Sieps
Swedish Institute for European Policy Studies

European Policy Analysis

OCTOBER · ISSUE 2012:12epa

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Response to Crisis

Abstract

Five years ago, the frequent banking panics during the 150 years preceding World War II had receded from memory. The instability of credit has now returned in a more far-reaching and dangerous form.

Generally high levels of leverage and extreme maturity mismatches will create a globally unstable web of contracts. When this instability is triggered, policy intervention is required to prevent long-lasting depression. This will necessarily change the distribution of income and wealth that would otherwise occur. Monetary policy has the political advantage that its distributional incidence is not well understood by the general public. But it also has the disadvantage of being peculiarly ineffectual in the wake of a financial crisis.

This paper advocates two reforms to reduce the likelihood of another financial calamity. The first would require that financial executives be remunerated in part with equity shares carrying double liability in the case of institutional default.

The second reform concerns the conduct of monetary policy. For the last 20 years, monetary policy doctrine has used the repo rate to control inflation. To control credit, the central banks need one more policy instrument. This paper recommends control of bank reserves reinforced by reserve requirements on the demand or overnight liabilities of all financial institutions.

Introduction

In 2008-09 the Western capitalist system came close to self-destruction for the second time. The first time, almost eighty years ago, was worse and it took World War II deficit spending to produce a return to sustained growth. The lessons learned from that experience enabled policy-makers this time to stop the collapse of the financial system midway – but at a cost that put the public finances of several countries under great strain.

I. Stability and instability

I .1. The stability presumption

Economists are wont to assume that markets are stable – that the "forces of supply and demand" will work to coordinate the trading intentions of sellers and buyers. When dealing with the markets for most produced goods this is often a safe presumption. Excess demand for a consumer good, for example, will tend to drive the price up and thus to reduce the gap between supply and demand. An excess of market price over supply price will lead to increased output and thus to a reduced profit margin. These two negative feedbacks normally work in combination so as to keep the market near its equilibrium.

However, cases of instability[1] occur also in markets for goods and services and when they do the economic

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[1] The state of a market is unstable if a relatively small perturbation, rather than returning the market to a position near the original one, propels it to a new "far away" state.

and social disruption can be dramatic. They occur in markets subject to economies of scale.[2] A cost-reducing innovation may then send the system towards a new equilibrium far from the initial one. The introduction of supertankers and container ships over recent decades is a telling example. New economies of scale reduced the cost of ocean freight considerably. The consequence has been that seaborne trade and seafaring occupations have disappeared from a great many maritime cities where they had dominated the local economy for centuries. But it is misleading to think of scale economies as always associated with big, indivisible "lumps" of physical capital. The ability to organize the division of labor on a large scale is key. Thus, IKEA has driven many furniture retailers out of business around the world and Walmart has squeezed out innumerable retailers of every sort wherever it has entered.

This type of bounded instability is of great importance in economic development. Political pressures will often put a brake on their realization or even stop them from being realized altogether. Economists tend to approve of them since "the losers could be compensated and leave everyone better off" – although we know full well that in reality full compensation is seldom paid.

I.2. The instability of credit

Instability of money and credit is a different and more serious matter for several reasons. First, inflations and deflations are not necessarily bounded. They may utterly destroy the system of contracting in a particular monetary unit. Secondly, they bring declines in aggregate output so that compensation of losers may become impossible. Thirdly, and most importantly, they involve breach of trust both in the sense of broken promises between contracting parties and in the sense of loss of trust in governments and in social institutions. In democratic polities, therefore, they leave a legacy of distrust and recrimination that makes it exceedingly difficult to muster the democratic consensus required to deal effectively with their consequences.

The two extremes of monetary instability are debt-deflation and hyperinflation. The logical extreme of debt-deflation is a state where the real value of contracts is so high that all debts are unpayable and all claims uncollectable. For hyperinflation, the corresponding extreme is a state in which debts are insignificant and claims worthless. If the contractual rubble that is the legacy of the deflationary case is not cleared away by political action it can keep an economy in depression indefinitely.[3] In contrast, the end of a hyperinflation leaves the economy with a financially "clean slate" from which to rebuild the financial system with a new currency. But social cohesion and political peace is not easily restored in a country where creditors have been swindled and workers starved.

Following World War II the Western economies experienced half-a-century of economic growth with only relatively modest fluctuations. The Great Depression receded from the memory of economists and numerous cases of severe economic instability outside Europe and North America made little impression on the economics taught at leading universities and practiced by the major central banks.

