

Preparing for Future Crises

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At last year's Symposium, "Maintaining Stability in a Changing Financial System", I had the privilege of delivering the concluding remarks of the conference, and ended with the forecast: "But if the authorities in the U.S. and abroad move rapidly and well to stabilize the financial situation, growth could be beginning to resume by the time we meet here again next year."

Well, here we are, one year later, and growth does appear to be beginning to resume.¹ Following the Lehman Brothers bankruptcy, the authorities, especially the central banks, in the U.S. and abroad did by and large move rapidly and well to stabilize the financial situation. But the route the world economy traveled between 2008 and August 2009 was extremely bumpy, uncertain, and at times frightening. Further, despite the encouraging signs of recovery, it is too early to declare the economic crisis over. Much remains to be done, not least in bringing banking systems back to health, and there are good – though not conclusive – reasons to fear a sub-standard recovery. Nonetheless, it is reasonable to declare that the worst of the crisis is behind us, and that the first signs of global growth have appeared earlier than was generally expected nine months ago.

This, the worst recession in the advanced countries since the Great Depression, is bound to leave major marks on economies – on financial systems, on the public finances, on economic policy, on economics, and more broadly. At its height, in the fourth quarter of 2008 and the first quarter of 2009, the crisis sparked apocalyptic articles about the length and depth of the recession and the possibility that

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¹ Among other indicators, IMF forecasts of growth for 2009 have stabilized, and the forecasts for all regions for growth in 2010 have begun to increase.

we were facing a rerun of the Great Depression, about the future of capitalism, about the decline of the west and the transfer of the center of gravity of the global economy and its leadership to the emerging countries, particularly China, about the decline of the role of the dollar, about reforming the international financial system, about reforming economics, and more.

Fascinating and important as these issues are, I will focus on narrower economic structure and policy topics relating to the question of how to reduce the frequency and mitigate the extent of future crises. Prior to the crisis, two main, interrelated, reasons had been given for fearing a major recession: *global imbalances*, which had been at the core of dire forecasts for several years, and which had become part of the explanation for low real interest rates during the first half of this decade; and *financial fragility*, based in part on the bubble in house prices, and in part on the complexities and vulnerabilities of the financial superstructure that had been built up around mortgage financing. Concerns about financial fragility had been mounting in the years leading up to the crisis, but not to the point of leading to major changes in the behavior of either the authorities or most of the private financial sector.

Both financial fragility and global imbalances contributed to the crisis, and in discussing the measures that need to be taken to reduce the frequency and mitigate the extent of crises, I will deal with both – with financial issues and their implications for financial supervision, for corporate governance, and for central banking, and with global imbalances and the international system. The focus in the responses to the crisis has been on the financial sector, and I will start there.

I. Financial Sector Reforms – Regulatory and Corporate Governance

In contrast to most of the financial crises of the previous decade, which started in emerging market countries, this crisis started in the center of the global financial system – in the United States – and spread outwards. In the words of Guillermo Ortiz, Governor of the Banco de Mexico, in August 2007: "This time it wasn't us". So the reforms that need to be implemented to reduce the frequency and depth of financial crises have to start at the center.

The crisis has generated an explosion of reports recommending wide-ranging reforms of the financial system.² For a non-random example, the G30 report, *Financial Reform: A Framework for Financial Stability*, (January 2009) presents 18 recommendations, grouped under four headings: (i) "Gaps and weaknesses in the coverage of prudential regulation and supervision must be eliminated"; (ii) "The quality and effectiveness of prudential regulation and supervision must be improved";³ (iii) "Institutional policies and standards must be strengthened, with particular emphasis on standards for governance, risk management, capital, and liquidity"; and (iv) "Financial markets and products must be made more transparent, with better-aligned risk and prudential incentives. The infrastructure supporting such markets must be made much more robust and resistant to potential failures of even large financial institutions".

Regulation and Supervision of the Financial System

Systemic or macroprudential regulation. The reports on the reform of the financial system see a need for macroprudential or systemic regulation, and many place this responsibility with the central bank.

The U.S. Treasury report (p.11) defines macroprudential supervision as supervision that considers risks to the financial system as a whole, and recommends placing the responsibility for such regulation with the Fed. To give the Fed the capacity to meet this responsibility, the report (p.10) specifies that it should have the authority to regulate "[a]ny financial firm whose combination of size, leverage, and interconnectedness could pose a threat to financial stability if it failed (Tier 1 FHC) regardless of whether the firm owns an insured depository institution". Further,

² The UK and US governments, and the EU Presidency, have all issued reports on financial sector reforms. See HM Treasury, *Reforming financial markets*, July 2009; US Department of the Treasury, *Financial Regulatory Reform*, June, 2009; and the Presidency Conclusions of the Council of the European Union, June 19, 2009, which essentially adopt the recommendations of the *Report of the High-Level Group on Financial Supervision in the EU*, chaired by Jacques de Larosiere, Brussels, February 25, 2009, with regard to the establishment of a European Systemic Risk Board, whose chair is to be elected by the members of the General Council of the ECB. See also: the G-30 report, *Financial Reform: A Framework for Financial Stability*, January 2009; Financial Services Authority, UK, *The Turner Review: A regulatory response to the global banking crisis*, March 2009; Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan for Regulatory Reform*, May 2009, which includes a table comparing its 57 recommendations with those of other reports, pp 221-225; a series of reports on regulatory issues by the Financial Stability Forum, starting with its early and important paper on *Enhancing Market and Institutional Resilience*, April 2008; G-20, *Declaration on Strengthening the Financial System*, April 2009, based in part on the recommendations by the Issing Committee, *New Financial Order*, February, 2009; IMF, *Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management*, February 2009.

