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for regulators and supervisors**

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Lessons from the global financial crisis

for regulators and supervisors

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Abstract

This lecture is a tour d'horizon of the financial crisis aimed at extracting lessons for future financial regulation. It combines normative recommendations based on conventional welfare economics with positive assessments of the kind of measures likely to be adopted based on political economy considerations.

Introduction

“Never waste a crisis. It can be turned to joyful transformation”. This statement is attributed to Rahm Emanuel, US President Barack Obama’s White House Chief of Staff. Other versions are in circulation also, including *“Never waste a good crisis”*, attributed to US Secretary of State Hilary Clinton. The statement actually goes back at least to that fount of cynical wisdom, fifteenth century Florentine writer and statesman Niccolo Machiavelli *“Never waste the opportunities offered by a good crisis.”* Crises offer unrivalled opportunities for accelerated learning.

I believe that the current crisis teaches us two key lessons. The first concerns the role of the state in the financial intermediation process and in the maintenance of financial stability. The second concerns the role of private and public sector incentives in the design of regulation.

Unless these lessons are learnt, not only will the current crisis last longer than necessary, but the next big crisis, following the current spectacular example of market failure, will be a crisis of state 'overreach' and of government failure. Central planning failed and collapsed spectacularly in Central and Eastern Europe and the former Soviet Union. Stultifying state capitalism, initiative-numbing over-regulation and overambitious social engineering may well be the defining features of the next socio-economic system to fail after the collapse of the Thatcher-Reagan model currently under way – the chimera of self-regulating market capitalism with finance in the driver's seat – finance as the master of the real economy rather than its servant.

1. The essence of the current crisis

This lecture focuses on the lessons for financial regulators and supervisors of the financial crisis that started around the middle of 2007 and the global contraction in economic activity that

resulted from it. It does not address the macroeconomic imbalances and anomalies that were important contributors to both financial crisis and economic slump. The five most important of these will be referenced briefly.

1. The ex-ante global saving glut that resulted from the emergence of the BRICs and the redistribution of global wealth and income towards the Gulf states caused by the rise in oil and gas prices. This depressed long-term global real interest rates to unprecedentedly low levels (see Bernanke (2005)).
2. The extraordinary preference among the nouveaux-riches countries (BRICS and GCC countries) for building up huge foreign exchange reserves (overwhelmingly in US dollars) and for allocating their financial portfolios overwhelmingly towards the safest financial securities, especially US Treasury bonds. This increase in the demand for high-grade, safe financial assets was not met by a matching increase in the supply of safe financial assets. This further depressed long-term risk-free interest rates (see Caballero (2006)). Western banks and investors of all kinds who had target or hurdle rates of return that were no longer achievable by investing in conventional safe instruments, began to scout around for alternative, higher-yielding financial investment opportunities – the search for yield or for ‘pure alpha’, which, as everyone knows, is doomed to failure in the aggregate.
3. Following the entry of China, India, Vietnam and other labour-rich but capital-scarce countries into the global economy, the return to physical capital formation everywhere was lifted significantly. The share of profits rose almost everywhere (see Broadbent and Daly (2009)).
4. Following the collapse of the tech bubble in late 2000 – early 2001, monetary policy in the US and, to a lesser extent also in the Euro Area, was too expansionary for too long starting around 2003, flooding the world with excess liquidity. For reasons not yet well understood, this excess liquidity went primarily into credit growth and asset price booms and bubbles, rather than into consumer price inflation.
5. The unsustainable current account deficit of the US was made to appear sustainable through the willingness of China and many other emerging markets to accumulate large stocks of US dollars, both as official foreign exchange reserves – it helps to be the issuer of the dominant global reserve

currency – and for portfolio investment purposes. A fair number of countries that continued to peg to the US dollar (or to shadow the US dollar) experienced excessive domestic liquidity and credit creation, contributing to asset booms and bubbles. China and the GCC countries are notable examples of this dysfunctional new ‘Bretton Woods’ (see Dooley, Folkerts-Landau and Garber (2004)).

These five developments, plus the many regulatory and supervisory failures outlined below, created the Great Moderation, Great Stability or Mervyn King’s ‘Nice Decade’: high and reasonably stable growth, low and reasonably stable inflation, high profits, steadily rising prices of ‘outside’ assets and extraordinarily low risk spreads of all kinds (see Buiter (2007, 2009), King (2004), Bernanke (2004), Lomax (2007)). This Great Stability carried the seeds of its own destruction: as analysed and predicted by Hyman Minsky, stability bred complacency, excessive risk taking and, ultimately, instability (Minsky (1986, 2008)).

The current financial crisis and the economic slump it caused arrived on the European continent about a year after it hit the US and half a year after it impacted the UK. It is the once-in-a-lifetime event that even the younger members of the audience will be boring their grandchildren with in the future. *“You may think the financial turmoil and recession of 2034 is bad, but I can assure you that it is nothing like what we went through in the final years of the first decade of this century: the Great De-financialisation Crisis or the Great Deleveraging.”* It started as a crisis *in* the financial system, became a crisis *of* the financial system and has now reached the point at which most of the western crossborder financial system of the past 30 years has effectively been destroyed and the remnants socialised or put in a state of subsidized limbo.

It is correct but unhelpful to characterise the crisis as the result of greed and excess or as a crisis of capitalism. Greed has always been with us and always will be. Greed can be constrained and need not lead to excess. Excess is just another word for greed combined with wrong incentives and defective regulation and supervision.

The current crisis is not a crisis of 'capitalism', defined as an economic system characterised by private ownership of most of the means of production, distribution and exchange, reliance on the profit motive and self-enrichment (i.e. greed) as the main incentive in economic decisions, and reliance on markets as the main co-ordination mechanism. Capitalism has not always been with us, but is infinitely adaptable and will be with us for a long time to come.

The crisis is a crisis of a specific manifestation of financial capitalism – a largely self-regulating version of the transactions-oriented model of financial intermediation (TOM) over the relationships-oriented model of financial intermediation (ROM). Every real-world financial system is a convex combination of the TOM and the ROM. In the north-Atlantic region, and especially in the USA and the UK, the TOM model became too dominant. This error will be corrected and the world will move towards a greater emphasis on ROM. But financial capitalism will be with us in a new phenotype, for a long time yet.

I.1 A de-financialisation crisis

The financial sector is a critical component of a decentralised market economy. It permits the saving decisions of individuals, institutions and other economic entities to be decoupled from their investment decisions. When it performs well, it transfers resources efficiently from financial surplus units to financial deficit units. It facilitates the efficient allocation of the existing stock of financial wealth among competing financial instruments. And it permits risk trading in all its many manifestations. Without the specialised financial intermediaries - banks, pension funds, insurance companies, investment funds, pawn brokers, loan sharks, hedge funds, venture capital funds etc. - and without the steadily expanding range of financial instruments and organised financial markets, our intertemporal allocation of resources and our allocation of resources across states of nature (risk sharing through risk

trading) would be much less efficient. Society as a whole and most of its individual citizens and households would be worse off.

But, starting in the 1980s, the financial sector began to proliferate and expand in a way that defied common sense and logic. It boosted its share in employment, value added and corporate profits in most industrial countries. The range and number of financial intermediaries grew rapidly. Financial instruments, products and services multiplied. The remuneration levels in the sector rose to staggering levels. The best brains, from fields like mathematics, statistics, physics, computer science, engineering, operations research and economics entered the financial sector in growing numbers, sometimes as 'quants', designing new structured products or deriving and programming new asset pricing equations or trading algorithms, sometimes as traders, risk managers or in other pursuits.

