

Curbing instability: policy and regulation

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The present crisis has shown very clearly that the markets for a number of recently innovated financial instruments do not work well. The old story of the beneficial workings of the Invisible Hand presupposes that the participants understand what they are buying and selling and this has far from always been true in the unfamiliar environments created by very rapid financial evolution. The reasons have been various: lack of transparency in the case of securitized loans, lack of legal clarity with regard to the rights of holders of different tranches of structured products, lack of an organized market for credit default swaps, etc. There is a whole host of issues of this sort.¹

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The debate on how to prevent a recurrence of the present disaster has only just begun. Thus far it has concentrated on proposals to regulate particular instruments and the markets in which they are traded. The discussion has turned less frequently (and more delicately) to regulation of the powerful institutions that are the major actors in the financial system. Contemporary economics analyzes these problems in terms of transaction costs, informational asymmetries

and moral hazard and tries to find ways to eliminate or at least ameliorate these market imperfections.

The missing macro element

This is important work but my impression is that a macroeconomic perspective has so far been largely missing from this beginning debate. Perhaps this is because modern macroeconomics presumes that the economy behaves like a *stable* general equilibrium system. If problems arise in such a system it can only be due to 'frictions' or 'imperfections' of the sort just mentioned. Once these issues are analyzed, therefore, the macroeconomist would have nothing to add.

This modern macroeconomics is wrong. If it were even roughly right, none of the desperate, improvised 'non-standard measures' by treasuries and central banks aimed at preventing *unstable* processes from overwhelming the markets would have been needed. All traditions of central banking have been abandoned and every line of demarcation between central banks and treasuries transgressed in the last 20 months. It is not to overcome 'frictions' that the authorities have been pouring trillions of dollars, pounds and euros into the world economy.

This paper will take a different macroeconomic perspective and focus on the *instabilities* of the system that the crisis has revealed.

Three systemic problems

Everyone is familiar with the story of how free competitive markets are supposed to work. If demand exceeds supply, the suppliers will raise their price until the discrepancy is eliminated. If price exceeds a producer's marginal cost he will increase output until that discrepancy disappears. Both these 'mechanisms' are examples of what is called negative feedback loops in control theory. No centralized decision or supervision is required

¹ Paper presented at the Austrian Central Bank Conference "Beyond the Crisis: Economic Policy in a New Macroeconomic Environment", Vienna, May 14-15, 2009.

for the market to equilibrate.

There are three major variables that are crucial to the economy as a whole but which are not subject to the negative feedback control we associate with the Invisible Hand, namely, the price level, the overall leverage in the financial system, and the connectivity of the network of financial institutions. Under our present arrangements, the first two² will be governed by positive feedback, which is to say, they are unstable. The evolution of the third over the last ten or twenty years has changed the propagation of destabilizing impulses through the system for the worse.

'The good old days'

Not very long ago – or within the memory of old economists in any case – monetary stability was based on controlling the quantity of money. Financial stability was to be ensured by regulation. In the United States, this meant the comprehensive regulations of the Glass-Steagall act which embodied the lessons learned from the Great Depression.

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Price level stability today

Generations of students were taught that the money price level was determined by the supply and demand of money. The supply was determined by a well-known formula involving the public's preferences for using paper currency, the reserve requirements imposed on banks and the exogenously determined volume of base money. Today, substitutes for paper currency are constantly proliferating, reserve requirements do not apply to the non-deposit liabilities of banks and are often not effectively enforced against their deposits either, and – most importantly – the monetary base is endogenously determined.

This means that the system lacks a *nominal anchor*. The price level does not have a market determined equilibrium. In principle, the *sign* of its first derivative can be determined by the central bank controlling that rate of interest which is the private sector's opportunity cost of holding money. There will exist one value for this rate, called the 'natural' rate, such that if the Central bank sets its rate at that value, the price level would not

move. This mode of control is harder than it sounds, however, because the natural rate is unobservable. Set the rate lower than this unknown value and the result is inflation. Set it higher, deflation.