³ One of the recommendations under this heading relates to improved international regulatory and supervisory coordination, an important topic on which I touch only lightly in this speech.

the prudential standards for these firms should be stricter and more conservative than those applied to other financial firms; and the supervision of these firms should extend to the parent company and *all* its subsidiaries.⁴

By contrast, the report of the UK Treasury (Chapter 6) is more hesitant about assigning this responsibility, though it gives the impression that in the end it would give it to the Financial Services Authority (FSA), the unified financial system regulator.⁵ In developing its argument, the UK Treasury report takes note (p.91) of the "broad international consensus that central banks should be independent and should pursue stable inflation, and that regulators should pursue risk-based micro-prudential regulation. But because of the links between financial and macroeconomic stability, they need to work closely together to ensure macroeconomic stability." It further emphasizes that macroprudential tools "would need to be developed and agreed at an international level and implemented in a standardised way in order to avoid jurisdictional and regulatory arbitrage." (p.92)

What are these tools likely to be? Among the candidates are the central bank interest rate, and tools that aim directly at the rate of credit creation and the overall riskiness of the financial system, including capital and leverage ratios. In addition, it is possible to use and/or revive more specific regulatory tools that affect the financial system, for instance maximum loan to value ratios and other mortgage terms, margin requirements, and other regulations that were in place during the post-Great Depression and post-World War II period, which have fallen out of use or been repealed.

The argument about macroprudential regulation is closely related to a topic that has been discussed repeatedly at these conferences – how the central bank should respond to asset prices, and particularly to perceived asset price bubbles. This discussion has suffered from three distortions. First, if the issue is posed as that of how to burst a bubble when the only tool at the central bank's disposal is its interest rate, it is all too easy to argue that nothing should be done until the bubble bursts. The more general issue is whether the interest rate should respond to asset prices and the financial situation more generally, and there is a strong argument that the answer is

⁴ However the report complicates the message by adding that "[f]unctionally regulated and depository institution subsidiaries of a Tier 1 FHC should continue to be supervised and regulated primarily by their functional or bank regulator as the case may be." (p.11).

⁵ By contrast, the report of the Conservative Party, "From Crisis to Confidence: Plan for Sound Banking" (July, 2009) would abolish the FSA and assign the responsibility for bank and for macroprudential supervision to the Bank of England.

yes. Second, there is no reason to confine the central bank's policy tools to the interest rate. Macroprudential tools can be added to its quiver. And third, the right question is not what the central bank should do, but rather what actions need to be taken by the authorities to maintain economic stability and support growth. There *is* a need for macroprudential regulation, and the question that should be discussed is that of the optimal institutional arrangements to this end.

Historically supervision has been structured along *sectoral* lines – a supervisor of the banks, a supervisor of the insurance companies, and so forth.⁶ More recently the approach has been *functional*, in particular distinguishing between prudential (control of risk) and conduct-of-business (with respect to both investor and consumer protection) supervision. In the *twin-peaks* Dutch model, prudential supervision of the entire financial system is located in the central bank, and conduct of business supervision in a separate organization, outside the central bank. In the Irish model, both functions are located in the central bank.⁷ In Australia, prudential and conduct-of-business supervision are located in separate organizations, both separate from the central bank. As already noted, in the UK the FSA – the Financial Services Authority – is responsible for supervision of the entire financial system, and is located outside the central bank. In the United States, supervisory responsibilities are widely dispersed, there are gaps in the system, and coordination has been difficult; the US Treasury plan seeks to deal with all these problems.

I doubt that there is one best model. In Israel bank supervision is under the aegis of the Bank of Israel, and I found the presence of the bank supervisor and the information flows from his department essential in enabling us to deal with the current crisis. Information flows are critical, and the plain fact is that information flows more readily within an organization than between organizations – which is one of the reasons to have prudential supervision within the central bank. Those who have not lived in bureaucracies might suggest that *surely* it is possible to ensure rapid and accurate information flows between institutions. It may be possible, but it is not the rule – and the importance of timely and accurate information flows to the making of policy decisions in a crisis cannot be exaggerated.

⁶ I quote here from my concluding remarks last year.

⁷ More accurately, the organization is known as the "Central Bank and Financial Services Authority of Ireland".

In addition there is the crucial question of how to coordinate decisions on monetary policy and macroprudential policy. There may be occasions – as in recent years – when considerations of inflation stabilization and those of systemic stability clash. Policymakers have to strike a balance. If the responsibility for systemic stability is in the central bank, then it decides how to strike the balance. If not, someone else has to do so. Who? It could be the organization responsible for macroprudential policy, but in the words of the UK Treasury, financial regulators usually "pursue risk-based micro-prudential regulation"; that is to say, their concern is with the safety of individual institutions. If the decision is not made the responsibility of the central bank, it will likely end up with the Treasury – and for the same reasons that the central bank should be independent, that is probably not desirable.

I conclude that the central bank should be given the responsibility, and the tools to do the macroprudential job. In the case of the United States, the US Treasury proposal gives the Fed the authority to regulate systemically important institutions, which is part of what it would need to fulfill its macroprudential responsibilities, but it is not clear what additional policy tools – such as regulation of financial institution capital ratios – it would be given.

The size and complexity of the financial system is bound to be a consideration in determining the structure of the regulatory system, for there are diseconomies of scale in running any large organization. That is to say, the case for a single financial-system wide regulator is typically stronger in a smaller economy. In addition, the political system is likely to be cautious about making any individual independent institution too powerful. Hence financial supervision in a large economy, such as that of the United States is likely to remain dispersed among several institutions, even though it needs to be coordinated, and even though that coordination is difficult.

