banks to a broader and more diverse group of investors has helped make the banking and overall financial system more resilient... The improved resilience may be seen in fewer bank failures and more consistent credit provision".

In this confidence in the benefits of financial liberalisation, the IMF was not alone. There were of course some economists who raised fundamental objections to the conventional wisdom – Nouriel Roubini and Robert Shiller in particular – and specific concerns were often expressed, including within the IMF GFSR from which I have quoted, about developments in particular credit markets and about the capacity of risk management systems always to cope with increased complexity. But the predominant view in policy-making circles was not only sanguine about increased financial intensity and financial innovation but positive. And the dominant intellectual ideology of the day was largely embraced by regulators who as a result were highly susceptible to the argument that if a particular regulation threatened financial innovation or market liquidity it was by definition inappropriate. An argument often reinforced of course by the influence of self-interested political lobbying: Bhagwati's combination of "ideology and interests" was clearly influential in relation to some key measures of domestic financial liberalisation, (such as the removal of leverage restrictions on investment banks in the US), as well as in its assertion of the benefits of short term capital flows.

Of course, it is now obvious that the conventional wisdom in favor of increased financial intensity and innovation failed to allow for the potential downside of induced instability.

This was because it was based on the assumption that financial markets are rational and equilibrating, and rejected or ignored the Keynes/Minsky insight that financial markets can be subject to self-reinforcing swings of irrational exuberance and then despair.

Thus, as we have seen, the IMF, along with many other authorities, welcomed the increased transparency of credit prices provided by the CDS market, and saw it as a benefit that the marginal price of credit (i.e. the pricing of loans to the real economy) could more accurately reflect “the market’s collective view of credit risk”. But that market collective view of credit risk proved to be subject to an extreme irrationality which played havoc with the real economy. This chart ([Exhibit 12](#)) shows CDS spreads for a composite of major financial groups between 2002 and 2008. It illustrates that the collective view of the market was that risks to bank credit-worthiness had fallen steadily between 2002 and 2007, reaching a historical low in the early summer of 2007, the very eve of the worst financial crisis for 70 years. Neither CDS spreads nor equity prices for banks (also shown on this chart) provided any forewarning of impending disaster: instead they validated and strongly reinforced a surge of over-exuberant and underpriced credit extension to the real economy. CDS prices indeed helped bring the marginal price of credit in line with the collective judgment of the market: the problem was that they set too low a price because the market overshot a rational level. Just as with international capital flows, so in the market for credit securities and credit derivatives, intense financial activity can generate bonanzas of over-exuberant financing, followed by sudden stops and a contagious lack of confidence.

But alongside this now obvious point, it is also worth noting that even the supposed benefits of increased financial intensity – the benefits which we might wish to trade off against the dangers of instability – are at best unproven. As with capital flow liberalisation, so with the explosion of the complexity of structured credit and credit derivatives, the argument that it delivered allocative efficiency benefits or direct welfare benefits because investors were better able to meet their preferences for precise combinations of risk, return and liquidity, has tended to be made by axiom, with no attempt to consider how great the value of such benefits could possibly be.

Admittedly it would be extremely difficult to measure that benefit in any empirical fashion, other than via very macro analysis, for instance that of Schularick and Taylor to which I referred earlier. But we should at least recognise that any benefits must be subject to declining marginal returns: that if liquidity up to a point is beneficial, there must be a point beyond which still further increases in liquidity can only deliver only the most minimal incremental benefit. In an article in the Financial Times last August, Professor Benjamin Friedman of Harvard University questioned how much economic value added could possibly arise from arbitrageurs being able to spot microscopic divergences in market prices a few seconds (or now with algorithmic trading, milliseconds) before other arbitrageurs do the same – reaching as it were, a Keynesian pretty girl judgment minutely before everybody else reaches the same judgment¹⁶. Professor Friedman’s challenge has, I believe, been too often absent in our response to arguments which condemn possible regulatory approaches on the grounds that they will reduce liquidity in specific markets.