Inflation targeting, therefore, is necessarily an adaptive policy strategy. The central bank sets bank rate at its best guess at what the natural rate might be. It then watches the price level and if it starts to move above target, the bank raises the interest rate. Or if deflationary pressure becomes evident, it lowers the rate. It depends in this way on *feedback* from movements in the price level to find the rate that will keep the change of the price level on target.

Until two years ago, it was widely believed that inflation targeting worked exceedingly well in practice. In theory, however, it is not at all clear that it will always be possible to make it work. There are two related difficulties.

- One, while theory tells us that the price level will rise if the interest rate is set too low, it does *not* tell us *how fast*.

A small error in the rate might possibly cause a large jump in prices.

- Two, if the public's inflation expectations were to be volatile, the unobservable natural rate might dodge about too fast for the central bank to keep track.

In the countries practicing inflation targeting neither of these problems actually materialized as long as the late lamented 'Great Moderation' lasted. Inflation expectations were not at all volatile and the elasticity of the inflation rate with respect to the interest rate was of modest magnitude. But we would be wise to remember that these are contingent rather than permanent properties of the economy. They would not have held, for instance, in the context of one of the Latin American inflations of twenty-some years ago.

However, inflation targeting failed in the United States for an entirely different reason.³ The Federal Reserve System lowered the federal funds rate drastically in a successful effort to counter the consequences of the dot.com crash. It then maintained this low rate for some three years *because* the inflation rate, by whatever CPI measure, stayed low and constant. In an inflation targeting regime, this is taken as feedback confirming that the interest rate is at the 'right' level. In this instance, however, the crucial feedback loop was short-circuited by the exchange rate policies of a number of countries, chief among them China, protecting their exports to the US. The price elasticity of their exports kept American consumer goods prices in check. The behaviour of the price level gave the Fed no clue that it was keeping the interest rate far too low for far too long.

The policy mistake was a costly one – and not only for the United States – a contributing to the build-up of a massive asset-price bubble and to a serious deterioration in the quality of credit. Thus, one lesson from the crisis is that inflation targeting is riskier and more difficult to manage well than we thought two years ago.

² For a fuller discussion, see Leijonhufvud (2009).

³ See Leijonhufvud (2007).

Leverage dynamics and the bubble

When everyone is increasing his leverage, asset prices will be rising and everyone will also be booking profits. Debts and claims are rising in tandem all around but the asset-price inflation also raises the book value of capital. This is a positive feedback loop (Leijonhufvud 2009). In the absence of countervailing tendencies it will make the process unstable.

Risk exposure increases with leverage. The ability of the individual bank, business or household to meet its obligations becomes steadily more dependent on the ability of others to meet theirs. For the economy as a whole, there is also the underlying, ever present maturity mismatch. The economy's durable assets are financed by shorter term debt.

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The general rise in risk exposure may not be obvious to everyone. Securitization was widely seen as diversifying risk (even though the risks of the underlying loans were anything but independent) and credit default swaps as transferring risk to those best able to bear it (or, as is now often said, to those least able to understand it). Meanwhile, rising asset prices mean that there is more collateral to go around and that, in general, borrowers appear to have more capital as backing for their obligations.⁴

Juicy carrots and big sticks combine to make individual agents form a herd running in the same direction. The compensation practices of financial institutions create enthusiastic joiners. There can be little doubts that large bonuses awarded on the upswing based on short-term mark-to-market accounting profits added impetus to the underlying instability.⁵ It is equally true, however, that competitive pressures made it very difficult for decision makers conscious of rising risk to opt out of the process. The loan officer who does not lend, the risk manager who does not play along, the banker whose branch is not 'doing enough business' or the hedge fund which is operating with less leverage than the competition – all are unlikely to last.

Competition between institutions competing in the same asset and liabilities markets will compress profit margins. To maintain the rates of return on equity to which their investors have become accustomed, these institutions may move in three directions:

- (1) increase leverage further,
- (2) move into riskier asset classes promising higher rates, and
- (3) issue shorter term liabilities on which they pay lower rates.