In a small economy, such as that of Israel, it would be possible to place the responsibility for the prudential supervision of the entire financial system in the central bank, and to make another institution or institutions responsible for conduct of business supervision.⁸ The new law of the Bank of Israel, which we hope will be passed soon, specifies supporting financial stability as one of the Bank's three main missions, and we believe that our ability to do so would be strengthened by

⁸ Conduct of business supervision could be in one organization or divided between consumer relations and investor relations aspects of behavior.

implementing the Dutch model of financial sector supervision, with all prudential supervision in the central bank.

As to whether macroprudential tools "need to be developed and agreed at an international level and implemented in a standardised way in order to avoid jurisdictional and regulatory arbitrage", as argued by the UK Treasury report, that would be desirable, but only if it can be done quickly. If not, there is no time to wait and countries need to begin putting in place their national approaches to macroprudential supervision, while seeking simultaneously to coordinate internationally.⁹

Capital and liquidity ratios. It is both likely and desirable that required capital ratios around the world will rise in the wake of the crisis, and that there will be a greater emphasis on Tier I capital. The Spanish model of countercyclical capital ratios has gained widespread support and is likely to be implemented in more countries, and this should help stabilize the business cycle.¹⁰ In effect the Spanish model treats the countercyclical element in a bank's capital as a reserve for use during a downturn, to enable banks to continue lending as the economic situation deteriorates.

Given the constant pressures from financial institutions to find ways to reduce capital requirements, including through off-balance sheet activities, regulators will have to be on their toes in the cat-and-mouse game between regulator and regulatee, to ensure that effective capital ratios do not get whittled away as a result of financial innovation and political pressures.

In addition to increasing capital ratios, regulators are likely to introduce required liquidity ratios. Experience, including that of the last year, suggests that there should be a liquidity ratio, and that the range of assets defined as being liquid should be small. Here too is an area where international agreement and coordination would be desirable, but where national regulators should not wait for international agreement before introducing liquidity ratios.

Financial institutions are likely to complain that higher capital ratios and the introduction of formal liquidity ratios increase their costs of doing business and are in

⁹ For a concise summary of the issues with regard to international coordination and possible solutions, see "Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management", IMF, February 2009, pp.19-21.

¹⁰ See the joint Financial Stability Forum-Basel Committee on Bank Supervision Working Group on Bank Capital Issues report, *Reducing Procyclicality Arising from the Bank Capital Framework*, March 2009; and FSF, *Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System*, April 2009.

effect tax increases. Given the vivid demonstration during the last year of the fragility of financial systems faced with a loss of confidence, and the fact that their survival depends on government backing and action – in the last year on a massive scale – it is fully appropriate that financial firms be required to self-insure against future crises by holding more capital and more liquidity.

Too big to fail, resolution mechanisms, and moral hazard. The experience of the last year has brought much-needed clarity to the "too big to fail" issue. Some of the great names of financial history have disappeared (e.g. Lehman Brothers), some companies are in the process of working their way out of existence (e.g. AIG), many would not have survived but for government assistance (e.g. Citigroup), and many holders of their shares have suffered very large losses.

It is likely that the need to show that the authorities would not save every big financial institution – in other words to counter the effect on financial behavior of the "too big to fail" doctrine – was a factor in the decision not to save Lehman. The worldwide panic brought on by the Lehman failure led directly to the decision two days later to provide massive aid to AIG, making it seem that "too big to fail" was alive and well. But the truth is that if some part of AIG survives, it will not recognizably be the same institution, and that the shareholders of the original AIG will not recoup their investments – in other words, it has failed. Similarly, much of Citigroup is now state-owned, and its private sector shareholders have suffered very large losses.

So in what sense were these institutions too big to fail? In at least three senses. First, deposit holders in the relevant institutions were not significantly penalized: as the financial crisis deepened, governments either gave very broad guarantees of bank deposits or at a minimum, greatly augmented formal deposit insurance schemes. This was unavoidable and appropriate, given the need to prevent runs on banks. Second, bondholders in most financial institutions that received state aid and survived in some form were not penalized. The issue here was to prevent "runs" on bank debt, which would have taken the form of even larger system-wide declines in the value of bank debt, and enhanced difficulties for the banks in mobilizing resources through debt issuance. The issue of the standing of bank debt in future crises is not yet resolved, but needs to be; indeed in some countries where bank debts have received government guarantees, a way out of those guarantees needs to be devised. And third, many firms that did survive needed the state's aid to do so: they

have been given an opportunity to restore their fortunes and some of them are already apparently well into the process of doing that. This does not sit well with the general public, which seems to feel that a greater price should have been paid by both the owners of companies and their highest-paid employees – even though many of the managers and high-paid employees lost large parts of their wealth as a result of the decline in the value of the stock and options they held in their institutions.

Lehman was not an especially big firm. Nonetheless, because its operations involved counterparties all over the U.S. and global financial systems, its failure created widespread damage. In its wake, the category of "too interconnected to fail" was added to "too big to fail". That is a nice category, but the real lesson is not about "big" versus "interconnected"; rather it is about trying to form a realistic estimate of the costs and benefits of alternative courses of action when faced with an institution in trouble.

As a result of the crisis, it is now more widely understood that the key to dealing with financial institutions in trouble is that of *resolution mechanisms* – that is, mechanisms for winding down a firm in trouble in an orderly way, as the FDIC typically does with a failing bank. In the words of Sheila Bair,¹¹ "... resolution would concentrate on maintaining the liquidity and key activities of the organization so that the entity can be resolved in an orderly fashion without disrupting the functioning of the financial system. Losses would be borne by the stockholders and bondholders of the holding company, and senior management would be replaced. Without a new comprehensive resolution regime, we will be forced to repeat the costly, ad hoc responses of the last year."