¹⁶ Benjamin Friedman, *Overmighty finance levies a tithe on growth*, Financial Times, 26th August 2009

4. POSSIBLE IMPLICATIONS FOR SPECIFIC POLICIES

The crucial issue looking forward is how we create a more stable financial system for the future. There is considerable agreement on key measures required: more capital within the banking system, counter-cyclical capital, higher levels of liquidity, more capital against trading books in particular. And there is a focus on the problems of moral hazard and lack of market discipline created if market participants believe that some banks are “too big to fail”.

But as we pursue this agenda, it is important that we keep thinking not just about the latest crisis, but about the common features of this and past financial crises, and that we are adequately radical in our analysis of what went wrong. In particular we need to keep asking whether we believe that the financial system could be made self equilibrating if only we could identify and remove specific market imperfections and poor incentives, or whether complex financial systems and markets are potentially unstable for inherent reasons, in which case we need tools to lean against irrational exuberance and tools perhaps to limit the scale of financial activity.

Implications for specific policy may follow in at least three areas:

- (i) First, while action to deal with systemically important “too big to fail” banks is necessary, we must not assume that it is sufficient. Any idea that it is sufficient rests on strong confidence in the neoclassical propositions.
- (ii) Second, developed countries need to design new tools to control the volatility of the credit cycle, identifying credit extension itself as a crucial variable of macro-economic and financial stability policy.
- (iii) Third, we need to develop a balanced approach to the benefits of market liquidity, using higher capital requirements against trading activity to reduce unnecessary proprietary trading, and not excluding a potential role for financial transaction taxes.

(i) Addressing too-big-to-fail : necessary but not sufficient

In response to the financial crisis of 2007-09, authorities in many developed countries have ensured the stability of the financial system by underpinning the liquidity and solvency of major banks. This has typically entailed a combination of capital injections, exceptional central bank liquidity provision, and government guarantees of medium term bank funding. These measures have played a crucial role in restoring confidence. But they have also reinforced the problem of moral hazard. For whereas when some smaller banks have become insolvent authorities have been able and willing to impose losses on non-insured depositors and wholesale funds providers, in the case of large systemically important banks authorities have in all cases chosen to rescue the entire bank group and to impose losses only on equity holders (through dilution) and on no other category of funds providers, not even on those who have subscribed to subordinated debt capital. This threatens to reinforce the belief that some banks are too big to fail, undermining any market discipline on the risk-taking of banks in that category.

Finding a solution to the “too big to fail” problem is therefore a vitally important part of the international regulatory agenda, and a key priority of the Financial Stability Board

and in particular of its Standing Committee on Regulatory and Supervisory Cooperation which I chair. The options under consideration include capital surcharges for large systemically important banks to reduce the probability of failure; the development of contingent capital instruments which would automatically convert to loss-absorbing equity well before failure; and the development of recovery and resolution plans (“living wills”) which require banks to be internally organised in a fashion which would make it possible for the authorities to execute options other than the rescue of the entire group as a single entity. An important related set of policy options are those which might limit the extent to which deposit-taking banks are involved in risky proprietary trading activities, an area where the Obama administration has recently brought forward proposals

These policies to restrict or more efficiently manage the risks created by size or breadth of activities are rightly seen as means by which to protect taxpayers against the risk that they will in future have to repeat the expensive rescue operations of the last two years. They are a necessary part of the regulatory response. But they are not a sufficient response to the crisis for four reasons:

- First, because the most important economic costs of the crisis did not actually derive from the direct costs of taxpayer rescue. Central bank liquidity support is typically provided at a mix of market and penal rates and will in many cases turn out to be profitable for the public authorities; debt guarantees will in most cases not be called; and public equity stakes in banks, even if sold at a loss, typically amount to only a few percentage points of GDP. The direct public costs of rescuing insolvent or illiquid banks in developed countries are therefore unlikely to exceed at most 5-10% of GDP, and may well be much less. That was the case in Sweden in the 1990s and will likely be the case in the UK and the US after this crisis. But consensus forecasts suggest that, for instance, UK government debt to GDP is likely to increase from less than 40% before the crisis to something like 90% after. The vast majority of this 50% increase therefore derives not from the explicit cost of rescue, but from macro-economic volatility, essentially caused by volatility in the supply of and demand for credit, first excessively exuberant and then excessively constrained.
- Second, we should note that over-exuberant supply of credit could be provided by multiple mid-size banks as much as by large ones. In the US, while the early stages of the crisis were dominated by the large universal banks involved in both commercial banking and trading – such as Citibank or Bank of America – in the present stage of the crisis large bad debt losses are arising among numerous mid-size regional banks excessively involved in commercial real estate lending. In the UK, while some of our problems arose in the very large combined commercial and trading bank RBS, equally large problems arose in the fairly straightforward commercial bank HBOS, involved in plain old-fashioned bad commercial real estate lending. And there is no reason to believe that those problems would have been any less if HBOS had been two to three smaller banks rather than one large one.
- Third, while limits on the proprietary trading activity of major commercial banks could play a role in reducing their probability of failure, and thus of cost to the taxpayer, we cannot ignore the systemic risks and volatility which can be