⁴ So, at the extreme, why not extend a "ninja" loan for someone to acquire a house that is "certain" to be worth more next year?

⁵ The compensation schemes are not working symmetrically in the downswing, however. But then MTM accounting is largely suspended as well.

So the boom ended up with historically high leverage ratios, historically low risk premia, high volumes of assets soon to be revealed as 'toxic', and some billion dollar positions financed in the overnight repo market.

Deleveraging

At a leverage ratio of 30, for example, a loss of some 3 percent in the value of assets held is all it takes to put an institution on the brink of insolvency. As long as asset values were steadily rising, such high leverage might not have seen terribly risky. Once the asset price inflation comes to a halt, the threat of bankruptcy will 'concentrate the mind' of bankers. Deleveraging to get back on solid ground becomes the order of the day.

Leverage, obviously, can be reduced either by attracting more capital or by paying down debt.

Raising more capital is not easy when the institution's solvency is in doubt. Some American banks succeeded in attracting substantial sums from sovereign wealth funds (and, in one instance, from Warren Buffet) but this was before the magnitude of their losses was known. Once the extent of losses did become known it also became clear that these capital injections had been no more than drops in a large bucket. This left the government as the investor of last resort.

For reasons both ideological and practical, the US government has however tried to stay as far away as possible from 'nationalizing' the banks. Very large 'bailout' sums are still involved, but the administration still hopes to attract private capital into the banks by purchasing some 'toxic' bank assets and by guaranteeing others so as to leave the taxpayer as the risk-taker of first resort.

A financial institution can reduce debt either by using the proceeds of asset sales or by directing current net cash flow to that purpose. If the banks use the inflow of interest and amortization payments on past loans to reduce their own indebtedness rather than to relend, the non-bank sector is starved of credit. In the best case, this is a slow way for the banks to earn their way back into reasonable condition at the cost of a general recession.⁶ But the inevitable recession will also undermine the quality of some bank assets which in turn may require further retrenchment by the banks and trigger a destabilizing positive feedback process that, as in the Japanese case, can go on for many years.

A faster and more drastic catastrophe will threaten if and when the financial system as a whole tries to reduce leverage by disposing of assets. The asset sale by one bank causes the balance sheets of all banks to deteriorate further. This tends to be another self-reinforcing positive feedback loop, further amplified by regulatory demands to strengthen capital. Meanwhile, falling asset values will spread to reproducible assets and reduce investment in the economy. In the worst case scenario – Fisherian debt deflation – the price level begins to fall

⁶ We should note in passing that the severity of the current recession, despite the unprecedented efforts of governments and central banks, gives us a clue to the *role of the build-up of leverage* in the preceding years of prosperity.

so that the attempts to reduce debt leads to a rise in *real* debt burdens.

The social cost of wide swings in overall leverage in the economy is very high. The loss of jobs, the loss of homes, the loss of wealth following the crash are the unmistakable components of this social cost. What is less often remarked upon is the cost of the misallocation of resources in the boom years. A lot of young talent was lured into the financial sector in those years. Society could have had better use of all that talent elsewhere .

To curb economic instability we have first of all to find a way to constrain the swings in leverage.

A look back: the Glass-Steagall system of regulation

The American system of regulation that came out of the Great Depression imparted a somewhat peculiar structure to the financial industry of the United States which bears little resemblance to that of individual European countries. It is nonetheless worth discussing because the fragmentation of regulatory functions that was characteristic of the American system is a problem for the European Union today and also because the stark contrasts between it and the system resulting from deregulation help define the issues that we now have to confront.

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The old American system compartmentalized the financial system into a number of distinct industries: commercial banks, investment banks, savings and loan institutions, credit unions, etc. Regulations specified which types of assets each category could invest in and which kind of liabilities it could issue. Firms in one category could not compete in the markets of other categories. This segmentation by markets was moreover supplemented by additional segmentation along geographical-jurisdictional lines, confining financial institutions to operate only in the state in which they had been chartered. Thus, for example, it is not very long ago that branch banking across state lines was prohibited.