Economists misread this history, The "Great Moderation" seemed to show that we had learned to curb the business cycle – and, of course, to avoid major disasters.[4] Events since 2007 have demonstrated how wrong we were. In retrospect the Great Moderation is revealed as a period of generally rising leverage ratios and increasingly stained maturity mismatches. Speculative and Ponzi finance – in the terms of Hyman Minsky – became steadily more important. Once the resulting instability was triggered, it required enormous fiscal resources and extreme central bank measures to prevent a complete collapse.

The policies that contributed to the "moderation" bear some responsibility for the disaster. Repeated administrations of the "Greenspan put" – whereby liquidity were provided to the US economy – curtailed downside risk in the financial markets and thereby encouraged the build-up of increasingly risky positions of individual financial firms – and these added up to a highly unstable structure for the financial system as a whole.[5]

II. Recovery: How deal with a credit disaster?

II.1. Stabilization: Stocks and flows

The current recession is not an ordinary recession that happens to be more severe than most. The best characterization, I believe, is that of Richard Koo: A *balance sheet* recession.[6] Balance sheet recessions are a different species from ordinary recessions and standard income-expenditure analysis can be misleading when applied to them.

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2 I am indebted to Martin Korpi for stressing this type of instability in correspondence.

3 It can be cleared away also by universal bankruptcy, of course. But that would transfer control of much of the economy's real resources away from the people most capable of managing them.

4 Robert Lucas' Presidential address to the American Economic Association is a prominent example. Lucas argued that the problem of "preventing depression" had been solved "for all practical purposes". Cf. his "Macroeconomic Priorities", *American Economic Review*, March 2003.

5 This diagnosis has been argued by both William White and George Soros.

6 Richard C. Koo, *Balance Sheet Recession: Japan's Struggle with Unchartered Economics and Its Global Implications*, Singapore: John Wiley & Sons 2003 and idem, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, Singapore: John Wiley & Sons 2009.

A financial crash leaves behind it a legacy of damaged balance sheets and the condition of these balance sheets comes to dominate the dynamics of the economy. To formulate policies for a balance sheet recession one must look behind incomes and expenditures and focus on relationships between assets and liabilities.

Deficit spending and near-zero interest rates did not restore the Japanese economy to healthy growth for a great many years following the crash in the early 1990s. Slow growth threatened the sustainability of ever more debts and the attempts by the private sector to deleverage absorbed the public deficits. Persistence with these Keynesian policies eventually brought the national debt above 200% of GDP.

The United States present one example – perhaps the *only* example – of deficit spending solving a balance sheet recession. But it took a World War to do it. Before the war, private sector balance sheets were still in bad shape. At war's end, the federal debt was huge by the historical standards of the time, but the private sector was now in good shape. Keynesian forecasts that demobilization and the cessation of war spending would spell resumption of depression proved utterly wrong. Instead, the return to growth made the federal debt easily sustainable.

This lesson is not particularly helpful in our present circumstances, however – and for two reasons. First, United States entered World War II with what was by present standards rather modest indebtedness and its credit was not imperiled by the war time deficits. Secondly, of course, politically convincing reasons to engage in deficits on that scale could not be found today even if the present federal debt was a great deal lower than it is.

II.2. Questions of incidence

The day-to-day activities of a modern economy are on the whole governed by a complex network of contracts or, in some cases, more informal understandings. Daily consumer purchases constitute the main – but rather trivial – exception. The promises embedded in this web are constantly fulfilled and renewed following the formal rules of commercial law or more informal market conventions.

At any given time, some promises are broken. The normal way of dealing with isolated breaches of contract is to take them to court. In some cases, the solvency of the creditor may depend on this particular payment. Then one default will trigger another. Avalanches of default are possible. Such avalanches differ in size and may cause smaller or larger collapses of the web of contracts.

How extensive a default avalanche will be depends on how high is the general degree of leverage in the economy, on how extreme are maturity mismatches in balance sheets, and how fragile may be the condition of the "too-big-to-fail" nodes in the web. In a Minsky-fragile economy, it is possible for an avalanche to sweep away virtually the entire web of formal and informal agreements which the market system requires in order to function.

The end-point of such an extreme debt-deflation would be a state in which all remaining debts are unpayable and all claims uncollectable. At that point, the human and physical capital of the economy would still be what it was before the collapse, but the economy will not recover that level of income and output. The narrowly economic reasons for this are that various productive combinations of skills and resources have been disrupted by "fire sales" and by transfers of control from people with experience in managing them to people less capable in making them productive. Agents that previously used some debt-financing in their operations have lost their credit-worthiness as well as their equity and these financial impediments make it impossible to recreate the pre-existing organization of the economy. These economic consequences by themselves make the situation more severe and intractable than those of an ordinary recession.