As the years passed, financial relationships - even long-term financial relationships like residential mortgages - became increasingly commoditised and were thus made tradable. The traditional bank loan, secured or unsecured, had a borrower and a bank entering into a long-term relationship, in which the lender invested time and resources in acquiring information about the creditworthiness of the borrower and in monitoring the borrower's evolving creditworthiness over the life of the contract. The loan was typically held to maturity by the bank. It was illiquid and non-tradable. This 'originate-and-hold' model was good for gathering information and locating it with the party that needed it - the originator of the loan - which was also the party that held the loan throughout the life of the loan. It was bad for risk-trading and diversifying risk. It also tended to discourage new entrants and innovation. It was a system made for insiders and vulnerable to cronyism.

Then came securitisation - the commoditisation of long-term relationships. Long-term relationships became assets that could be traded. Uncertain future cash flows from mortgages or from business loans were pooled, securities were issued against the pool, the

securities were tranced, sliced and diced, enhanced in various ways with guarantees and other insurance features. The resulting asset-backed securities were sometimes used themselves as assets for backing further rounds of securitisation. Banks sold their previously illiquid loans and used the proceeds to make new loans. A 'money machine' had been invented.

What was not well recognised was that securitisation, by breaking the link between, on the one hand, the originator of the loan and the party responsible for monitoring the loan over its life-time, and, on the other hand, the principal in the investing relationship – the owner of the securitised loan - weakens the incentives for collecting information and misplaces whatever information is collected: the information is not bundled with the loans when they are sold for securitisation by the originator. By the time a residential mortgage-backed security (RMBS) backed by US subprime loans was sold by a French hedge fund to a structured investment vehicle (SIV) owned by a medium-sized German industrial bank, neither the buyer nor the seller of the security had any idea as to the quality of the assets backing the security.

There is a simple way to mitigate this particular problem. It is summarised as Recommendation 1. It works by forcing the originator of the loan to hang on to a sizable part of the highest-risk tranche of the securitised assets or cash flows. This keeps alive the incentives to collect information about the creditworthiness of the borrower and to continue to monitor the relationship. The European Commission is proposing a wimpy version of this.¹

Recommendation 1.

¹ In May 2009, the European Parliament voted an amendment to the Capital Requirements Directive requiring banks to retain a 5% exposure to securitisations they originate. The European Commission will make a recommendation as to whether this retention level should be increased at the end of the year. This retention requirement is a big step down from the originally suggested 15%. In addition, rather than concentrating the retention requirement on the most junior tranches, the new law includes a range of options, including retaining a portion of each securitised tranche. The retained exposure may not be hedged or sold.

Require the originator of any securitised assets or cash flows to retain a sizeable fraction of the equity tranche or first-loss tranche of the securitised instrument.

For a while, the rating agencies were viewed as the answer to the uninformed maiden's prayer. They would mitigate or even resolve the asymmetric information problem between the originator and the subsequent investors in the securitised assets. Agencies that hitherto had rated sovereign debt instruments and the debt of large corporates now found themselves in the much more lucrative business of rating complex structured products. This created many problems.

The rating process became deeply conflicted. The rating agencies marketed a range of financial products and services to the same parties they were rating or whose products they were rating. They were paid by the more informed party (the issuer of the securities). A rating agency could even provide advice on how to structure financial products so as to obtain the best rating to the very parties whose products would be rated by that same rating agency. 'Chinese Walls' meant to overcome or at least mitigate these potential conflicts of interest were as effective as the historical Great Wall of China, which neither kept the barbarians out nor the Han Chinese in. They are a fig leaf that simply does not work.

Even if some way had existed to correct or mitigate these conflicts of interest, the even more fundamental problem would remain that the rating agencies knew little or nothing about the underlying assets backing the securitised structures they were rating. They were not merely conflicted – they were completely out of their depth.

Fortunately, there is a rather simple solution to this problem:

Recommendation 2a.

Take the rating agencies out of the regulatory process by eliminating the role of external ratings in the Basel II capital risk-weightings.

This means no role for the rating agencies in the risk-weightings for bank assets in Pillar I of Basel II, and more generally, no standing in courts of law or in arbitration and

conflict resolution disputes for ratings provided by rating agencies. This should not be a surprising recommendation. The public provision of private goods and services is not a good idea. The private provision of public goods and services is likely to be just as bad an idea.

Even if they have no formal quasi-regulatory role, the public goods aspect of the rating process means that the conflict of interest must be minimised. Two proposals come to mind.

Recommendation 2b

Restrict firms providing ratings to engage in no other commercial activities.

Recommendation 2c

Establish a global regulator (or a uniform standard for national regulators) for eligible rating agencies. Require that parties requiring ratings for their securities pay the regulator. The regulator then assigns the rating decision to one of the eligible rating agencies, using a competitive process.

And finally, to better incentivise rating agencies:

Recommendation 2d

Pay rating agencies at least in part in the securities they are rating. Require these securities to be retained for some minimal period (say 5 years) and do not allow the exposure to be hedged.

New securitisations have virtually dried up since the crisis started. This may be an understandable response to the debacle we have experienced, especially in the subprime corner of the US residential mortgage-backed markets, but it is important not to throw the baby out with the bath water. Reasonably homogeneous and simple assets and cash flows can be pooled and securitised in ways that generate both positive private and social returns. To encourage continued sensible securitisation, once the fear factor in the markets abates, I propose that the financial regulator, together with the central bank, generate a positive list of asset-backed securities (ABS), that are acceptable as collateral in central bank repos and at the discount window. Any ABS not on the list is not eligible collateral.

Recommendation 3.

Establish a positive list of Gold-Standard ABS that are acceptable as collateral at the discount window of the central bank and in repos.

I.3 Encourage insurance while discouraging gambling

The distinction between insurance (or hedging risk) and gambling, betting or taking on additional risk is in principle a simple one. I buy insurance when the transaction reduces the loss if the insured-against event occurs, but does not turn the loss into a gain. I gamble when the transaction increases the loss if the insured-against event occurs or turns it into a gain. Another way to make the same distinction is that I buy insurance when the transaction reduces the size of a net open position. I place a bet when the transaction increases the size of my net open position. The only remaining issue is just how the net open position is defined (presumably in principle in terms of utility).

Trading in contingent claims, including derivatives can represent taking out or writing (selling) insurance contracts. This will be the case, for instance, if I buy a credit default swap on some bond and I hold (own) at least the amount of the bond that I am insuring. Trading in contingent claims can also represent running a lottery (a betting shop) or buying a lottery ticket (placing a bet). This will be the case, for instance, if I buy CDS but do not own the underlying security. I am better off in this case when the insured against contingency occurs. In this case I would not have an insurable interest in the CDS (using insurance jargon).

Typically, insurance companies can only write insurance when the buyer has an insurable interest. Moral hazard clearly makes it unwise to allow people to buy life insurance on the lives of unrelated parties, at whose demise they would not be unduly distraught. The financial institutions that created and issued CDS make sure that these instruments would not be classified and regulated as insurance, because that would have precluded their purchase by investors buying them to gamble rather than to insure themselves against risk.

It is obviously not in general possible for a trade in a risky claim to represent insurance rather than gambling for both parties to the contract. Even when I buy life insurance on my own life, I purchase it from an insurance company who as a result of the transaction is likely to have a riskier portfolio than before. Regulation should ensure, however, that at least one of the parties in a contingent claims transaction reduces his exposure to loss. This would typically be the purchaser of the contingent claim. The party selling the insurance should of course be properly capitalised and generally be able to survive (financially) the occurrence of the insured event.