Financial regulation in the United States was matched to this template of financial structure with separate federal and/or state regulators for the various segments of the financial system. These agencies survived deregula-

tion with the result that the regulatory system no longer matched the evolving financial system in any rational manner. Instead, it was left with numerous, unclear jurisdictional overlaps as well as areas which it was nobody's assigned function to supervise.

Deregulation was in large part prompted by innovations that transformed the financial system and did so in ways highly detrimental to the core of the old system, namely, the commercial banks. The development of money market funds ate into the deposit base of the banks⁷ at the same time as securitization deprived them of much of their loan business. Twenty years ago, commercial banks were widely seen as a threatened species but one that could not very well be allowed to go extinct. Deregulation revived the banks by allowing them access to every conceivable financial market.

Lobbying pressure from the financial industry was no doubt the main impetus behind deregulation. But it is also true that academic economists and finance experts had next to no arguments in favour of the old regulations but only against. Segmentation was inefficient because it reduced competition. It prevented various forms of arbitrage. Most notably from the standpoint of finance theory, it prevented financial institutions from diversifying risk across compartment boundaries.

The crisis of the S & L industry which culminated in the 1980's was widely understood as demonstrating the defects of the market segmentation that regulation had imposed. The S & L's were anything but diversified, basically holding mortgages as their only assets. The extreme maturity mismatch between mortgages and short-term deposits was predicated on an environment of stable money. The finances of the entire industry were undermined by the inflation of the seventies which raised the nominal interest rate the S & L's had to pay above the rate earned on 30-year mortgages acquired years ago.⁸ The spike in interest rates that accompanied the Volcker stabilization became the *coup de grace* for the industry.

The lesson drawn at the time was that specialization on both sides of their balance sheets had doomed the S & L's.⁹ Many would have survived had they been properly diversified.

From today's perspective, there is another, different lesson to be drawn from the S & L crisis, namely, that it

7 The reserve requirements to which the banks were subject put them at a competitive disadvantage vis-à-vis the money market funds. Monetary authorities eventually had to adapt to this situation either by abolishing reserve requirements, or allowing them to be largely circumvented, or by paying interest on the banks' required reserves.

8 There were actually two stages to this process. First, market interest rates rose above the regulated maximum rate that the S & Ls were allowed to pay, draining them of deposits. When this regulation was abolished, they found themselves having to pay rates above the rates earned on their assets.

9 One other lesson drawn (overdrawn?) from the last stage of the S & L debacle has been the importance of guarding against moral hazard. Some S & Ls, knowing themselves to be technically insolvent, took high risk gambles – in effect with the money of their creditors – in the hope of getting back in the black if the gamble succeeded. In the long previous history of these institutions moral hazard did not play a notable role. Brink-of-bankruptcy is the situation in which it will.

was *confined* to its own segment of the financial system. Twenty-five or so years later, in dramatic contrast, a mortgage crisis originating in the United States has developed into a truly global crisis, engulfing all types of financial institutions and affecting the markets for all types of financial instruments.

Diversification vs. connectivity

Not for the first time, economists have fallen into a fallacy of composition, that is, the fallacy of believing that what is true for the individual agent will be true as well for the entire system of many agents.

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For the individual bank, of course, the maxim holds true that it is best ‘not to put all your eggs into one basket.’ It turns out, however, that when you allow financial institutions to diversify in every direction they see fit, you change the nature of risks that the entire system is subject to. The *connectivity* of the *network* of financial agents is increased. This means that a disturbance arising somewhere in the system is unlikely to be confined to some small part of it but will percolate through the entirety of it. Whether in so doing it will also dissipate will depend on several further properties of the network. It will depend on whether agents in general carry high or low leverage. It will depend on the volume and distribution of ‘toxic’ assets in the economy. It will depend whether the network has critical nodes that must not be allowed to fail.