The social and political consequences of such a collapse are arguably more serious than the narrowly economic ones. Regaining social cohesion and political tranquility will be very difficult. Countless promises have been broken. The incidence of losses and gains make no sense to the man in the street. People have learned that the basic institutions of society cannot be relied upon to produce fair and predictable outcomes. When they can no longer depend on the rules that used to govern cooperation in the economy, their trust in contractual counterparties is undermined, their faith in fellow citizens evaporates, and their suspicions of foreigners and outsider turn easily into paranoia. Monetary instability will produce both social anomie and political extremism. The weakening of the reasonable center of the political spectrum makes it extremely difficult to find a democratic basis for effective political action.

II,3 Stabilization and incidence

It is of the utmost importance, therefore, that a general credit collapse be halted before it can go very far. But stabilization brings its own incidence problems.

Imagine the situation at some point in a credit crisis. Some defaults have occurred. Some creditors on those contracts are insolvent as a consequence and more are threatened by insolvency. Fears that counterparties may be insolvent are spreading. Agents with short-term debts try hard to run positive cash-flows. Solvent creditors are not offsetting the deflationary pressure by lending.

If it is left to the commercial law to enforce all contracts the process will snowball. Matters will be worse tomorrow and much worse the day after tomorrow. *Following the rules by which the system is supposed to operate*

will cause the system to collapse. Stopping the collapse in process means preventing contract law from running its course. Policy intervention is required and it must of necessity alter the distribution of income and wealth that would otherwise occur. To be effective, the policy must decide: *Who will not have to pay? Who must pay? Who will not be paid? Who must be paid? Who will be made to pay somebody else's debt?*

These are politically unpalatable issues. Any straightforward policy will in one form or another be a decision "to rob Peter to pay Paul."

When these issues are raised to an international level, where a supranational government generally accorded legitimacy does not exist, the difficulties become of a different order. Within the Eurozone, governments are now grappling with questions that cannot have clean-cut answers: *Which country must pay? Which country must be made to pay another country's debts?* It is *not possible* to find answers to these questions that will accord with ordinary people's ideas of fairness.

For politicians, therefore, it is preferable that the answers not be clear and explicit. The most desirable option is to postpone the issue as far as possible in the hope that the question will either go away or have to be answered by somebody else. Postponement may be gained by pumping liquidity into the system. It will relieve the problems of some agents caught in maturity mismatches. Moreover the line between maturity mismatch and fundamental insolvency is seldom clear. Nor is it fixed – higher growth or higher inflation will save many debtors.

Even without higher growth or inflation, postponement will enable some debtors to earn their way back into the black. So part of the problem *does* go away. Several big American banks were insolvent in the wake of the Latin American debt crisis of the early 1980s but "regulatory forbearance" gave them the time needed to get out of trouble. It cannot always work. The reckoning in Japan was long postponed but insolvencies in the banking system had eventually to be dealt with. Meanwhile, the economic losses from two decades of subpar growth were very large.

II.4 Bisection of credit markets

A general credit collapse tends to divide the financial system into two sets of agents. In one set are the solvent agents with positive cash-flow, little or no debt and high liquidity. In the other set, are the agents for whom all these statement have to be negated. Some are bankrupted but others are doing their utmost to avoid insolvency in order to maintain control of assets that are worth far more to them than they would fetch in "fire sales." Many of those in the first category hold claims of questionable value on agents in the second and most are generally unwilling to lend.

The extent of this bisection depends on how far the credit collapse has been allowed to go. Monetary policy will be effective in inverse proportion to the extent of the bisection. Consider the extreme case where we end up with two disjoint sets of people, one solvent and highly liquid, the other basically insolvent and desperately illiquid. Conventional monetary stimulus means transacting with the solvent and liquid private sector agents. It does nothing much for those whose solvency is in doubt and whose liquidity is strained. Confronting a bisected financial system, the central bank's ability to stimulate aggregate demand by conventional means will be quite limited.[7]

III. Reform: How prevent a recurrence?

III.1. Constraining public policy

Economists and political scientists seem increasingly to have lost faith in democratic governance. If elected politicians stay in office too long, so one argument goes, the risk is corruption; if too short, the risk is that the long-run future is sacrificed to the election cycle. This pessimism about democratic governance has produced a range of proposals designed to constrain governments. In the field of macroeconomic policy, the two most fashionable ones have been for constitutionally mandated balanced budgets and for the independence of central banks. Recent events have demonstrated the severe disadvantages with both ideas.

III.1:1 Fiscal policy

The majority of American states now have balanced budget amendments of one form or another. They have proven to be powerful amplifiers of fluctuations in private sector spending. The experience in California (where this writer lives) has been that the state government spends all it takes in when times are good – and finds itself forced to cut essential services in recession. The countercyclical policy of the federal government, therefore, has to work against the expenditure patterns of lower level governments. A proposal to impose a balanced budget amendment also on the federal government has recently gained considerable political support. It would, of course, not only leave the federal government unable to conduct countercyclical policies but would turn also the federal budget into an amplifier of fluctuations stemming from the private sector.