Requiring the purchaser of a contingent claim to have an insurable interest would have reduced the outstanding volume of CDS from its \$60 trillion peak value to a number much smaller than that. This would not have been a loss, even if the CDS market as a result would be less liquid. The liquidity of the CDS market is of no economic concern in its own right. All that matters is that all bond holders who wish to insure against credit default risk should be able to do so.

The requirement that at least one of the parties in a contingent claims transaction have an insurable interest in the transaction would also rule out the 'naked' short selling of equity, that is, selling equity short without the seller either owning or having borrowed the underlying stock in question.

Stopping financial institutions and other investors from holding CDS 'naked' (that is, without owning an amount of the underlying security at least equal to the amount insured through the CDS) would prevent the business that issued the underlying securities from being forced into unnecessary default and costly restructuring that could be socially inefficient even though it would benefit those short its bonds. It would complement further necessary regulatory moves, including ensuring that CDS writers are financially strong enough to be in the insurance selling business (think AIG), and greater standardisation of CDS contracts and

the ending of their over-the-counter (OTC) trading and its replacement by trading on organised exchanges through a regulated central counterparty with deep pockets. I will summarise this as a trio of recommendations:

Recommendation 4a

Taking out insurance through contingent claims trading should be encouraged; gambling or placing bets through contingent claims trading should be discouraged. At least one of the parties in a contingent claims trade should have an insurable interest in the contingency that is being contracted against.

Recommendation 4b

All parties writing insurance-equivalent contracts should be properly capitalised and regulated.

Recommendation 4c

Contingent claims trading should be moved wherever possible to organised exchanges, trading in standardised products through a central counterparty.

I.2 How to deal with financial innovation

The developments in securitisation, other structured products and the proliferation of new financial institutions and instruments accelerated after the tech bubble that burst at the end of 2000. Those who were alarmed at the pace and scope of these changes and wondered how risk could apparently not just be traded but traded out of existence, were dismissed as out-of-touch fuddy-duddies who did not understand the finer points of finance. New instruments and new classes of investors in risky instruments allowed all diversifiable risk to be diversified and all non-diversifiable risk to end up with those both most willing and most able to bear it. If that process resulted in zero risk premia just about everywhere, then so be it.

The enormous rewards earned by individuals and institutions engaged in these activities appeared to confirm the views of the new masters of the universe. Who wants to argue with people who make billions for their firms and take home tens of millions in

bonuses? The financial sector instead of being the hand-maiden of the real economy, had become its master. The tail was wagging the dog.

During the years that led up to this crisis, a new complex financial instrument could be cobbled together in the morning by a few quants in London, wrapped in a legal contractual structure during the afternoon in New York City and sold to unsuspecting but greedy investors from small towns just inside the polar circle in Norway the next day.

Is this unbridled and unchecked pace of financial innovation sensible? In the field of pharmacology and medical research, before a new drug can be marketed it is tested for years, first in vitro, then on guinea pigs, then perhaps on a small number of patients with not much to lose, and ultimately on a wider range of human volunteers. Only after many years of testing, vetting and probing does a medical drugs regulator, like the FDA in the US, allow a new drug to be sold to the public, and then often only with a prescription from a licensed physician. This is because drugs as well as potentially beneficial, are also potentially harmful. The asymmetry of information between the makers and sellers of the drugs, those who purchase them and those who use them is often vast, despite the information explosion on the internet.

I consider new financial products and instruments to be potentially useful but also potentially dangerous, at the micro level or at the macro level. I therefore propose that regulators establish a positive list of permitted financial instruments and products. Anything not on the list is prohibited. New products and instruments must be tested extensively and to the regulator's satisfaction. Universities, independent researchers, consulting companies and others can do the testing. There may be pilot programs testing the products or instruments on real-world players. If and when a new product or instruments is approved, it can go on the approved list. Even then, some instruments can only be sold with the financial equivalent of a prescription from a licensed physician.

Recommendation 5

The introduction and marketing of new financial products and instruments should be regulated and be subject to testing in ways similar to those used for the regulation and testing of new medical and pharmacological drugs.

I accept that this will slow down the pace of financial innovation. So be it. It does not stop financial innovation. It makes it more costly and less remunerative. Against that, it reduces the risk of new toxic instruments being distributed, mis-used and abused widely.

I.3 Self-regulation is an oxymoron

Regulation is a response to market failure. How anyone could ever conceive of the notion that self-regulation, that is, market discipline and spontaneous collective action by (some of) the market participants, could correct this market failure is a mystery. It is asking the market to correct market failure (see Persaud (2000)). That is an invisible hand too far. If invisible hand failure can be corrected at all, it can be corrected only by the visible fist of the state. Where self-regulation appears to work, as in some professions (lawyers and doctors are examples), it either establishes a monopoly (a super trade union for professionals, whose main purpose is to restrict entry into the profession, to maximise rents for the incumbents) or it is backed up by the credible threat of external regulation by a third party.

In the financial sector and elsewhere, self-regulation stands in relation to regulation the way self-importance stands in relation to importance and self-righteousness to righteousness. It just isn't the same thing at all. The recent revelation of the utter failure of self-regulation in the UK's Houses of Parliament demonstrate that the tendency for self-regulation to lead to graft, corruption and self-dealing is not restricted to the financial sector, or even to the economic sphere in general. Widespread abuse of the expenses claims system and second home allowance in the House of Commons, and Peers for hire in the House of Lords have caused serious damage to parliamentary democracy in the UK. Such perversion

of the declared purpose of an institution or agency is especially likely when self-regulation is combined with a lack of transparency. Secrecy and opaqueness prevent civil society, including the media, from obtaining the information required to hold those suspected of abuses to account..

The ideology of self-regulation is a powerful one. Alan Greenspan was an influential proponent. Mr. Greenspan, much to his credit, has the intellectual honesty to admit that he was wrong in his belief that financial institutions and markets could largely be left to regulate themselves. *“I made a mistake in presuming that the self-interest of organisations, specifically banks and others, was such that they were best capable of protecting their own shareholders,”* Greenspan told a [Congressional hearing on Thursday, October 23rd, 2008](#). He also admitted to having been wrong in opposing regulating credit default swaps. His testimony also contains the remarkable statement that *“This modern risk management paradigm held sway for decades. The whole intellectual edifice, however, collapsed in the summer of last year because the data inputted into the risk management models generally covered only the past two decades, a period of euphoria.”*

I.4 Human psychology and market psychosis

Regulation must respect the robust empirical regularity that market participants are prone to bouts of euphoria and irrational exuberance followed by episodes of depression and irrational despondency, Keynes’s ‘animal spirits’ (see Akerlof and Shiller (2009)).² So the regulator has to ensure that the system can survive even though market participants will be afflicted at irregular but frequent intervals, by bipolar mood swings. Unless your key markets

² The original quote from Keynes’s General Theory is: *“Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than mathematical expectations, whether moral or hedonistic or economic. Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits - a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.”* (Keynes (1936), pp. 161-162).

and systemically important financial institutions are robust to periodic euphoric and suicidal mob behaviour by the key players, your financial system will be vulnerable. The assumption of rationality at the level of the individual, the financial institution or the market is not warranted, indeed dangerous.

I.5 A crisis of regulation and supervision

Regulation is key to the proper functioning of financial markets. Left to their own devices, with the state present only to enforce contracts and defend property rights, financial markets and institutions are inherently unstable. The reason is that virtually all finance is trade in promises expressed in units of abstract purchasing power – money. Such activities can be scaled, both up and down, far too easily.