If there had been a usable resolution mechanism for Lehman, the company could have been taken over by the resolution agency – which would have had to have access to the funds needed to do this – and its liabilities run off over the course of time. Such an approach would have been much less costly than was the Lehman failure. Mervyn King has described the need for efficient resolution mechanisms by saying that every financial firm should be asked to write a will – a document that specifies how its assets are to be allocated in the event of its death.

There has also been considerable discussion about how to deal with very large financial firms, including those that are very large relative to the size of their

¹¹ In testimony before the Senate Committee on Banking, Housing and Urban Affairs, July 23 2009.

economies, as in the case of the Icelandic banks, or two of the Swiss banks. It seems clear that countries should seek to limit the size of individual financial institutions relative to the size of the economy, both to reduce the costs to the economy of the firm's failing, and to reduce the overall vulnerability of the financial system to individual failures. One way to do this is to require larger banks, or those of systemic importance, to have higher capital and prudential ratios. The Swiss authorities are strongly encouraging their largest banks to add to their capital. Whether the authorities should use other regulatory mechanisms to this end is another issue that is on the table.

Even for the largest economies, there is a case for discouraging financial institutions from growing excessively. While it is clear that there are economies of scale in commercial banking up to a certain point, it is less clear that those economies of scale continue at the very largest banks – and the costs of dealing with the failure of an individual bank rise as the size of the bank rises. It is even less clear that there are serious economies of *scope* in the financial sector – that is, there is little evidence that the financial supermarket view by which the end of Glass-Steagall was justified in the United States leads to more efficient and cheaper provision of financial services. And although investment banks became commercial banks during the last year, to obtain access to the Fed's facilities, there do not appear to be major economic benefits – and there are certainly potential economic disadvantages – from combining trading activities on a serious scale with normal commercial banking.¹²

This issue – that of the most efficient structure of financial institutions and of the financial system – is central to the question of how best to regulate the financial system in the years ahead, taking into account the fact that financial institutions are liable to failure as a result of a loss of confidence in them, and that the costs of those failures may be macroeconomic in scale. At this stage we seem to taking it for granted that we should go back to the structure of the financial system as it was on the eve of the crisis. But we need to be thinking more broadly, including the possibility that some radical restructuring is needed, for instance by sharply restricting proprietary trading by banking institutions, or by some other forms of narrower banking.

¹² The G-30 report recommends (p.59) that "Large, systemically important banking institutions should be restricted in undertaking proprietary activities that present particularly high risks ... Sponsorship and management of commingled private pools of capital (...) should ordinarily be prohibited and large proprietary trading should be limited by strict capital and liquidity requirements."

There has been very little progress so far on how to deal with the failure of a major international bank. The main issue is which country or countries take responsibility for dealing with the aftermath of a failure. One possibility is to require internationally active financial institutions to have legally separate subsidiaries in each country, so that each subsidiary is wound up in its country of operation.¹³

Finally, on *moral hazard*: this must be a prime issue in the design and supervision of financial systems. No policymaker wants to be in a position in which concern over moral hazard creates the dilemma of either taking an action that is extremely costly to the economy to teach some people a lesson, or else doing something that may well encourage undesirable behavior in the future. Both in the design of the system, and in its operation, we need to do whatever we can to avoid placing decision-makers in such a situation. If we do find ourselves in such a situation, it is too late – for it is a mistake to inflict serious and unwarranted damage on many people in order to teach a lesson to a few.

Corporate Governance

Although it is natural for policymakers to focus on improving supervision and regulation, the larger failures responsible for the crisis were those of the management of financial institutions. Management, particularly corporate risk management, failed in a big way in this crisis, and that failure is more worrisome than the failure of the regulators, for we should not expect regulators, with their limited resources and inherent limits on how much information they receive and can master, to do better than corporate risk management in understanding and controlling the risks facing a financial institution.

John Kay has recently expressed the view that modern banks are too complicated to be managed by mere mortals.¹⁴ Accepting that view as a challenge rather than a counsel of despair, I will briefly discuss potential reforms in the areas of risk management and compensation, drawing mainly on the recent report prepared for the British government by Sir David Walker, and a June 2009 OECD report on corporate governance.¹⁵

¹³ See Michael Pomerleano, "Ring-fence cross-border financial institutions", *Financial Times*,August 10, 2009 <http://blogs.ft.com/economistsforum/>

¹⁴ "Our banks are beyond the control of mere mortals", *Financial Times*, July 8, 2009.

¹⁵ *A review of corporate governance in UK banks and other financial industry entities*, prepared for the UK Prime Minister and the Treasury, July 2009. See also OECD, *Corporate Governance and the Financial Crisis: Key Findings and Main Messages*, June 2009 ; and FSF, *FSF Principles for Sound Compensation Practices*, April 2009.

Corporate risk management. The Walker Report focuses on the board as the key vehicle for improved corporate governance. It recommends (p.81) the establishment of a board risk committee, separate from the audit committee, "with responsibility for oversight and advice to the board on the current risk exposures of the entity and future risk strategy". The executive risk committee would be required to operate within the parameters and limits set by the board risk committee.

The report recommends the appointment of a Chief Risk Officer, who should be totally independent from individual business units, reporting directly to the CEO¹⁶ and to the board risk committee, and who "should be accorded both status and remuneration reflective of the key importance of the role" (p.84).