In principle, it should be possible to achieve a governance structure that combines a credible commitment to long-run budget balance with short-run flexibility for countercyclical fiscal policy but it is not conceptually and most certainly not politically easy. A clear separation of capital account and current account budgeting would be a start. The capital account records the assets and liabilities of

[7] I first brought up this problem a long time ago in "Effective Demand Failures", *Swedish Economic Journal*, 1973.

the government; the current account its current revenues and expenditures. One would then require that the current account be balanced at the (estimated) full employment level of income. Any deficit at this level of income could only be incurred for the purpose of public investment expenditures. More easily said than done! Unemployment compensation, for example, would have to be paid out of a capital account fund to be built up in high employment years and drawn down in recessions. One can easily imagine the political wrangling that would occur over which items should go in the capital and which ones in the current account budget.

III.1:2 Central bank independence
In the Monetarist theory that was influential a quarter-century ago, the real effects of monetary policy were evanescent and not welfare improving. Basically, monetary policy affected only the price level. Intertemporal general equilibrium theory has served to reinforce these ideas. Politicians, so it was thought, were always tempted to use monetary policy for temporary employment gain. To prevent them from responding to Keynesian siren songs, monetary policy ought to be insulated from democratic control and consigned to the care of professionals unaffected by the election cycle. Stabilizing the price level would be a purely technical matter and the technicians would best be able to perform their task free from political interference.

The doctrine of central bank independence has survived to the present day. Perhaps it is in the interests of everyone to preserve it. Certainly, central bankers everywhere have happily embraced it. But the premises on which it rests are false.

There are two things wrong with it. First, it presumes the stability of credit. It takes for granted that the central bank will not be faced with a general credit collapse forcing it to decide whom to save and whom to let go under. Secondly, it presumes that ordinary monetary policy decisions are distributionally neutral and will not favor one group in society over another.

Recent experience has amply demonstrated the falsity of the first presumption. Central banks have had to choose between favoring debtors or creditors, of bailing out some but not others, of guaranteeing some private sector liabilities and not others, of taking some types of dodgy assets onto the central bank balance sheet and not others, of policing competition in financial markets or helping to organize the collusion between its biggest players, of transferring certain liabilities to the general tax payer and not others... Politicians might well want to evade some of these hot potatoes but that does not change the fact that in any democratic country these are inherently political, not just technical, issues.

The second presumption – the distributional non-neutrality of ordinary central bank operations is better postponed until section III:1:3:2 below.

III:1:3 Monetary governance
In the long run-up to the recent crisis, monetary policy fed the growing credit bubble when it should have starved it. The doctrine that central banks could safely confine themselves to CPI inflation-targeting has proven a costly illusion.[8] How monetary control of aggregate demand is to be exercised needs to be re-examined.

A second issue under this heading concerns the distributive incidence of monetary policies. We have always known that (unanticipated) changes in the price level have distributional consequences. The two most influential monetary economists of a century ago, Knut Wicksell and Irving Fisher, differed in a number of respects. But they shared the same urgent quest: to find a system of monetary governance that would ensure against *unfair* distributive effects. This could be done by keeping the price level constant (Wicksell) or by arrangements that compensated people for price level changes (Fisher).

Under the system of monetary governance that has been allowed to emerge in the last couple of decades, we have a novel problem to consider: distributional consequences of monetary policy that occur *even when the price level does not change*.

III:1:3:1 Monetary control
Twenty-some years ago, monetarism was the most influential central banking doctrine. It focused on central bank control of one nominal quantity, usually either M1 or some version of M2. In the 1990s, various innovations in payment practices made the relationship between monetary stocks controlled by central banks and nominal GDP increasingly variable. As a consequence, monetarism rapidly lost influence. Its place as the dominant policy doctrine was taken over by inflation-targeting.

Inflation-targeting is a Wicksellian strategy for controlling the nominal price level. By raising (lowering) the central bank discount rate – or in recent times its repo rate – the central bank seeks to reduce (increase) the rate of inflation.

In the 19th and for much of the 20th century, Bank rate was understood as a tool for controlling the volume of credit in the economy. The price level was controlled by convertibility of paper money into gold or silver (or both) depending on the standard adopted by the country in question. Control of credit could be used to moder-

[8] One of several illusions propagated by economists in recent years. Cf. Martin Wolf, "After the Bonfire of the Verities," *Financial Times*, May 2, 2012.

ate the Trade Cycle, as it used to be called, but if the reserve of monetary metal at the central bank ran low, its ultimate function would be to defend convertibility.