If Boeing or Airbus wish to double their productive capacity, it will take them 4 or 5 years to prepare new production sites, create new assembly lines, train new workers etc. If a financial institution wishes to increase the scale of its operations tenfold, it simply shifts the decimal point on place to the right. All that is required are confidence, self-confidence, trust and optimism. Euphoria, mania and herd behaviour are the ultimate accelerators. The process also works in reverse – and in practice even faster. Lack of confidence, mistrust, pessimism, fear, panic and herding behaviour can cause the scale of balance sheets to contract spectacularly and transactions volumes to collapse.

The process of scaling up and scaling down, or of leveraging up and deleveraging is not symmetric. Although most of it is a game of redistribution (except for the revaluations of ‘outside assets’ that are an asset of some economic entity but not a liability of another), the redistribution is not neutral. First, losers and winners generically do not act symmetrically. Second, while there is no such thing as being too solvent for the winners, there is such a thing as being insufficiently solvent, i.e. insolvent, for the losers. Insolvency, default, bankruptcy, liquidation are not just a reshuffling of ownership titles. They can have huge negative real

effects. They paralyse production, distribution and exchange. They freeze assets in temporary idleness or unproductive uses. They lead to confusion and uncertainty, and they use up large amounts of real resources in the legal processes associated with it. It has been estimated for the US by Freddie Mac, that in 2007, the repossession of a residential home by the bank following a failure of the home owner to service his mortgage costs on average around \$60.000.00

So finance is important, essential even, but it is dangerous. For some reason this was forgotten during the past three decades, and especially in the last 5 years before the crisis erupted in August 2007.

Regulation should target excessive risk, not institutions, products, services or activities. I accept (up to a point) the principle that people and institutions should be able to gamble freely with their own money, but that regulation may be required to constrain how one gambles with other people's money. That is the application to finance of the Principal-Agent conundrum. Even when just your own money is at stake, the scale of the gamble may be so vast that it has unacceptable external effects. I will deal with the scale problem (too fat to fail) later. The principle that you regulate risk taken with other people's money means that you regulate leverage, which I will define as total (on- and off-book or balance sheet assets and other expected exposure, relative to tangible common equity (capital) or (waving both hands in the air) as the ratio of debt to shareholder equity.

The economic definition of leverage is rather more complex. In the words of the Counterparty Risk Management Group II (2005), "*...leverage exists whenever an entity is exposed to changes in the value of an asset over time without having first disbursed cash equal to the value of that asset at the beginning of the period.*" and: "*...the impact of leverage can only be understood by relating the underlying risk in a portfolio to the economic and funding structure of the portfolio as a whole.*"

Traditional sources of leverage in this broader sense include borrowing, initial margin (some money up front - used in futures contracts) and no initial margin (no money up front - when exposure is achieved through derivatives).

Except for exposure achieved through derivatives that are traded or can be priced using models, regulators have no hope in heaven or hell of ever establishing the leverage (in the broad sense of exposure to the risk of changes in asset values without having first disbursed money of your own equal to the value of that asset) achieved through any method other than borrowing. So the regulatory metric will have to be based on the simple total assets to-equity measure – narrow leverage.

I don't think that is a huge loss. The reason people borrow is to take on more risk than equity suppliers are willing and able to fund. Returning to an equity-only funding rule for companies - financial and non-financial - with banks permitted, exceptionally, to issue deposits as well, would be an extreme version of regulating on the basis of narrow leverage – it would be a zero narrow leverage constraint. With limited liability and a massive information advantage of managers over shareholders and shareholders over creditors, any degree of narrow leverage represents an incentive to engage in excessive risk taking (in addition to the incentives for excessive risk taking created by limited liability itself).

Since narrow leverage is the key to excessive risk taking by corporations, regulation on the basis of narrow leverage (Basel I – style) is desirable.

Recommendation 6.

Any incorporated entity above a certain threshold size (de minimis non curat lex) and with narrow leverage in excess of X (15, say) will be subject to the same capital requirements regime, liquidity requirements regime, reporting regime and governance regime.

It does not matter whether the corporate entity is called a commercial bank, universal bank, investment bank, hedge fund, private equity fund, insurance company, pension fund, G-

Mac, GE or bicycle shop. The application is universal and uniform across all existing institutions and institutions that may be created in the future. This would do away with regulatory arbitrage as a motive for creating off-balance sheet vehicles.

I.6 A crisis of globalisation

Finance is global, banks are global (or about 50 of them are) but regulation is national. Whenever the span of the market and the domain of mobility of financial institutions exceed the span of control of the regulator, you will, sooner or later, have a mess.

Every country wants to have an internationally active financial sector in its jurisdiction. The financial sector is clean, green, employs women as well as men, produces jobs, profits and taxes, gives good parties and is an effective lobbyist with deep pockets that can be used to make political donations. National regulatory standards have been used as an instrument to compete for financial sector business – to attract it from abroad and/or to stop it from leaving for foreign pastures new. Regulatory arbitrage is a game the financial market players know as well as tax arbitrage. The result has been a regulatory race to the bottom – soft-touch regulation rather than light-touch regulation.

The world needs to get serious about regulation. If we continue to let the private financial actors play off one regulator against another, we risk an early repeat of the current crisis. Global regulation would be best, but we will not get it for obvious political reasons. But we can have a single European regulator for crossborder financial institutions.

Recommendation 7.

- *Establish a single EU-wide regulator for crossborder banks.*
- *Establish a single EU-wide regulator for other systemically important crossborder financial activities or institutions.*

The national or supranational regulators that remain must work together closely to avoid being arbitrated and played off against each other by the private financial players. The Colleges of national regulators/supervisors that exist for the EU and whose strengthening has

been recommended in the de Larosière Report (de Larosière (2009)) will, however, be completely ineffective if they are based on the principle that the home-country regulator (the regulator of the country where the parent bank is registered) takes the lead and is the dominant player in the College for any given crossborder bank.

Home country dominance in the Colleges is a political non-starter. The pain of financial screw-ups is felt primarily in the host country, where the branch or the subsidiary operates. Control has to be located where the pain is felt. Politics demands it.

Much of the current crossborder banking system ought not to survive and will not survive in its current form. Foreign branches will disappear. So will the kinds of foreign subsidiaries we have now: completely controlled by the parent and with little if any ring-fenced capital resources in the jurisdiction of the host-country regulator, with liquidity pooled across the group etc..

We will continue to have foreign subsidiaries of banks, but they will be independently capitalised in the host country, with ring-fenced assets and liquidity and subject to regulation and supervision by the host country regulator.

Recommendation 8.

Where a multinational College of regulators/supervisors is necessary, the host country regulator/supervisor should have the final say.

Another striking international dimension of the crisis has been the failure of cooperation between national fiscal authorities in recapitalising crossborder banks (Fortis and Dexia come to mind) and the importance of fiscal backup for the central bank. In this second area, the ECB and the Eurosystem appear vulnerable. If the ECB/Eurosystem were to suffer a serious financial loss in its monetary and liquidity operations (as well it may, because it accepts large amounts of risky private securities as collateral in repos and at its various

lending facilities), its ability to perform effectively in the pursuit of its price stability mandate and as a source of essential liquidity for the Euro Area banking system would be impaired.

Ultimately, some or all of the shareholders of the ECB/Eurosystem (the national central banks of the 27 EU member states) would have to go to their fiscal authorities (the national Treasuries of the 15 Euro Area member states, or perhaps the national fiscal authorities of all 27 EU member states?) to get the resources for a non-inflationary recapitalisation of the ECB. I consider it essential that there be a clearly worked-out fiscal burden-sharing agreement for recapitalising the ECB/Eurosystem that can be invoked with little or no delay. We are likely to need it before this crisis is over.