created by nonbank financial institutions which are heavily involved in trading activities particularly if they take majority transformation risks. Lehman Brothers was not a deposit-taking bank, but its failure still provoked the extreme stage of the crisis.

- Fourth, the problems of over-exuberant supply of credit could arise even if all credit was extended in securitised form, rather than on balance sheets. It would be possible to make the banking system utterly safe, but still face the problem of volatile credit extension. Indeed one of the origins of the crisis was the fact that the development of securitised credit, by creating more transparent prices of credit, and by making it possible to lay off credit risk in liquid markets, increased the extent to which credit pricing and credit risk assessment became self-referential and circular. Some bankers were no longer asking themselves: “what does credit analysis tell me about the appropriate price for this credit given the inherent risks?” but instead were simply observing the transparent price of credit in securitised credit and CDS markets and treating this as definitionally appropriate, treating a low price of credit risk as proof that credit risks were low, rather than using credit analysis to reach judgments on credit risk independent of the unwisdom of liquid markets. These problems could exist in an entirely securitised credit system and are not removed simply by making it possible to wind up banks without cost to the taxpayer.

As a result, while the “too big to fail” agenda is extremely important, we should be very wary of assuming that it will in itself solve the problems of financial instability. Indeed, any idea that it is a sufficient response rests on strong confidence in the neoclassical proposition that financial markets can be made self-equilibrating if only we can discover and correct the crucial imperfections which prevent the attainment of the Arrow-Debreu nirvana – in this case the poor incentives and lack of market discipline created by “too big to fail” banks. If instead we believe – in line with the Keynes/Minsky school – that financial systems and markets are inherently subject to self-reinforcing herd and momentum effects which create instability, then we will need to combine the “too big to fail” agenda with other policy responses.

(ii) New tools to address volatile credit extension

A central focus of such policy tools should be the dynamics of credit extension and related asset bubbles, particularly in residential and commercial real estate.¹⁷ Where credit is both supplied and demanded on the basis of expectations of capital gain (rather than solely on the basis of debt servicing capability deriving from cash flow), prices and quantities in both the market for assets (e.g. commercial real estate) and the market for credit can be subject to self-reinforcing bubble effects (bonanzas of credit) followed by sudden stops (falling asset prices, credit crunches and debt deflation) which, unless offset with aggressive fiscal and monetary policy, can cause severe economic harm. Excessive and underpriced credit extension to commercial real estate sectors in particular has played a major role in almost all banking crises of the last several decades.

¹⁷ These dynamics are described here only at a very high level but will be addressed in much greater detail in a lecture to Cass Business School, London on March 17th 2010, entitled “*What do banks do, what should they do?*”

However, constraining such excessive credit extension through the classic monetary policy tool of the interest rate is unlikely to be effective given the huge divergence in the interest rate elasticity of demand for credit between different sectors which pertains during periods of over-exuberant asset price inflation, with, for instance, an interest rate rise likely to cause harmful effects in the traded goods sector (both through direct interest cost effects and via the exchange rate) long before it slows lending to commercial real estate.