In the long run-up to the recent crisis, the major central banks were congratulating themselves on their success in controlling price levels by inflation targeting. Meanwhile, the credit bubble grew and grew unchecked. The tendency has been to blame the regulators for the ensuing disaster. Regulators have not been blameless but it is also true that, in the macromodels used by the central banks, credit was not supposed to balloon out of control no matter what the regulatory regime. These dynamic stochastic general equilibrium (DSGE) models contained a so-called "transversality condition" which – translated for laymen terms – meant that, at the end of time, all bills would be paid. Unfortunately, no counterpart to this equation is to be found in the world of actual experience.

This leaves us one policy instrument short. The interest rate set by the Central Bank cannot regulate both the price level and the volume of credit in the economy at the same time. The bubble that burst proved that the "free market" does not keep credit under control.

Fifty years ago, the influential book by John Gurley and Ed Shaw started a debate on the requirements for monetary control. The conclusion of that discussion, in which Don Patinkin[9] played a prominent role, was that a central bank required two policy instruments to control a pure fiat money regime.[10] It needed to control one nominal quantity and one interest rate. Today, this requirement could be met, for example, by controlling the monetary base and the discount rate (or the repo rate). It would be desirable also to strengthen this arrangement by tying all deposits in the system to the base with old-fashioned reserve requirements, the reserves to be actually deposited with the central bank. The reserve requirements would apply not just to commercial banks and savings institutions but to money market funds and any other issuer of demand (or overnight) liabilities. This should, I think, include reserve requirements against repo contracts, at least for repo financing from the central bank. Alternatively, the central bank could impose a "haircut" on repos in addition to the repo rate charged.

This would not solve all our problems. The end of monetarism was caused by the increased variability of the "velocity of money" (variously measured). Regaining control of the quantity of money would not do much to solve that problem.[11] But having a nominal anchor is better than being entirely without one even if the anchor cable is pretty elastic. As the credit bubble was developing it would have put increasing strain on that cable and the cost of funds would have risen.

This proposal would create a system with some family resemblance to what we were used to just a couple of decades ago. But an orderly retreat from our Brave New World will not be easy to organize. In the United States, political deadlock over fiscal policy has more or less forced the authorities to try to fight recession almost altogether only with monetary policy. But monetary policy has been hampered by a bisected credit system and conventional measures have had little effect. The Fed's balance sheet has tripled, and those of the ECB and the Bank of England have doubled in size. In the U.S., the monetary base is larger than M1, and interest is paid on bank reserves to make the banks hold them. Bank reserves are anything but scarce. To reintroduce a nominal anchor they have to be made once again a scarce resource.

The central banks were facing a looming disaster. The manner in which age-old rules of prudent central banking was jettisoned tells us better than anything else how serious the situation looked from the inside. The century-and-a-half old Bagehot Rule had been that a central bank should come to the rescue of banks in trouble by *lending freely on good collateral but at a penalty rate*. In the current, ongoing crisis, the central banks have taken on board enormous sums of questionable collateral and have done so at the lowest rates ever seen (at least outside Japan). Current central bank repo rates are *subsidies*, not penalties (see below).

III:1:3:2 Monetary policy and distribution

Monetary economists have by tradition regarded income distribution as outside their purview. This will have to change.

Consider, as an example, what I have elsewhere called the "Shell Game."[12] The biggest American banks were at one juncture bailed out by the federal government with TARP funds.[13] This policy was roundly criticized by people who did not realize the true perils that were threatening from the unstable financial system. Subsequently, the Federal Reserve's repo rate was reduced to 0.2 per cent. The banks were enabled to boost their earnings by buying government bonds initially earn-

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9 John G. Gurley and Edward S. Shaw, *Money in a Theory of Finance*, Brookings Institution, Washington, D.C. 1960 and Don Patinkin, Financial Intermediaries and the Logical Structure of Monetary Theory," *American Economic Review*, 1960

10 Fiat money cannot be redeemed for a specified quantity of gold or some other substance but derives its value entirely from laws that compel its acceptability in the payment of debt.

11 It might help a bit that the proposal would include some bank deposit substitutes in the nominal magnitude controlled by the central bank.

12 VoxEU, January 2011.

13 TARP (Troubled Asset Relief Program) has been a component in the US Government's attempts to mitigate the subprime mortgage crisis.

ing 4, later just 2 per cent with funds acquired at this near-zero repo rate. The profits from this not very complicated operation enabled the banks once again to pay their executives the bonuses to which they had become accustomed. With the earnings from these bonds the banks were soon able to repay the TARP money. The government was then pleased to announce that the policy had saved the banks "at no cost to the tax payer". Not true. The bonds that the banks were now holding are of course tax-payer liabilities.