What had become abundantly clear is that by allowing financial institutions to diversify and to multiply the markets and instruments that connect them we have let a situation develop where, from a macroprudential¹⁰ standpoint, *all the eggs have ended up in the same basket*. At the present time, a lot of them are broken and more are cracked. We have on our hands one giant omelet that is not easily to be unscrambled.

The responsibilities of central banks

Only two years ago it was a widely accepted doctrine that central banks should be independent, that they should use their independence to constrain the fiscal policies of elected governments¹¹, that their main instru-

ment was the interest rate and that its use should be reserved for inflation targeting. As a matter of routine, it was mentioned that the central bank would also serve as lender of last resort to sound commercial banks experiencing temporary liquidity problems but it is probably fair to say that it was not thought likely that this function would actually have to be exercised on any substantial scale in any of the major industrial countries.

Today, in the United States, this nice and tidy picture of the responsibilities of a central bank and its relationship to the fiscal authorities has entirely dissolved. The line between fiscal and monetary policy has all but disappeared in the welter of financial rescue measures. The lender of last resort function has come to dominate Federal Reserve policy. Not only have the once well-defined boundaries of this function completely dissolved but it has had added to it a ‘guarantor of next to last resort function’¹², shared with the Federal Deposit Insurance Corporation. The Fed is not just acting, in the traditional manner, as lender of last resort to sound but illiquid commercial banks but seems ready to come to the rescue of unsound financial institutions of every description.¹³ Seeing the Fed, in concert with the Treasury, coming to the rescue of an insurance company one of whose offshore¹⁴ branches has brought it to ruin, one realizes that central banking has changed beyond recognition.

Central bankers are of course intensely aware of this and the Federal Reserve, the European Central Bank, and the Bank of England are all planning ‘exit strategies’ (Papademos 2009) that would erase the present ‘non-standard measures’ from their balance sheets and return the banks to a semblance of normality. Even if this were to be achieved in good order (which will not necessarily be easy), it would not by itself change the fact that a future crisis would again drive the central banks back into non-standard measures. What those non-standard measures will be and who they will benefit at whose expense are matters no more foreseeable today than the non-standard measures now in effect were foreseen yesteryear. Moreover, all these non-standard measures, as we are now very aware, are inherently political¹⁵ in nature so that the mere potentiality of their use inevitably compromises central bank independence.

One important objective of reform should be to regain a system wherein the powers and responsibilities of central banks are clearly defined and carefully circumscribed. What has put the major central banks in their present uncomfortable position is the combination of

12 Next to last because one assumes that the Treasury has to be the ultimate guarantor. Note that this is a new role for the FDIC presumably not anticipated in its charter.

13 Traditionally, the central bank would do its last resort lending at a *penalty rate*. That is not the current practice either.

14 ... if one is allowed refer to the City of London in such manner.

15 For colorful illustrations of this point, see International Herald Tribune, June 13-14, 2009, “Suddenly, the Fed is involved with the snowmobile business.” The Term Asset-backed Securities Loan Facility (TALF) requires central bankers to make numerous decisions on what kind of assets to accept as collateral and on what terms.

two developments, namely, the financial crash and the fact that it occurred within a financial network the connectivity of which had been greatly increased. If we could eliminate the possibility of future crashes, we might not have to worry about the connectivity problem. Conversely, if we could move back to the many watertight compartments structure, we could be fairly assured that future financial crises would at least be confined and not global. But we cannot do either of those two things. So, reform has to work on both fronts.

The three problems

The discussion to this point has left us with three main problems that any program for reform of the monetary and financial system should address. First, the potential instability of the price level and the unreliability of inflation targeting as the sole instrument of monetary policy to deal with it. Second, the instability of system-wide leverage. Third, the lack of defined boundaries for the responsibilities of central banks.