Constraint will therefore almost certainly require the development of new macro-prudential tools, new mechanisms to take away the punch bowl before the party gets out of hand. These could include discretionary variation of capital requirements through the cycle, either across the board or in relation to specific sectors such as commercial real estate. Or new regulations which seek directly to influence borrower as well as lender behaviour, such as limitations on allowable loan-to-value ratios: new tools which entail moving away from the belief that a stable equilibrium will be delivered if only markets are efficient and classic monetary policy tools appropriately aligned.¹⁸

But while I say “new” tools, they are of course not new in India, and you have been using them recently and very effectively. Nor are they entirely new to developed countries. Rather they were tools we used to have 30 to 40 years ago, but rejected as old-fashioned and unneeded in our over-confident embrace of neoclassical propositions.

(iii) A balanced approach to market liquidity

Alongside these tools of macro-prudential management, we also need a more open mind about the benefits and the potential downside of increased market liquidity, and a more balanced regulatory approach.

For many years, the benefits of increased market liquidity have been an article of faith, frequently deployed to argue against tighter regulation. And increasing liquidity clearly is valuable up to a point. It widens the set of contractual options available to individuals and Corporates. In current or close to current markets such as Forex and commodities spot and forward, it reduces the cost of operations for end-users in the market. In markets which form part of the capital allocation mechanism, linking savers to investments (e.g. via equities and bonds), it provides a wider set of options for investors, enabling them to provide funds which are long term contractually committed to issuers, while allowing them the option of only holding for a short period of time. This in theory has a direct welfare benefit (by providing a closer matching of available options to investor preferences), and may under some circumstances foster a higher rate of savings and investment than would otherwise result. And we need to recognise honestly that more liquid markets require speculators – traders taking positions specifically in order to make trading profit, and these speculators may under some conditions be well informed, provide market discipline and help generate prices which inform efficient decisions.

But Keynes believed that “Of the maxims of orthodox finance, none, surely, is more antisocial than the fetish of liquidity, the doctrine that it is a positive virtue on the part

¹⁸ The case for such tools and the complexities involved in their application are discussed in a Bank of England Discussion Paper “*The role of macroprudential policy*”, November 2009

of institutional investors to concentrate their resources upon the holding of “liquid” securities”¹⁹. And scepticism about the limitless benefits of market liquidity and of the speculation required to make it possible, is justified on two grounds:

- First, the fact that the benefits of market liquidity must, as already discussed, be subject to declining marginal utility. The benefits deliverable by the extra liquidity which derives from flash and algorithmic trading, exploiting price divergences present for a fraction of a second, are clearly of minimal value compared with the provision of reasonable liquidity on a day by day basis.
- And second, the fact that, to a degree which is difficult to predict and unstable over time, greater market liquidity and a greater role for speculators can produce destabilising and harmful herd and momentum effects.

Our mental model of the benefits of extra liquidity should therefore not be one in which more liquidity is always beneficial, but perhaps as shown on this chart ([Exhibit 13](#)) one in which the benefits are subject to diminishing marginal utility and in which there is an offsetting and rising danger of a negative effect arising from the potential for destabilising speculative activity - but with the severe complication that the point of optimal benefit is impossibly difficult to define with any precision, that it varies by market and over time, and that we have highly imperfect instruments through which to gain the benefits without the disadvantages. There is, for instance, no economic value that I can discern from the operation of speculation in currency “carry trades” which are among purest examples of what Professor John Kay labels “tailgating strategies” – riding an unsustainable trend in the hope that you will be clever enough to get out just ahead of the crash.²⁰ But there may be no instruments which can eliminate carry trade activities without undermining useful Forex market liquidity of value to nonfinancial corporations.

But the fact that we do not have perfect discriminatory instruments does not mean that a more nuanced assessment of the benefits of market liquidity will have no implications for public policy. Instead three implications follow:

- The first is that in setting trading book capital requirements for commercial and investment banks, we should shift from a bias in favour of liquidity to a bias to conservatism. If regulators believe that the level of capital required for prudential purposes needs to increase, and the industry argues that this will restrict liquidity in some specific markets, we should be more willing to question whether the liquidity serves a useful economic purpose and more willing in some cases to wave it goodbye.
- The second is that policymakers need to be concerned with the potential danger of destabilising speculative activity even if it is performed by non-banks. Speculative trading activity can cause harm, even when it poses no threat to commercial bank solvency. If necessary, highly leveraged hedge fund speculation should be constrained by leverage limits.