This circuitous way of subsidizing the banks has the inestimable political advantage of being ill understood by the general public. But it is an inefficient way of granting subsidizies in that a considerable slice of the funds end up as executive bonuses. Enabling these bonuses is hardly a high priority social policy.

The policy had the desired effect of saving the banks in question because the banks have privileged access to Federal Reserve repurchase agreements. Consider the (somewhat far-fetched) possibility that the repo window were to be open to all and sundry. Imagine, for example, that ordinary citizens could refinance their mortgages at the current repo rate. Two consequences would presumably follow. First, the profits that the banks now earn would be competed away (and executive bonuses would disappear in the process). Secondly, such a "monetary policy" (if it deserves the name) would no doubt succeed in inflating aggregate demand far more readily than recent policy has been able to do.

For a number of years, the big Wall Street financial institutions have reported rates of return far higher than is normal in the "real economy." To economists, this should be a riddle. How is it possible that the markets would fail to equalize rates between industries? The answer is two-fold. First, more capital does not flow into banking because the excess profits of banks are allocated to bonuses and do not go to share holders. Bank shares earn no more than a normal return. Secondly, the banks earn a high return because of their privileged access to the Federal Reserve repo window. The extraordinary growth (a) in the share of U.S. GDP going to the top 1 per cent of income earners and (b) in the share of that 1 percent, in turn, that Wall Street executives carry home are both due to the "extraordinary privilege" granted them by the current system of monetary governance.

III: 2 Reform and the private sector

III:2:1 Macroprudential supervision

Economists in general and policy-makers in particular did not see the crisis coming. Hence, creating an early warning system seems a plausible idea and new agencies for "macroprudential supervision" have been widely debated. In Europe, the European Systemic Risk Council was created to fill this role.

It is not obvious that new macroprudential bodies will serve a useful function. The Financial Stability Forum at the Bank of International Settlements has debated systemic risk for decades. The IMF, the ECB and the Bank of England produced regular Financial Stability Reports. But none of these agencies gave a strong forewarning of the coming crisis.

We have long known that maturity mismatches and high leverage puts individual institutions at risk. Lax risk management will of course amplify this risk.[14] We have considerable experience with how to regulate individual institutions so as to keep these risks within limits. The demand for macroprudential supervision stems from the valid insight that systemic risk depends not just of the apparent riskiness of the portfolios of individual banks but also on how these portfolios are interconnected – which is to say, it depends on the topology of the financial network (which is not just national but also international).

Network theory as applied to financial systems is however still in its infancy. Elementary network theory does provide some quite useful insights (see the following section) and simple network representations can serve, for example, to identify nodes that are "too big to fail" – if we did not know them already.[15] To serve as an early warning system, however, knowing the links between individual banks will not suffice. You would need to know the types of contracts and the amounts that make up the links. The quantity of information required would be enormous, would require frequent if not continuous updating – and much of it might be information that financial institutions would resist disclosing.

Finally, it is more than just questionable whether any system of systemic supervision that we can now envisage would produce forewarnings that would be sufficiently unambiguous, indisputable and early to trigger timely and effective policy action.

III:2:2 Structural reforms

The American regulatory system instituted in the 1930s – the Glass-Steagal regulations – kept the financial system stable for some 60 years. It divided the system by function and by jurisdiction into a fairly large number of market segments. Each segment was defined by the assets that the financial institutions within it could acquire and the types of liabilities they could issue.

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[14] There is moreover considerable (albeit informal) evidence that the influence of risk managers in the decision processes of indivual instituions varies counter-cyclically. It is strong in the immediate wake of major losses but gets progressively weaker "when the going is good."

[15] Note that, if we did not know these critical nodes already, knowing some network theory might not help. If we had had network representations of the financial system four-five years ago, would it have occurred to central bankers to include the portfolio of the AIG insurance company in it?

The structure was that of a ship divided ito watertight compartments. It proved itself "unsinkable" as late as during the Savings & Loan crisis of the late 1970s and early '80s. This traditional American home financing industry went under at considerable loss to the public purse but it did not drag down any other financial industry in the U.S. and certainly none abroad.

Economists generally did not understand the rationale of the structure imposed by the Glass-Steagal regulations. It seemed simply to curtail competition and to prevent financial firms from reducing risks by diversifying their portfolios for no apparent countervailing benefit. The comprehensive deregulation promulgated in the 1990s entirely changed the network topology of the financial system. The big banks, in particular, now operated in every conceivable market both at home and abroad.

This modernized ship proved sinkable.