I believe that only a supranational European fiscal authority with independent revenue-raising powers and associated borrowing powers can do the job of providing an effective and efficient fiscal back-up for the ECB/Eurosystem. The next-best alternative would be the creation of an EU fund (containing, say € 3.0 trillion) from which the ECB/Eurosystem could be recapitalised at short notice. If even this is beyond the reach of the EU member states, there should be binding *ex-ante* agreements on fiscal burden sharing among the 16 or 27 fiscal authorities of the Euro Area or the EU, respectively.

Ex-post agreements on fiscal burden sharing, after a systemically important crossborder bank has reached the point of no return is unlikely to work, if the examples of Fortis (involving Belgium, the Netherlands and Luxembourg) and Dexia (involving Belgium France and Luxembourg) are anything to go by.

Recommendation 9.

- *A supranational EU fiscal authority is required to provide proper fiscal backup for the ECB/Eurosystem and for recapitalising systemically important crossborder financial institutions.*
- *Failing that, an EU fund from which the ECB/Eurosystem and systemically important crossborder financial institutions can be recapitalised should be created.*
- *Failing that, an ex-ante binding agreement on fiscal burden sharing for the cost of recapitalising the ECB/Eurosystem and systemically important crossborder financial institutions should be agreed.*

I.7 A governance crisis

There has been a major failure of corporate governance in the banking and financial sectors. Chief executives have not discharged their fiduciary duties to their companies and their stakeholders. Boards of directors have failed miserably in their fiduciary duties to the shareholders.

The shareholders themselves deserve a fair amount of blame. They got caught up in the euphoria and irrational exuberance of the years 2003-2007. Chuck Prince, the former CEO of Citigroup told the Financial Times on 10 July 2007 (explaining why his company was still making leveraged loans to private equity groups), "*As long as the music is playing, you've got to get up and dance,*" .."*We're still dancing.*" If he had not agreed to 'dance', his board would have fired him. If his board had not done so, there would have been a shareholders' revolt, and some activist shareholder(s) or private equity fund would have tried to arrange an ABN-AMRO event for his bank.

Why did the CEOs and the boards decide to take the risks they took? One explanation is that they did not understand these risks because they did not understand the instruments they were issuing and trading in, both on their own account and for clients. I suspect this is part of the truth. The issue of regulating financial innovation was addressed in Section I.2. I would just make the following recommendation to further mitigate this problem.

Recommendation 10.

All new board members should take a written test, set by the regulator and marked by independent experts, on the products, services and instruments traded and managed by their financial institutions. Existing board members should be tested every other year. Unless a passing grade is achieved, the would-be board member cannot serve. The graded test will be in the public domain.

Anne Sibert (2009) has expressed the view, citing the innovative study of Coates and Herbert (2008), that an overdose of testosterone may have contributed in a significant way to

the excessive risk taking we saw during the boom period in the banking system. There certainly is a lot of circumstantial evidence to suggest that a better gender balance at the top of major financial institutions, and on the trading floors, could act as an automatic financial stabiliser.

I.8 Financial sector remuneration, bonuses and golden parachutes

Another reason banks took excessive risks is that the pay-off function for the CEOs and the other risk-takers are very asymmetric and unrepresentative of social risk. If the gamble pays off, the CEO wins. If it does not, he loses his job in the worst case. When the golden parachute is worth \$100bn, even the pain of losing one's job must be mitigated somewhat. For many of the traders, the reward function is terribly myopic, with bonuses (often most of the total remuneration) based on annual performance rather than on this year's contribution to current *and* long-term future profits.

Some of the asymmetry in the pay-off function and some of this myopia in the remuneration structure cannot be corrected, except through inconceivable measures. Limited liability is one cause of the asymmetric payoff function. Even more important, is the fact that labour (including star traders and executives) cannot commit themselves credibly to stay with their current employer for any extended period of time. This is a reflection of 'free labour', that is, the abolition of slavery and of indentured labour. I don't believe many observers would want to re-introduce these institutions to improve risk-taking in the financial sector.

Because labour is footloose, it is always at risk of being poached by a competitor. This allows those considered to be 'stars' to extract massive rents from the other less mobile stakeholders in the firm – mainly from the shareholders. The problem is especially acute because the market for talent in the financial sector is truly global.

From a financial stability perspective, it is irrelevant whether remuneration in the financial sector is *excessive*. That is a political and social issue. What matters for financial stability is whether the remuneration structure provides the correct incentives and signals for risk taking. It did not. What can be done? Knee-jerk proposals like banning bonuses or limiting them to a given share of the total compensation package make no sense. Bonuses are performance-related pay. Performance-related pay will in general be a necessary component of an efficient employment contract. The problem has been that bonuses were related to the wrong performance indicators.

Responsibility for addressing this lies first and foremost with the shareholders and the board of directors. This is primarily a governance problem. They should try to find ways to link remuneration to longer-term profitability. There are many proposals for improving financial sector performance-related employment contracts.³

Addressing the incentive structure of banks and other financial institutions is also a job for the regulator, because the internal incentive structure of a bank is as much a driver of the operational risk, market risk, credit risk and reputational risk of the bank as its asset allocation or its funding and liquidity strategies. The problem is that understanding the effect of a heterogeneous collection of individual employment contracts on the risk-return performance of the whole bank is a complex task that may well be beyond the ability of the regulator. How much detailed information, modelling of interactions, real option pricing and micro-management will the regulator have to engage in for him to be able to figure out the optimal incremental capital requirement penalty that properly reflects the contribution to risk of the remuneration structure of the bank's senior executives, board members and key personnel?

³ An example is the [‘bonus-malus’ system](#) introduced this year by UBS.

Capping remuneration or punitive taxation should not be done on a sector-specific basis. Even if such measures are applied on an economy-wide basis, they are likely do more to feed the thirst for blood of populist media than to improve the future risk management of banks.

The only straightforward measure to limit the ability of board and CEOs to collude in extracting excessive remuneration from the firm is by requiring the shareholders to have binding votes on the remuneration packages of top managers and top earners.

Recommendation 11.

Shareholders should have annual binding and separate votes on each of the individual total compensation packages of the five top managers of the company and of the five top earners. When a remuneration package is rejected by the shareholders, the default remuneration package cannot exceed that of the head of government.

I.9 A balance sheet crisis

To a financial macroeconomist like myself, the crisis is first and foremost a balance sheet crisis. Financial sector balance sheets throughout the north Atlantic region got out of control earlier in the decade. The *size* of the balance sheet (measured for instance as the ratio of assets to annual value added) of the financial sector exploded. Leverage (as measured by the ratio of assets to shareholder equity) also exploded. *Public information* about assets and liabilities held on these balance sheets and about other forms of off-balance sheet exposure became increasingly incomplete and inadequate. A proliferation of complex, opaque and often incomprehensible instruments, frequently held by non-transparent, unregulated financial institutions (hedge funds, SIVs, Conduits and a wide range of other off-balance-sheet vehicles) created a situation in which no-one - not the designers of the instruments, not the banks and other institutions marketing them, not the regulators and supervisors, not the investors in these complex structured instruments - understood the true nature of their exposure and of the risk they were taking.

I.10 Transparency and mark-to-market

An important contribution to controlling excesses, including managerial dissimulation and deception about the value of opaque assets, has been the drive by the International Accounting Standards Board (IASB) toward the global adoption of fair value accounting. In practice this means using the market price where something resembling a liquid market price is available.

The IASB made a huge mistake when it caved in to political pressure and allowed fair value principles to be significantly undermined by accepting a ‘clarification’ of US fair value standards (set by the US Financial Accounting Standards Board, a body overseen by that incubus of moral hazard, the SEC), that allow assets to be reclassified, supposedly under rare circumstances (as when asset markets are illiquid), so they escape fair value principles.