¹⁹ J M Keynes, *The General Theory*, Chapter 12

²⁰ See John Kay, “*Tailgating blights markets and motorways*”, *Financial Times*, January 19th, 2010

- And third, we should certainly not exclude the potential role for financial transaction taxes which might, in James Tobin's words, "throw some sand in the wheels" of speculative activity. Now it may well be the case that a generalised and internationally agreed financial transactions tax, whether on Forex flows or on a wider set of financial transactions, is not achievable. One of the interesting features of the transaction tax debate is that it is littered with articles by academics who have been convinced of the theoretical case in favour of a financial transaction tax, but who have subsequently failed to promote the idea. In 1989, Larry Summers co-authored an article entitled "When financial markets work too well: a cautious case for securities transaction tax"²¹ but in office subsequently he did not pursue it. Rudi Dornbusch argued in 1990 that "It's time for a financial transactions tax", but was subsequently sceptical about the feasibility of comprehensive capital controls²². But at very least we should take financial transaction taxes out of the "index of forbidden thoughts" and we should certainly be open to the application by emerging countries of tax constraints on inward speculative capital flows, such as Chile imposed in the 1990s and Brazil has recently introduced.

5. FINANCIAL DEEPENING AND LIBERALISATION: AN OVERALL APPROACH

And more generally, the sensible conclusion on the overall benefits of financial intensity and financial liberalisation, would seem to be that it is valuable up to a point in some markets, but not in all markets and not limitlessly. There is a strong case that the development of a modern financial system, combining banks and corporate bond and equity markets, retail and wholesale insurance services is strongly favorable for economic growth. Walter Bagehot argued in Lombard Street that the sophistication of the nineteenth century British banking system enabled the UK more effectively than some continental European countries to mobilize savings which might otherwise have lain dormant, and there are a number of studies which illustrate either cross sectional or time series correlations between the development of basic banking and financial systems and economic growth.²³ It is highly likely that in India financial deepening, in the sense of the extension of basic banking services and sound credit extension to sectors of the population currently largely outside the banking system, would be positive for welfare and growth.

Well developed corporate bond markets which enable non-bank debt finance to flow in a simple transparent form to corporate borrowers and can play a major beneficial role in financing investment. And competition in basic banking services, including competition by global banks with transferable skills and willing to make long term commitment to a country is likely to prove a beneficial form of liberalisation.

But we cannot extrapolate from the beneficial impact of financial deepening and sophistication up to a point, and assume that still more financial deepening, innovation

²¹ L.H Summers and V.P. Summers , Journal of Financial Service Research , 1989

²² Rudiger Dornbusch, "It's time for a financial transactions tax", The International Economy , August/September 1990. Note that while Dani Rodrik has argued that Dornbusch's subsequent scepticism about capital controls ("Capital controls: an idea whose time is past" 1997) is inconsistent with Dornbusch's earlier position, in fact it is quite possible to be consistently opposed to legislated prohibition of capital flows but in favour of taxing them .

²³ See , e.g. I.R.G.King and R.Levine " Finance and growth: Schumpeter might be right" " Quarterly Journal of Economics" 1993 , or Rouseeau and Sylla, *Emerging Financial Markets and Early US Growth*, NBER WP

and complexity is limitlessly beneficial. That if a good basic banking system benefits a country so too does ever more active trading in all categories of derivative. And it is possible ([Exhibit 14](#)) that beyond some point, increased financial intensity, measured by the many sorts of indicators which I considered earlier, may cease to deliver positive benefits or indeed have negative effects.

We do not know for sure and the truth is likely to differ between different markets. The problem for regulators and central bankers is that this conclusion does not provide us with nice easy answers on which to base policy. It might be optimal simultaneously to seek to make one market (say spot equities) more liquid and more efficient in a technical sense, while in another market (eg, complex bi-lateral CDS contracts) to be indifferent if capital requirements and collateral management rules result in the market dwindling in size. Such a complex conclusion will make many people uneasy. It is much easier to proceed in life on the basis of a clearly defined and simple credo which provides the answer to all specific issues. But it is more likely to produce good results if we live in the real world of complex trade-offs and of relationships which are true up to a point.