Beyond strengthening the board's capacity to supervise risk, it is necessary also to strengthen risk management within the corporation. Internal risk managers need independence from other business units and the full backing of management and the board to carry out their function, for the pressures that the competitive environment of a large financial firm place on a risk manager are intense. "Just say no" is easy enough to say, but harder to do when it means cutting colleagues off from a potentially highly profitable fee, or trade, or investment.

The internal risk managers I met during my short life in the private sector were technically proficient. They may have been under pressure to agree to risky trades. But what was most lacking, in the case I'm aware of, was somebody taking a system-wide view of the risks that were being faced, someone with the capacity to ask tough questions about the possibility of radical changes in the market environment – and then getting management to do something about it.

There is a delicate point here. If risk managers are required to assign high probabilities to extreme scenarios, such as those of the last year, the volume of lending and risk-taking more generally will be seriously and dangerously reduced. It is neither wise nor efficient for the management of financial firms or their regulators to require financial institutions to become excessively risk averse in their lending and market activities. But if these institutions pay too little attention to adverse events that have a reasonable probability of occurring, they contribute to excesses of volatility and crises.¹⁷

¹⁶ The report specifies "CEO or FD", where FD is the finance director.

¹⁷ This paragraph is based on the assumption that there is a rational expectations equilibrium in which companies take reasonable risks and make profits commensurate with those risks.

*Compensation and risk taking.*¹⁸ In its "Principles for Sound Compensation Policies", the FSF specifies (pp. 2-3) that: compensation must be adjusted for all types of risk; compensation outcomes must be symmetric with risk outcomes; compensation payout schedules must be sensitive to the time horizon of risks; and the mix of cash, equity and other forms of compensation must be consistent with risk alignment.

Just three comments: First, it is extremely difficult to line up pay with incentives and performance, but it is critical that companies try to do better. Second, the fact that individuals in effect have limited liability creates an asymmetry that encourages excessive risk-taking whatever the form in which conditional compensation might be paid. Third, after the disasters of the last year, and the large costs of government intervention, the financial sector needs to regain the confidence of the public, and returning to previous modes and levels of compensation as if nothing has happened is not the way to achieve that goal.¹⁹

The current discussion of corporate governance places much of the responsibility for achieving better performance on corporate boards. But we should not exaggerate what they and the regulators can do, for both lack the full-time immersion in the problems of the company that company management has. With regard to risk management and to compensation, and to corporate governance more generally, we need to look to firm management at least as much as corporate boards and regulation to get it right.

II The role of the central bank

This was not a normal recession, and nor were the central banking policies used to combat it. The Fed and other leading central banks played an extremely activist role in responding to the crisis, particularly in their interventions in asset markets. The question is whether central bank actions in this crisis were appropriate

¹⁸ See the report by the FSF, *FSF Principles for Sound Compensation Practices*, April 2009. The OECD report on corporate governance, op cit, contains an excellent summary of the issues relating to remuneration practices, actual and desired from the viewpoint of financial stability and efficiency. For the modern theory see for example Lucian Bebchuk and Jesse Fried, *Pay without Performance: The Unfulfilled Promise of Executive Compensation* (Harvard University Press 2004). See also Bebchuk and Fried, "Equity Compensation for Long-Term Results", WSJ.com, June 16, 2009.

¹⁹ For a comment on this point, see Lucian Bebchuk and Alma Cohen, "Back to the Good Times on Wall Street", WSJ.com, July 31, 2009.

for crisis response, and whether the innovative policies we have seen in the last year will lead to longer-term changes in central banking doctrine and behavior.

Liquidity trap and quantitative and credit easing. The zero interest rate policy of the Bank of Japan in the 1990s was accompanied by a policy of *quantitative easing* (QE). The simplest notion of quantitative easing is that the central bank purchases assets in order to increase the monetary base, or a broader aggregate.

In the present crisis, as the interest rate came close to its zero lower bound²⁰ in the US, Japan, the Euro area, the UK, Canada, Israel and other countries, central banks began policies of quantitative easing, via asset purchases. Growth rates of various definitions of money have been impressive in many countries, with the growth rates of the monetary aggregates closest to the money base being highest – for instance, in the Israeli case the growth rate of M1 over the past 12 months has been 56 percent, while that of M2 (which includes term deposits, which in light of the ultra-low interest rates on term deposits have migrated into the current accounts that are included in M1) has been 18 percent.

Central banks had to contend with the question of how much QE to do. One approach was to use a Taylor rule to calculate what the (negative) interest rate would have been according to the Taylor rule, and then to calculate how much a relevant quantity (say the monetary base) would have had to be increased to attain that interest rate. Another was to use some form of the quantity theory. As an aside, if monetary policy was defined in terms of the growth of the quantity of some asset, such as the monetary base, the central bank could not also announce a given interest rate as its policy rate. This is probably why the Fed has announced the policy rate as a range.

In our case, and that of most other central banks that are close to the zero lower bound, the central bank nevertheless announces and fixes a policy rate close to zero. These rates currently vary between 25 and 100 basis points. We stopped cutting the policy rate when it reached 50 basis points, on the basis of an analysis that further cuts would have had only a minimal impact on credit conditions.

Several central banks, including the Fed and the Bank of England, have undertaken programs of purchasing longer term government bonds. In the case of the Bank of Israel, where the term structure was very steep when the program was

²⁰ In the *General Theory*, Keynes discusses Gesell's scheme for creating a negative rate of return on money by stamping it. There are no doubt other schemes to achieve the same end, but as of now there seems to be no practical way of reducing the central bank nominal interest rate below zero.

initiated, the goal was to reduce medium term indexed interest rates on government bonds, on which indexed mortgage rates are based. Our estimate is that our program, which lasted for about four months²¹ and amounted to a bit less than 3 percent of GDP (less than 10 percent of the stock of relevant bonds) reduced interest rates by about 30-40 basis points. The program also appears to have had an effect on corporate bond rates.