The current rules have three categories of assets. Assets held for ‘trading’ are valued at market prices and these valuations are reflected through the profit and loss account. Assets ‘available for sale’ are still valued at market prices, but these valuations are reflected only in the balance sheet, not through the profit and loss account. Moving assets from the first to the second category allowed Deutsche Bank to turn what would have been a reported loss into a reported profit. Schrodgers performed similar accounting miracles. The third category, ‘held for investment’ escapes fair value altogether. The new IASB rules allow securities (but not derivatives like CDS) to be reclassified into the ‘held for investment’ category under certain circumstances.

I think this is a dreadful decision. The ‘held for investment’ category should be just that. A security should be designated as ‘held for investment’ (which should be renamed ‘held to maturity’, realising that maturity can be at infinity) at the moment it is acquired. It should not be possible to move a security into this category after it has been acquired or out of this category before it matures. The ‘held for trading’ and ‘available for sale’ categories should be

merged. I don't really care whether the valuations go into the profit and loss account or not, but there should be no capacity to shift between the two.

The only reason to have three categories rather than just the two I propose, and the only reason for creating a mechanism that permits the reclassification of assets, is the wish to engage in manipulation and deception. The weakening of mark-to-market accounting and reporting is a huge step backwards and a serious threat to long-term financial stability, because financial institutions will once again be given more scope for hiding disasters on their balance sheets.

I.11 Mark-to-market and procyclicality

Mark-to-market valuation, reporting and accounting is pro-cyclical even when markets are liquid. When asset markets are illiquid, it can be severely pro-cyclical and even contribute to a perverse positive feedback loop - falling funding liquidity leads to fire-sale asset liquidations in depressed and illiquid markets, which leads to mark-to-market losses for other holders of similar assets, which leads to margin calls or to the need to post additional collateral, which lead to further asset liquidations and further declines in funding liquidity.

The solution is not to suspend market valuation and to substitute managerial discretion for it. The solution is to stick to fair value accounting but to use regulatory forbearance as regards the actions required to restore regulatory capital ratios, leverage ratios or liquidity ratios that may be distorted by distressed asset fire sales in illiquid markets.

Recommendation 12.

Stick to (or return to) strict fair value accounting, including mark-to-market whenever possible. Do not permit reclassification of assets between liquidity categories. Use regulatory forbearance as regards capital ratios, leverage ratios or liquidity ratios to address the undesirable pro-cyclical side effects of mark-to-market through poorly designed regulatory requirements.

I.12 Procyclicality of micro-prudential regulation.

One of the key lessons of the crisis thus far concerns unintended consequences for systemic financial stability and macroeconomic stability of micro-prudential measures that seem to make perfect sense at the level of individual economic entities. The pro-cyclical effect of mark-to-market accounting and reporting have already been referred to. Rating agency ratings are procyclical and, both through their effect on regulatory capital requirements and through the market's own response to changes in ratings, have procyclical effects on bank lending. The reliance of the Basel II risk-weightings on internal models of the banks is also procyclical. In addition, the use of these models is not *de facto* verifiable by the regulator. Model-based risk weightings are therefore effectively private information of the banks, and can be manipulated to serve the private interests of those who control the bank. Constant regulatory capital ratios also have pro-cyclical effects, as declining asset valuations depress the actual capital ratios and force defensive measures on the banks.

These undesirable macro-prudential consequences of micro-prudential regulations can be mitigated but not eliminated.

Recommendation 13.

- *Mitigate the pro-cyclical effect of external credit ratings in Basel II by eliminating the role of the rating agencies in Basel II.*
- *Mitigate the pro-cyclical effect of internal risk models in Basel II by precluding the use of information based on internal bank models or on any other private information when calculating regulatory capital requirements.*
- *Mitigate the pro-cyclical effect in Basel II of constant regulatory capital ratios by having counter-cyclical regulatory capital requirements.*

The last of these can be implemented either at the discretion of the macro-prudential regulator (the central bank) or in a decentralised manner in the way proposed by e.g. Charles Goodhart and Avinash Persaud (2008), who propose adding to the normal Basel II ratio a supplement that increases with the average growth rate of the balance sheet of the bank over the past three years.

II. Banking and finance for the rest of this century

It is clearly essential that the authorities be able to insulate the systemically important parts of the financial system from the rest. What is systemically important? The list of systemically important arrangements and institutions includes the retail payment system, the retail clearing and settlement system and deposit banking. The wholesale payment, clearing and settlement system is part of it. So are the securities clearing and settlement system and the provision of custodial services intimately connected with the securities clearing and settlement process. This list will change in the future, as the financial system innovates and evolves.

II.1 Public utility banking

'Public utility banking' with just deposits on the liability side and with reserves, sovereign debt instruments and bank loans (secured and unsecured) on the asset side would take care of the retail payment, clearing and settlement system and deposit banking. Such narrow banking would represent an extreme version of Glass-Steagall approach. There would be deposit insurance and, should that fail, a lender of last resort and market maker of last resort. These tightly regulated institutions would not be able to engage in other banking and financial activities, and other financial institutions would not be able to take deposits.

These public utility banks could be publicly owned or privately owned, or could be managed through mutual arrangements (like the UK building societies or the Dutch Rabo Bank) or through cooperatives. Where the public utility bank is publicly owned, I would hope its management would be contracted out to a properly incentivised private concessionaire. Civil servants make lousy loan officers.

From the horror stories that have come out of at least five of the seven German Landesbanken, it is clear that public ownership and control is no guarantee for sound banking. They were brought down by two developments. The old and familiar problem was

that they were pushed by cash-strapped Länder governments to engage in politically popular but financially non-viable regional projects. The second problem was that, far from remaining narrow banks, these Landesbanken engaged, sometimes through off-balance sheet vehicles, in increasingly reckless investment bank behaviour, including investing in financial instruments they did not understand.

II.2 Centralised wholesale and securities payment, clearing and settlement platforms

We cannot have essential financial infrastructure services provided by unregulated profit-seeking private enterprises that may be engaged in a variety of other financial activities as well. The entities that provide these services have to be treated and regulated as public utilities. This includes the wholesale (interbank) payments, clearing and settlement systems (TARGET, in the Euro Area). It also includes the securities clearing and settlement systems and the custodial services essential to their performance (TARGET2 Securities in the Euro Area).

If these services are privately provided, the firms engaged in their provision should be strictly regulated and restricted to perform just the regulated tasks. There should be also be redundancy: for operational security reasons, there should be at least two physically, administratively and legally separate and independent providers of the entire suite of systemically essential services. There is no reason why the central bank would provide any of these services, although it could. Whatever entity provides these services should have open-ended and uncapped access to central bank liquidity, guaranteed by the Treasury.

What constitutes essential financial infrastructure services will change over time. In view of the problems created by the opaque over-the-counter markets in certain kinds of derivatives (e.g. credit default swaps (CDS)), centralized trading platforms, perhaps with a market maker of last resort, and with transparent clearing, settlement and custodial services-

providing rules and arrangements will have to be created for many of these derivatives. These platforms should be viewed and regulated as public utilities.

II.3 Investment banking

All other activities currently undertaken by the banking sector and the shadow banking sector will be called investment banking activities. It might seem that, since the products, services and instruments created exclusively by the investment banking sector are not systemically important, these investment banks could be left to play by the normal rules of the market game, with little if any regulation. This is not the case because of a well-known problem: the ‘too large to fail’, ‘too interconnected to fail’, ‘too complex to fail’ and ‘too international’ to fail problem.