There are no obvious, easy or uncontroversial solutions to these problems. Any and all proposals will produce opposition and debate. The measures proposed here are that the first problem can be dealt with through the (re-)introduction of effective reserve requirements, and the second by making capital requirements countercyclical rather than procyclical. The third, it should be confessed, raises more difficult questions than can be answered.

The price level

Another look back is helpful at this point. The theory underlying inflation targeting goes back more than a hundred years to Wicksell (1898), who dealt with a gold standard world with private note-issuing banks. In the course of the 19th century, the use of gold coin in transactions had largely vanished and banking systems had evolved to economize more and more on gold reserves. Wicksell asked how the price level might be controlled in a world where both these processes had reached the limit of zero demand for gold. The system would then have slipped its metallic anchor. But Wicksell showed how the price level might in principle still be stabilized by central bank interest policy.

The interesting point in the present context is why Wicksell's analysis, although it gave great stimulus to economic theorists, remained largely irrelevant to central bank practice for 100 years, only to come into high fashion in very recent years (Woodford 2004). The reason is that, in the years following the appearance of Wicksell's work, governments more or less everywhere made paper currency issue a government monopoly and in many cases also imposed reserve requirements on banks. These institutional changes served to secure the system's nominal anchor and give the Quantity Theory another 70 or 80 years lease of life.

This should work again albeit not quite as effectively perhaps. Advocating a state monopoly of checking deposits might be going a bit far, but reimposing effective reserve requirements would reinvigorate open mar-

ket operations as a tool of monetary policy. If in a few years time central banks have to face serious inflationary pressures, the bank rate alone might prove too weak an instrument. Open market operations, amplified in their quantitative effects by reserve requirements, would then prove a welcome addition to their arsenal.

Reserve requirements would have to be extended in two directions, however. First, they should apply also to non-bank institutions that issue demand liabilities. This has to be done to level the playing field and keep funding costs the same between banks and money market funds, for example. Second, they should extend also to the non-deposit short-term liabilities, such as repurchasing agreements and notes.¹⁶ (The 'bank runs' experienced in the present crisis have not been against insured deposits but against these instruments of wholesale funding).¹⁷ The reserve requirement ratios may of course be set at different levels for different kinds of liabilities but should apply to all financial institutions issuing a particular kind.

Leverage

The instability of system-wide leverage has been the pivotal feature of the recent boom-bust cycle. Leverage has not been contained by regulation. Existing capital requirements have acted as macroeconomic amplifiers.¹⁸ When asset prices are rising, capital gains will swell bank capital and open up room for further expansion of the balance sheet. When asset prices fall or when the banks experience default by borrowers, capital requirements make deleveraging even more imperative.

To correct this problem, the monetary authorities should raise capital requirements above 'normal' in periods when asset prices rise above the trend of consumer goods prices and reduce them, perhaps drastically, in episodes when deleveraging is the order of the day among financial institutions in general. The cyclical average should be set at probably no more than half of the leverage levels that the big investment banks reached in the recent boom.

That the financial industry would welcome such a development is not to be expected. A lid on leverage is a lid on the rate of return that the banks can aspire to realize. Moreover, this proposal would make capital requirements into another tool of monetary policy and giving the authorities the discretion to raise them in a boom would add a new type of risk for the banks. However, if using capital requirements as a countercyclical instrument were to reduce the likelihood of needing future Toxic Asset Relief Programs *et hoc genus omne*, governments might still find it desirable.

¹⁶ Apparently, Lehman Brothers had close to a quarter of its assets financed by overnight repos in the period immediately preceding its failure.

¹⁷ See esp. Shin (2009).

¹⁸ This is recognized in the recent report by the Financial Stability Forum (2009a).

The financial system architecture of the future

The third issue is by far the most difficult one. But although no simple, clear-cut solution suggests itself, the question of how to circumscribe the functions that we expect central banks to perform in the future seems a useful way to approach the problem of how to structure a governable financial system for the future.