Purchases of government bonds led to the concern or accusation that the central bank was financing the government deficit and "printing money" to that end. The Bank of Israel also intervened for over a year in the foreign exchange market, in a program that ended earlier this month. We bought \$100 million a day (about 4-5 percent of the daily turnover), increasing our foreign exchange reserves from \$27 billion to \$52 billion, an increase of about 13 percent of GDP, with the reserves to GDP ratio currently at about 27 percent.²² These purchases too led to the concern that we were printing money and thereby contributing to inflation.

Our foreign exchange interventions were undertaken both because we had for long been concerned that our foreign exchange reserves were too low, and because we did not want to enter a recession in an economy whose exports amount to over 40 percent of GDP, with a sharply appreciated exchange rate. We also anticipated that a depreciating exchange rate would contribute to preventing deflation, as indeed happened.²³

Do these non-standard asset purchase programs "print money"? They may do so, but not necessarily. It depends whether at the margin they are sterilized, in the sense that actions are taken to offset their effects on the short-term interest rate, or on a given monetary or financial quantitative target of monetary policy. Do they contribute to inflation? That was part of the intention – they were intended to ease financial conditions, and to help prevent deflation. In our case, and that of other countries too, the goal of QE programs was to raise the inflation rate from the

²¹ The program was terminated at the end of July.

²² We intervened in the foreign exchange market for the first time in nearly ten years when the exchange rate appreciated very rapidly in March 2008, at a time when it was already clear that we were likely to go into a recession. The program started with daily purchases of \$25 million, but when the exchange rate of the shekel against the dollar plunged in July 2008, we increased our daily purchases to \$100 million. After that the exchange rate against the dollar depreciated over the course of the next six months by about 20-25 percent, taking the nominal and real exchange rates back towards but below the average of the years 2003-2007.

²³ Lars Svensson had made this argument in suggesting a way out of Japan's deflation of the 1990s. Such a policy is much easier to implement for a small open economy than for a large economy that already has a significant current account surplus.

negative rate that we feared. Here the inflation target was important: we were able to explain that even at a zero interest rate, inflation was expected to be negative.²⁴ Thus our inflation target *required* us to conduct a monetary policy – quantitative easing – aimed at raising the inflation rate.

Lender of last resort. While other central banks were emphasizing their QE policies, Chairman Bernanke for a while described some of the Fed's operations as *credit easing*, interventions in specific markets that are not functioning normally, such as the commercial paper market following the collapse of Lehman, and the markets for mortgage-based assets following the collapse of the housing price bubble.

These innovative interventions are closer to the lender of last resort function than to pure quantitative easing, in the sense that the central bank is lending in markets that have become dysfunctional or that are operating poorly, in significant part due to a loss of confidence in counterparties. But unless sterilized, the operations also involve quantitative easing in its more general sense of expanding the central bank's balance sheet.

The Fed's credit-easing policies and the scale on which they were carried out represent an innovation in central bank crisis operations, one that has been described as making the Fed the market-maker of last resort. It is unlikely that such operations will be needed in future in normal cyclical downturns, but they are a valuable tool that could be used in dealing with future financial panics, and that should be used if important markets seize up, as happened in this crisis.

In addition, central banks are likely to continue to undertake the classic function of a lender of last resort, of providing liquidity either to institutions in trouble due to a loss of liquidity, or to the market (a form of QE). As is well-known, the distinction between liquidity and solvency difficulties for a financial institution should determine how the central bank behaves. In the case of a liquidity problem, the central bank can solve the problem of the institution in trouble by providing a temporary loan; in solvency cases the firm should be taken over and reorganized, possibly by closing it. Dealing with an insolvent institution is typically a quasi-fiscal operation, a fact that led to considerable unease about some Fed operations in this crisis. In the Israeli case, the law gives the central bank a free hand in injecting

²⁴ In the event, the inflation rate was negative for only four months at the turn of the year, and for most of this year, including currently, the 12-month inflation rate has been above the 3 percent upper bound of the target inflation range.

liquidity, but the central bank needs government approval to resolve an insolvent institution.²⁵ It is also well known that it is typically difficult in the midst of a crisis to distinguish between an illiquid institution and one that is insolvent, an issue that surfaces in arguments about mark-to-market accounting.

Responsibility for financial stability. I have so far been discussing the response to the crisis, implicitly focusing on the period after the collapse of Lehman Brothers.

During that period the central banks did extremely well. Some of them did less well in the lead-up to the crisis, when financial vulnerabilities were either not identified or not responded to. It is uncertain whether those central banks would have behaved differently had they already been assigned formal responsibility for macroprudential stability; if they had, they would have had more reason to have acted and at least mitigated the effects of the financial excesses that were already visible in 2006.

Inflation targeting. What are the implications of this crisis for central bank policies in future crises? In particular, has the activism of central banks in intervening in financial markets and in rapidly reducing interest rates essentially to zero, along with their possible role in macroprudential stability, invalidated the inflation targeting approach to monetary policy?

The simplest answer is that there could on occasion be a conflict between the inflation goal of monetary policy and that of financial stability, implying that recent practice may well be inconsistent with a *strict* inflation targeting approach. For instance, it is often asserted that the Fed's low interest rate policies coming out of the 2001 recession contributed to the housing bubble of later years. Without wishing to take a stand on that issue, it is plausible to argue that if the Fed had been charged with responsibility not only for inflation and growth, but also macroprudential stability, it might have raised its interest rate more rapidly.