Too big, to interconnected, to complex and to international to fail

The real issue is size. Even if a financial business is highly interconnected, that is, if its total exposure to the rest of the world and the exposure of the rest of the world to it, are complex and far-reaching – the crossborder financial Leontief matrix is full and non-decomposable - it can still be allowed to fail if the total amounts involved are small. A complex but small business is no threat to systemic stability; neither is a highly international but small business. Size is the core of the problem; the other dimensions (interconnectedness, complexity and international linkages) only matter (and indeed worsen the instability problem) if the institution in question is big. So how do we prevent businesses from becoming too large to fail?

Strict competition policy is one way. It is therefore most regrettable that in the UK, competition among banks in the high street is going to be materially diminished by the acquisition of HBOS by Lloyds-TSB (see Vickers (2008)). Generally, the immediate conquest of the crisis on the banking sector is to increase concentration: there will be fewer and larger banks.

The other way to limit size is to tax size. This can be done through capital requirements that are progressive in the size of the business (as measured by value added, the size of the balance sheet or some other metric). Such measures for preventing the New Darwinism of the survival of the fittest and the best connected should be distinguished from regulatory interventions based on the narrow leverage ratio aimed at regulating risk (regardless of size, except for a *de minimis* lower limit).

What would be the private and social costs of taxing size in banking and other financial businesses? Why do banks and other financial enterprises become too big to fail? I believe there are four reasons

- (1) The exploitation of monopoly power (market power).
- (2) The exploitation of ‘economies of conflict of interest’.
- (3) The exploitation of economies of scale and economies of scope.
- (4) The pursuit of the benefits of subsidized liquidity and solvency support from the state: being too big, too interconnected, too complex and too international to fail is a major business asset, especially if you can ‘capture’ the supervisors and regulators who are meant to look after the public interest in return for providing you with this financial safety net.

I hold the view that the universal banks that dominate the European banking scene and are now also dominant in the USA, exist for three of the four reasons outlined above – all but the third. First, the exploitation of market power (monopoly). Second, because it is privately rational to hang as many financial activities as possible on the government-guaranteed narrow-banking Christmas tree. Economies of scale and scope have long been exhausted and diseconomies of span of control compete with lack of focus as the main drivers of organisational inefficiency. But by bundling the systemically important activities

with the not systemically important activities, the entire organisation falls under the government's bail-out umbrella. It is time to see a lot more and a lot smaller banks.

For the time being, banks that are too big, too interconnected, too complex or too international to fail are bound to be with us. For those I would support a proposal made by Raghuram Rajan and by Richard Herring, that such institutions be required to develop a bankruptcy contingency plan that would lay out how they would resolve themselves quickly and efficiently. Such a “shelf bankruptcy” plan would require banks to track and document their exposures much more carefully than they do now and in a timely manner. An insolvency plan is just as vital as a business plan for a financial institution in the too big to fail category.

Recommendation 14.

- *Legally and institutionally, unbundle narrow banking and investment banking (Glass Steagall-on-steroids).*
- *Legally and institutionally prevent both narrow banks and investment banks from engaging in activities that present manifest potential conflicts of interest. This means no more universal banks and similar financial supermarkets.*
- *Limit the size of all banks by making regulatory capital ratios an increasing function of bank size.*
- *Enforce competition policy aggressively in the banking sector.*
- *Require any remaining systemically important banks to produce a detailed annual bankruptcy contingency plan.*

Other ways to discourage excessive risk taking restricting limited liability

Incentives for excessive risk taking take many forms. An obvious one is limited liability. With limited liability, an investor (shareholder) can at most lose the value of his investment. The non-linearity in the pay-off function for the shareholder this creates, encourages placing more risky bets: losses beyond a certain magnitude are not born by the shareholder. Gains of any size are appropriated by the shareholders.

The combination of limited liability and leverage means that bets of almost any size can be placed by investors with this distorted, asymmetric payoff function. This can be done through conventional leverage (borrowing) or through leverage embedded in derivative

contracts. A simple way to mitigate this problem is not to permit highly leveraged financial institutions (other than tightly regulated narrow banks, insurance companies and pension funds) to be limited liability companies. Instead, partnerships and other forms of unlimited, joint and several liability should be required. Partnerships and similar arrangements were the norm for investment banks until the 1990s. It is worth considering the removal of limited liability protection from highly leveraged financial entities with considerable asset-liability mismatch. This would no doubt also help keep down their size, by any metric of size.

Recommendation 15: *Deny limited liability to most highly leveraged financial enterprises, other than tightly regulated, well capitalised narrow banks and other public utility-style financial enterprises.*

III. The role of government in the financial sector

Market failure or distributional concerns are necessary but not sufficient or indeed necessary conditions for government involvement or intervention in the economy. There also has to be reason to believe that government involvement will make things better rather than worse. From a normative point of view, at least one of the following three necessary conditions for successful government intervention must be satisfied. (1) The government can do things the private sector cannot do (different opportunity sets); (2) the government has information that the private sector does not have (different information sets); (3) the government has different objectives from the private sector (different motivation).

I will rule out better information as an argument for government intervention. I have never seen evidence of this in the field of financial economics (or elsewhere). One reason governments can have different objectives and motivations from those of private market participants ('greed' and 'fear') is '*osmosis*' or socialisation: being part of the government changes people's motivations or causes them to adopt 'external objectives' like the general interest, as their own. It can also have different objectives because of the *selection*

mechanisms used to fill political and other government positions (elections, coups, appointments), which do not select people randomly.

I believe both ‘osmosis’ and ‘selection’ can account for government behaviour that is different from what would be expected from a regular private market participant entrusted with the levers of power. This is, however, a two-edged sword. At times governments and government bureaucracies may act like the benevolent and competent social welfare maximisers of normative public finance theory. Rather more often they act like the self-interested, myopic vote maximisers or rent extractors of positive public choice theory.

My own fundamental views on both normative and positive social science are rooted in the ‘Weltanschauung’ and ethics I inherited from my parents, which was a convex combination of social democracy and protestant Christianity. After 34 years as a social scientist, I have concluded that social democrats have a lot to learn from Calvinists as regards understanding how the world works.

Perhaps the greatest weakness of social democracy, indeed of most varieties of socialism, is its naive faith in the benevolence and competence of the government and of the state bureaucracies. As a positive theory of how governments actually behave, it contradicts much of what we know, whether through careful study or through casual observation, about human motivation, small group behaviour and political selection. To be an optimist is wonderful. To be naive is dangerous. The Heidelberg Catechism’s view of human nature as “... *wholly incapable of doing any good, and inclined to all wickedness ...*” is a useful antidote to excessive faith in the ‘*maakbaarheid*’ or ‘makeability’ of society.

The government can, however, do things private entities cannot do. The government runs or manages the state, and the state has the monopoly of the legitimate use of coercion or force. It can mandate and compel, prescribe and proscribe behaviour. Specifically, it has the power to tax (including the power to declare some of its liabilities to be legal tender) and it

has the power to regulate and to provide binding mandates. So you need the government when unusually deep pockets are needed (which require the power to tax and/or to issue legal tender) or when mandating or compulsion are required: certain forms of private sector behaviour that would normally (voluntarily) occur must be proscribed (an example is dividend payments by banks that are in receipt of government financial support), or certain kinds of behaviour private agents would not voluntarily engage in must be mandated (an example is lending by banks to SMEs in the current credit crunch).

Governments have no comparative advantage taking part in activities that are best organised through markets under normal circumstances. Governments make dreadful bankers, as the history of central and eastern Europe and the current performance of the German Landesbanken demonstrates. If they have to get involved because of threatening disaster and extraordinary circumstances, they should plan their exit the day they go in.