The Volcker rule in the United States and the "ringfencing" recommended by the Vickers Report in the U.K. are in effect attempts to move a step back towards a segmented (if not really compartmentalized) system. Both are essentially attempts to isolate and protect the "oldfashioned" deposit-taking commercial banking functions from the rest of the system. But unscrambling an omelet once cooked is not easy. Drawing clear dividing lines has proven a complicated business. Moreover, opposition from the banks against changing business practices that were profitable up to the crash is formidable.

Would the Volcker or the Vickers reforms have made the system significantly safer? The deposit business of banks was hardly affected by the crisis. Perhaps, bank lending to the business community would have declined less had commercial banking been isolated from investment banking. But it is not obvious that this would have been the case. The systemic instability evidenced by the recent crash was not centered in the core part of the financial system that "ring-fencing" seeks to protect.

III:2:3 Regulating behavior

The usual approach to regulation is to prohibit people from doing what they would otherwise want to do and to mandate that they do certain things they do not want to do.

The Glass-Steagall Act did an effective job of this sort in the space of just 30-odd pages. It served the United States well for about 60 years. The recent Dodd-Frank bill, which attempts to do the same job for today's financial system, runs to 800+ pages but does not contain the actual regulations that should make its statutes effective. Regulations from the various bodies charged with policing the various activities or parts of the overall system have begun to appear. They add hundreds and hundreds of pages to the original bill. The industry is lobbying hard against some provisions and is already finding ways to dodge others.[16] The eventual shape of the new regulatory framework is far from clear yet.

Over the last few decades, banking and finance has become more and more supra-national in scope. For the individual global banking institution this has meant, on the one hand, that it has increasingly escaped from under the control of the regulatory bodies of any particular country but, on the other hand, that it has to deal with a great variety of regulations across the various jurisdictions where it is operating. For these institutions, being good at "regulatory arbitrage" has accordingly become an important part of efficiency in banking.

The one major and sustained effort at international coordination of regulations has been the successive Basel accords on capital requirements. The basic idea behind capital requirements is simple enough. A larger capital buffer makes it less likely that a bank will fail and less likely, therefore, that it will trigger failures among other financial institutions. But the crisis demonstrated that Basel I and Basel II had done little to make the international financial system safer. Nonetheless, the Basel III rules negotiated at the Bank of International Settlements are based on the same presumption that the best that can be done is to "fix" capital requirements so that they will provide better protection next time.

In the run-up to the crisis, big banks were able to evade the capital requirements by creating special investment vehicles (SIV) that formally were not part of the bank in question. In the crisis, however, some big banks, such as Citigroup, found themselves forced to bring their SIVs back onto their balance sheets and this revealed them as considerable more highly levered than had been apparent. This kind of evasion of the requirements is presumably rather easily remedied – but may perhaps reappear later in some different form. Another defect of Basel II was the weighting scheme for calculating required capital. It treated sovereign debts as risk-free, which proved an incentive for banks both to load up on government debts and to increase their leverage generally. Needless to say, many big European banks have had reasons to rue their holdings of the bonds of various European governments. This problem can also be fixed rather easily by raising the weights applied to government debts[17] or, perhaps preferably, by going to a straightforward unweighted calculation of requirements. An unweighted

[16] A New York Times article by Jesse Eisinger,"Volcker Rule Gets Murky Treatment" describes how the banks are finding ways around the Volcker rule. Cf. NYT April 19, 2012.

[17] The weight applied to the holding of a country's bonds might be made a positive function of the debt/GDP ratio of the country in question.

formula would avoid some of the more obvious ways in which banks were able to "game" the system.

A fundamental problem with capital requirements, which is not "fixable" in any straightforward way, is that they are inherently *procyclical*. Asset prices rise in a cyclical upswing and this is reflected on the bank's book as increased equity capital. The capital requirement is automatically relaxed allowing additional loans or investments. In recession, the opposite occurs and a bank that was previously fully loaned up will be forced to deleverage. Loan losses would of course exacerbate this effect. Thus, capital requirements tend to amplify cyclical movements in the economy.

Reserve requirements against deposit and other short-term liabilities do not have this pro-cyclical property. They have in fact a counter-cyclical effect in that they absorb reserves in expansion and release them in contraction. But required reserves do not perform the function that is the aim of the Basel requirements. They do not provide a cushion against defaults on bank assets. However, supplementing capital requirements with reserve requirements is an idea worth exploring.[18]

Policing and enforcing the eventual welter of regulations will not be an easy matter. Staffing the regulatory agencies with good people is an obvious problem. Pay is a good deal higher on Wall Street and we no longer live in a society that attracts superior talent into public service by the respect and esteem, rather than money, that it accords them.[19] Moreover enforcing current rules is not enough. You need regulators that can keep one step ahead of innovations designed to circumvent the regulations. But, again, the ability to be one step ahead in this game is far more highly remunerated among the regulated than among the regulators.