However there is no necessary inconsistency between *flexible* inflation targeting and the actions required of central banks in this crisis. The goals of the central bank as set out in recent legislation around the world are typically three-fold. For example, let me quote the new Bank of Israel law, which we hope will be passed by the Knesset in its winter session:

- To maintain price stability, as specified by the government

²⁵ However the law does not specify that the government will necessarily pay the costs of resolving an insolvent bank.

- To support the other goals of government economic policy, particularly the promotion of employment and growth, so long as this does not conflict with price stability over the course of time
- To contribute to the stability of the financial system.²⁶

The behavior of inflation targeting central banks in this crisis was consistent with the flexible inflation targeting approach as set out above. As soon as it became clear after the failure of Lehman that economies were heading for negative inflation, the inflation targeting approach dictated that monetary policy should be expansionary, thus being consistent with both the first and second goals of policy. In addition, many central banks were involved in attempts to bolster financial stability, both through their ultra-low interest rates and in their decisions to undertake both quantitative and credit easing.

The answers to the questions posed at the beginning of this section are (i) yes, central bank actions in this crisis were by and large not only appropriate, but also innovatively so, in responding to the economic crisis of 2007-2009, though less so in the earlier years in which financial excesses developed; (ii) for those banks practicing flexible inflation targeting and with a financial stability responsibility and tools to do the job (e.g. because bank supervision is within the central bank) neither doctrine nor policy is likely to change much; (iii) for those banks that hitherto did not have a financial stability responsibility, and that will be given tools for the job, policies and doctrines are likely to change to reflect their new responsibilities; and (iv) flexible inflation targeting will continue to be a good approach to monetary policy making.

III International Coordination – the FSF

The G-20's *Declaration on Strengthening the Financial System*,²⁷ issued at the London Summit on April 2, 2009 expands the FSF, giving it a broad and ambitious

²⁶ Two explanatory notes: (i) the government's definition of price stability is that the inflation rate should be in the range of one to three percent; and (ii) the draft law contains a definition of "over the course of time" as meaning that the inflation rate is expected by the monetary policy committee to return to within the target range within two years. In practice the Bank of Israel has used a one-year horizon to define the flexibility of the inflation target.

²⁷ At www.number10.gov.uk/Page18929.

mandate²⁸ to promote financial stability and "a stronger institutional basis and enhanced capacity as the financial stability board (FSB)." Among the main tasks with which the FSB is charged are

- assessing vulnerabilities affecting the financial system and *identifying and overseeing action needed to address them* (italics added)
- monitoring and advising on market developments and their implications for regulatory policy
- undertaking joint strategic reviews of the policy development work of the international Standard Setting Bodies
- setting guidelines for the functioning of supervisory colleges (the group of regulators from the main countries in which a given international financial company is active, charged with coordinating the international supervision of that company)
- supporting contingency planning for cross-border crisis management; and
- collaborating with the IMF to conduct Early Warning Exercises ... on the build up of macroeconomic and financial risks and the actions needed to address them.

This is an extraordinarily ambitious program for an organization consisting of the various supervisors of the G-20 and a few other countries, and supported by a small secretariat at the BIS. Note that national supervisors frequently have difficulty coordinating among themselves domestically. It remains to be seen whether they can coordinate better in the international forum offered by the FSB in pointing fingers and assessing what needs to be done. By making an organization of typically collegial national supervisors responsible for international surveillance of financial systems, the G-20 injected a potential weakness into the proposed system of global financial surveillance. It also remains to be seen in what way the FSF will be "re-established with a stronger institutional basis and enhanced capacity" as the FSB.

The FSF has done an excellent job in producing high-quality reports on regulation and supervision. But the tasks of surveillance – of assessing vulnerabilities affecting the financial system and of identifying the actions needed to address them – are far more demanding. Even more demanding is the task of overseeing the actions

²⁸ See Masahiro Kawai and Michael Pomerleano, *International financial stability architecture for the 21st century*, <http://blogs.ft.com/economistsforum/2009/08/...>, 02/08/2009 for a critique of the current structure of the FSB in relation to its mandate.

that countries should be implementing to deal with those vulnerabilities. It is puzzling that in defining the tasks of the FSB, the G-20 mentions the IMF only in the context of joint Early Warning Exercises, and not in the context of surveillance and oversight of policies to strengthen national and international financial systems.

IV The Role of the IMF

As part of their response to the crisis, the G-20 leaders decided at their April 2009 meeting significantly to increase the IMF's financial resources, to enable the Fund to play a more vigorous role in helping countries badly hit by the global financial crisis, and to equip it to deal with potential future crises. They also welcomed the Fund's new lending facility, the FCL, (Flexible Credit Line) designed to provide liquidity to countries with strong policies and policy frameworks. Both these changes are significant and will help deal with future crises.

Major reforms in Fund governance are also getting under way, with the goal of enabling emerging market countries, particularly the BRICs, to take a larger share in Fund quotas and in Fund decisions. This is part of the process of recognizing the shifting center of gravity of the global economy. But the process will not be easy, mainly because countries whose quota shares need to decline are less than enthusiastic about the changes.

However, I do not want to concentrate here on Fund governance, important as that is to the future of international cooperation and coordination. Rather I would like to focus on the surveillance issue and on global imbalances. After every crisis there is a call to strengthen IMF surveillance of the global economy. For instance, in the IMFC communiqué of October 11, 2008, "[t]he Committee underscores the central role of Fund surveillance in providing clear, advance warning of risks, helping members understand the interdependence of their economies, and promoting globally consistent policy responses."