It is almost certainly not feasible to go very far back towards the extensive compartmentalization of Glass-Steagall days. Probably, it is not even desirable to try. We might ask however whether it might be feasible to structure the financial system into a central 'core' and a 'periphery', such that the core is regulated, subject to reserve and capital requirements, and strictly supervised with the 'periphery' less regulated and supervised.¹⁹ The core would be eligible for lender-of-last-resort assistance from the central bank while the periphery would not be so entitled. This would serve to delimit the responsibilities of central banks. To that end, however, the core institutions would have to be to some degree insulated from the possibly highly risky activities permitted in the periphery.

The obvious problem with the core-periphery idea is that the big international conglomerate banks cut across any such dividing line, wherever it might be drawn, and do so in a myriad ways. They are commercial banks, investment banks, prime brokerages and hedge funds, etc., all in one firm. They are also 'too-big-to-fail' – a distinction that in some other industry would make them *public utilities* and subject to regulated pricing, etc. In the United States, crisis management by the authorities has made the too-big-to-fail problem worse than ever.

A firm enjoying the privilege that the government cannot let it fail should expect the public interest to circumscribe, if not actually meddle in, the way it manages its business. Jamie Dimon, the head of JP Morgan-Chase, knowing that more regulation is surely coming, has argued for regulation of *functions*, not of firms (Dimon 2009). One reads this as an implicit plea to politicians and regulators not to approach the 'too-big-to-fail' problem by forcing the big banks to divest themselves of significant parts of their current business. The recommendations contained in the recent reports by the Financial Stability Forum are all along the lines of Dimon's plea. There is not even a discrete mention of the 'too-big-to-fail' problem.

Is it feasible to achieve a 'core-periphery' structure without infringing greatly on the present structure of the very big banks? It should be possible at least to move in the direction of protecting the core from the periphery – and from itself. Lessons of recent history suggest some of the measures to be considered:

(Citigroup lesson): Force the banks to either bring off-balance sheet vehicles onto the balance sheet or divest

themselves of them. Capital requirements might be used to give the banks incentives to rid themselves of these vehicles.

(LTCM lesson): Weight capital requirements on lending to hedge funds relatively heavily so as to raise the implicit cost to core banks of such lending. Hedge fund operations by the banks themselves should then be subject to the same capital requirements.

(AIG lesson): Forbid 'naked' default swaps i.e., pure bets on default by parties who do not hold the bonds that are being insured by the contract.

Conclusion

From the standpoint of risks to macroeconomic stability, our present financial system poses three major problems. One is the potential instability of the price level under present arrangements. The second is the instability of system-wide leverage. The third is the increased global connectivity of the system and the lack of any clear boundary for the responsibilities of central banks.

The first two problems may be ameliorated by giving the central banks additional policy instruments. Reinstating reserve requirements and extending them to cover all liquid liabilities of deposit-taking institutions would make them once again an effective lever for open market operations. Giving the central banks the option of changing capital requirements in a counter-cyclical manner would give them a handle on the instability of leverage.

The third problem has as its center the problem of the very big financial institutions which are active in almost every market across the globe. If they are not to be broken up into smaller units that would not individually pose serious systemic risk, they must be closely regulated. In either case, their prospective profits are bound to be adversely effected. They will certainly resist any measures that would have that effect – and they have the resources to make their resistance politically effective.

There are, however, compelling reasons why the big financial institutions must be regulated so as to truly minimize the risk of another boom-bust cycle. The 'bail-outs' and 'stimulus' packages instituted to ward off depression have put extreme strains on governmental finances, in particular the finances of the United States and the United Kingdom. One must hope that the fiscal situation of the major industrialized countries will prove sustainable. It is clear, however, that the public finances of these countries could not cope with another financial collapse such as the one we are living through. The institutions that were too-big-to-fail this time would prove too-big-to-save next time.

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¹⁹ Paul Volcker, who has repeatedly and in strong language made known his utter dismay over the proliferation of non-traditional, "non-standard" policies by the central banks, has also expressed a desire to see the banks go back to traditional commercial banking. It is difficult to see how this might be brought about without breaking up the big banks.

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