III:2:4 Structuring incentives

The usual approach to regulation, of which the Basel rules are an example, is to prohibit people from doing what they otherwise would want to do and to mandate that they do things they do not want to do. This is not a very promising approach towards a system that has become exceedingly complex, that is capable of innovating and changing very fast, and that is staffed by the cleverest people that money can buy. The alternative approach to regulation is to change what people will want to do and what they want to avoid doing. This means changing the incentives that the decision-makers find themselves facing.

Changing the incentive structure can be done by working either on the rewards or on the costs. Attempts have been made recently to reduce the bonuses that bankers are (now again) earning. These attempts have met with opposition and have so far proven ineffectual. Even if bonuses were somehow to be reduced by x%, it is not clear that this would affect the decisions that bankers are making.

Behavior can more reliably be affected by liability provisions. The negative social externalities of bank behavior have been enormous. If it were possible to make the decision-makers personally bear a cost linked to the socio-economic consequences of his or her decisions, behavior would be modified in a desirable direction. A simple example would concern the much discussed *non-transparency* of various securitized products such as the bundles of mortgages of varying quality that played a prominent role in the beginning of the crisis. Shifting the law closer to *caveat vendor* than to *caveat emptor*[20] in the markets for these products would presumably make the institutions bundling these loans exercise more due diligence than previously.

While it may not be possible to make bankers liable for all social externalities that they cause, they can at least be made (partly) liable for the failure of their own institutions. The way to do so is to require that executives be remunerated in part with equity that carries *double* liability (or some other suitable multiple) in case the institution becomes insolvent.[21] The failure of a bank would then not only wipe out the equity of shareholders. The holders of double liability shares would in addition have to pay the creditors of the bank an amount equal to the face value of those shares.

Such a requirement would have three desirable consequences: (1) it would tend to make bank executives more conservative and less daring in gambling with other people's money; (2) it would put this liability of the financial decision-makers ahead of any tax-payer "bail out" in case of insolvency; and (3) it would create a potentially powerful *diseconomy of scale* within big conglomerate banks. Executives in one department of a bank would have a lively *personal* interest in the risks taken in other departments.

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[18] Also for the reasons set out in section III:1:3:1 above.

[19] There are of course notable exceptions: Elisabeth Warren, Brooksley Born and Sheila Bair come to mind. Coming up with prominent male names is more difficult.

[20] *Caveat emptor* – "buyer beware" – is a principle of Roman law that has survived the centuries. It meant, roughly speaking, that the buyer had the responsibility of checking that goods delivered by the seller are in the condition agreed upon. *Caveat vendor* would put the responsibility on the seller.

[21] For some details on this scheme, see my "A Modest Proposal", VoxEU, January 2009 which also references similar proposals by Hans-Werner Sinn and Neil Record.

This is not a radical proposal. When fractional reserve banking was in its infancy, bank owners had unlimited liability.[22] Double liability for bank shareholders was the general rule in the United States until the Great Depression. California at one time had triple liability. These liability provisions were eliminated in the 1930s. In their stead, banks were made subject to reserve requirements.

IV. Economics and ideologies

Fifty or sixty years ago, macroeconomists perceived the private sector as unstable, riddled with market failures and lacking any automatic tendency to produce full employment. Economists back then also believed that a benevolent and competent government could remedy all those problems besetting the market system.[23] In particular, the private economy required stabilization policy.

This simple ideology began to lose its grip on the economic profession in the 1970s. Under the influence of Monetarism, it was gradually supplanted by the beliefs that "government is the problem" and that "free markets" will solve all coordination problems. Twenty years ago, the collapse of Soviet central planning added a good dose of complacency and not a little hubris to this view of the world. The main political economy problem was how to constrain governments so that they would not interfere with the functioning of the market system. The fashions for independent central banks and for constitutionally mandated balanced budgets both stem from this view of the world. The ongoing financial crisis has now shown that also this worldview is dangerously simplistic.

Ideologies can be useful. The outlines of a reasonably simple worldview can provide coherence to a program of action. But it should be clear to us now that it is time to relinquish the dangerously over-simplified views of economic reality that have fuelled political and economic controversies for more than half a century. The advantages of decentralized decision-making that the private sector market system provides are very large (although, of course, not entirely unqualified). But they do depend on the stability of the system. And the framework of stability has to be constructed and maintained by government.

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[22] Cf. Lawrence White, *Free Banking in Britain*, 2nd edn, London: Institute of Economic Affairs, 1995.

[23] I am paraphrasing an argument spelled out at more length in my "The Long Swings in Economic Understanding," in K. Vela Velupillai, ed., *Macroeconomic Theory and Economic Policy: Essays in Honour of Jean-Paul Fitoussi*, Lo don: Routledge, 2004.

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