There is no question that Fund surveillance should be important, possibly central, in warning member countries of the risks they face. Those warnings are likely to be taken more seriously the better the surveillance record of the Fund, which is the reason to strengthen Fund surveillance. But it is less clear that clear warnings of risks generally lead to action. The impression created by the statement quoted in the previous paragraph is that what countries require to get them to take action in time

to prevent a crisis is adequate warning of the risks of a crisis, or an adequate understanding of international interdependencies.

That is not likely. Fund warnings of risks that an OECD economy may be courting do not generally come as a surprise to policymakers in those countries. They have their own experts, many of whom have probably already warned about the same risks. For instance, it cannot conceivably be the case that the experts have only now recognized the need for all the financial sector reforms that are being proposed in the flood of recent reports. The question is what countries do about the warnings. In my experience in the Fund, which I'm sure is still relevant, policymakers typically do nothing except claim that Fund staff are too conservative, too unimaginative, and overstate the risks. And since we are talking about probabilities, it is hard to refute that claim.

We are often asked, "Why weren't we warned about this crisis?" We *were* warned, in the sense that we knew there was a *risk* of a major crisis, even if that was not the majority view. Policy makers generally deal with risks, not with certainties. There are no iron-clad warnings in this business, except those about processes that cannot go on forever. A rational cost-benefit analysis would probably have suggested that some mitigating steps to deal with the housing price bubble and with a possible financial crisis should have been taken before 2007. But that did not happen.

Why? In part because there is always someone out there warning of some impending disaster, and it is very difficult to judge how accurate the warnings are, particularly if they have been repeated year after year. In part because taking away the punch bowl is difficult when everyone is having a good time. Or to say virtually the same thing in different words, in part because unpopular measures to deal with what seems like a low probability risk are difficult to justify. And in part because those giving the warnings and/or the policymakers may simply have misread the situation²⁹ – for there will always be surprises, and that is a key factor we need to take into account in reforming the financial system, by focusing on its robustness in dealing with unexpected events.

Now, finally, to global imbalances. Why was nothing done about global imbalances before the crisis happened? The IMF was set up in part, and its rules were

²⁹ In thinking about this issue, I have read some of the literature on major intelligence failures of the past, including Pearl Harbor and the Yom Kippur war. Some of the lessons of that literature may be helpful in thinking about making policy decisions about uncertain events or threats.

designed, to deal with the asymmetry between the ability of the international system to discipline those countries that run deficits in their balance of payments and those that run surpluses³⁰ – an issue with which Keynes was very familiar from interwar experience. If you run deficits in your balance of payments, at some point you get into trouble, so you are going to be disciplined. If you run surpluses all you do³¹ is to continue to build up your reserves. If you are willing to keep doing that, you can keep going with that strategy forever, or at least for a very long time. But that surplus is reflected in deficits somewhere else in the system.

The IMF experimented with multilateral surveillance to deal with the China-US current account imbalances. That attempt failed. What else can you do about this phenomenon? You can try to make the system more resilient, which is what the move to floating exchange rates did as the original Bretton Woods system collapsed. Or you can try to give the relevant countries a greater sense of responsibility for the international economic system, by giving them a greater role in running the system. In doing this, though, we have also to recognize that no country, including the United States, is going to put all the focus in its mutual relations with a major country on the issue of the management of their exchange rate. Nobody, including the United States, is going to base all its relations with a country as important as China on the exchange rate issue, however important it may be economically.

That is to say, we don't really have a good way of dealing with the problem of the asymmetry of the adjustment pressures on deficit and surplus countries, the problem that underlies global imbalances. That is a source of weakness in the international system's ability to reduce the frequency and severity of future crises.

V. Concluding Comments

How will all the proposed reforms affect the frequency and seriousness of future financial crises? That question can be divided into two parts. The first is whether the advice now being offered would make a serious difference if implemented. The second is how much of the advice will be implemented.

³⁰ I draw here on material presented in a speech to the European meeting of the Trilateral Commission, in Paris, on November 8, 2008.

³¹ This assumes the foreign exchange purchases can be sterilized.

My tentative answer to the first question is that the advice on macroprudential supervision and its location in central banks would improve our ability to deal with crises; that other suggestions for improving supervision and regulation of financial corporations – most of them not discussed in this speech, but included for example in the G30 report – would also make an important difference; that improvements in corporate governance, particularly in risk control, would be helpful; that the tasks suggested for the new FSB would be very useful if they can be implemented; and that we still do not have an answer for dealing with global imbalances arising from a pegged undervalued exchange rate.

And the tentative answer to the second question: that we may be relaxing too soon, thinking the crisis is past when that is far from sure; that in dealing with financial fragility, we need to think about reforming the structure of the financial system as well as dealing with the weaknesses that led to the current crisis; that inter-agency rivalries may prevent desirable reforms of financial sector supervision; that proposed reforms in corporate governance may be putting too large a weight on the ability of corporate boards to control management, and too small a weight on the need for improvements in management performance; that the current FSB structure is not adequate to the ambitious goals it has been set, and that the system would work better if the FSB were more closely tied to the IMF; that we do not have a solution for global imbalances; and that we need to focus more on what it will take to get governments to act in accordance with warnings of future risks than to focus purely on improving the quality of the warnings.

We need also to remember that every financial crisis is different, each in its own way, and that in seeking to prevent future crises we need to seek out and deal not only with the factors that caused the present crisis, but also with those that could cause the crises of the future.

And finally, the final word: despite all these concerns, on the whole we are making progress.