So where should we expect to see the government act more forcefully in the future?

III.1 An SRR with PCA and SEI

Every systemically important bank or other financial institution should be subject to a special resolution regime (SRR) with structured early intervention (SEI) and if that fails to resolve the problems, prompt corrective action (PCA). An SRR is a preventive or anticipatory insolvency regime – a Chapter 11 ‘lite’. Under the SRR a bank can be put into conservatorship by the regulator before it has become balance-sheet insolvent or liquidity-insolvent. So there is a third form of insolvency for systemically important financial institutions: regulatory insolvency.

The conservator appointed by the regulator can fire the management and the board. He can, for the duration of the conservatorship, suspend the voting rights and other decision rights of the shareholders and the unsecured creditors. He has full executive authority. He can ring-fence business units, financial instruments and activities. For instance, for a prime

broker or broker-dealer, he can ring-fence the securities clearing, settlement and custodial activities, including the systemically important counterparty role of prime brokers in the tripartite repo markets. He can transfer the deposits of the bank to another bank, sell assets, mandate a partial or complete debt-for-equity swap, break up the institution or order its liquidation.

If there had been an SRR for investment banks in the US, the Lehman disaster would not have happened, because it would have been possible to ring-fence the systemically important bits. Bear Stearns likewise could have been resolved without reducing competition in the banking sector and without the need to engage in quasi-fiscal window-dressing activities by the central bank.

Recommendation 16.

Create a Special Resolution Regime with Structured Early Intervention and Prompt Corrective Action for all systemically important financial institutions.

III.2 Mandating capital raising and capital injections

Banks don't like to be told to raise additional capital. When the amount of capital that is appropriate from the perspective of the private bank itself, and perhaps also from the perspective of the micro-prudential regulator, is insufficient from a financial stability or macro-prudential perspective, the macro-prudential regulator has to be able to force the bank to raise, within a given time span, the amount of capital the authorities deem appropriate.

If the required capital cannot be raised privately and if the authorities deem the institution to be systemically important, the authorities must be able to mandate that the bank accept an injection of public capital. The terms of the government capital injection (what kind of equity, what interest rate in the case of preference shares, restrictions on dividend payments etc.) are up to the government.

III.3 Getting rid of failing boards and managements

Any institution that gets itself into a such a bind that an injection of government capital is deemed necessary by the authorities, has failed. It should be axiomatic and automatic that the senior management and the board of such an institution resign immediately, without any entitlement to a golden parachute.

III.4 Mandating lending

Banks that don't lend to the real economy are socially useless institutions. The extension of new credit facilities and new loans by banks to the non-financial business sector is collapsing. Ongoing credit extension is mainly the drawing down of pre-existing facilities and commitments. By guaranteeing certain kinds of bank lending, governments can address the failure of banks to lend. Ideally, this would involve some continued risk-sharing by the banks, otherwise any incentives for the bank to manage risk prudently will be killed. Government guarantees should be priced properly and include an element of co-insurance.

Banks that don't lend voluntarily even with reasonable government guarantees should be mandated to lend. This should be done with the smallest possible degree of micromanagement – governments and civil servants make lousy loan officers.

One approach would be to give all existing borrowers whose credit arrangements expire during the next year, the option to roll over the existing arrangement for another year on the same terms as the original arrangement. This would be a form of debt-standstill. It would do nothing for new borrowers, of course, but it would have the advantage of not forcing the bank to lend in situations where the demand for credit is the binding constraint rather than the supply of credit.

Another proposal is for the government to mandate a given overall volume of bank lending to a broadly defined sector (non-financial SMEs, say). Any shortfall from the target is paid to the government as a tax. This only makes sense if the target not set so high that it exceeds the demand for credit at an interest rate that covers the banks' cost of funds.

It is possible that mandating (forcing) banks to lend could lead to legal complications unless the state is the only shareholder. In that case, full nationalisation of the banking sector may be necessary, at least for the duration of the crisis.

IV. Further tips for governments and regulators

IV.1 Don't expect people to tell the truth

Most economic players treat truth telling as a tactical or strategic option, not as something you do regardless of whether it is in your short-term or long-term private interest – because it is right. I leave it as a subject for discussion whether such behaviour is amoral or immoral. It is common, both in the private sector and in the public sector, including the government: lying is ubiquitous. If you are lucky you may get nothing but the truth; the whole truth is never revealed. This suggests that the Revelation Principle may not be terribly useful as a descriptive device. It also has important implication for regulators:

Recommendation 17

Don't regulate on the basis of information that is private to the regulated entity. Only use independently verifiable information.

IV.2 Don't overburden the regulator and don't expect too much of him

Regulators are not Platonic guardians – omniscient, omnipotent and benevolent. They know rather little, have limited capabilities and are motivated at best only in part by the public interest and the common good, as it is defined in the laws or decrees establishing them.

The fact that the financial regulator can never have accurate information about a modern universal bank's or investment bank's balance sheet, its exposure to off -balance sheet vehicles or its internal incentive structure, means that proposals for regulatory reform that rely on such information are pointless. Proposals for making regulatory capital requirements dependent on the internal incentive structure of the bank are an example of pointless regulation.

Regulatory capture is a fact of life. Regulators everywhere and at all times have been at risk of being captured by the industry or private interest they are meant to regulate in the public interest. This risk has often materialised. Such capture need not take the form of bribery, blackmail, corruption or deliberate perversion of the regulator's mandate. It is more likely to occur through what I have called *cognitive regulatory capture*, the process through which those in charge of the relevant state entity internalise and adopt, as if by osmosis, the objectives, interests, fears, hopes and perception of reality of the vested sectional interest they are meant to regulate.

Our regulators must know how the financial sector thinks; they must understand its moods and mood swings, but they have to keep their distance, emotionally and intellectually. They can smoke it, as long as they don't inhale. That's not an easy task. Expect failures. The American SEC is a spectacular example of regulatory capture. While less easily manipulated and pushed around than the SEC, the Fed is also an example of cognitive regulatory capture.

V. Limit your ambitions: the inconsistent quartet:

For the first time since the German default of 1948, a number of countries in the north Atlantic region (North America and Western Europe) face a non-negligible risk of sovereign default. The main driver is their governments' *de facto* or *de jure* underwriting of the balance sheets of their banking sectors and, in some cases, of a range of non-bank financial and non-financial institutions deemed too big to fail. Unfortunately, in a number of cases, the aggregate of the institutions deemed too large, too interconnected or too politically connected to fail may also be too large to save. The solvency gap of the private institutions the authorities wish to save may exceed the fiscal spare capacity of the sovereign (see Buiter and Sibert (2008)).

The clearest example of the ‘too large to save’ problem is Iceland. Iceland’s government did not have the fiscal resources to bail out their largest three internationally active banks. The outcome was that all banks went into insolvency. The government then nationalised some key domestic parts of the three banks out of the insolvency regime. It decided (under massive pressure from the British, Dutch and German governments) to honour Iceland’s deposit guarantees and left the rest of the unsecured debt to be resolved through the insolvency process.

Other countries face the problem of the inconsistent quartet - (1) a small open economy; (2) a large internationally exposed banking sector; (3) a national currency that is not a major international reserve currency; and (4) limited fiscal capacity. They include Switzerland, Sweden, Denmark and the UK. Ireland, the Netherlands, Belgium and Luxembourg have all but the third of these characteristics.

There can be little doubt that, faced with the choice between sovereign default and an unexpected burst of inflation to reduce the real value of the government’s domestic-currency-denominated debt, many countries’ governments would choose inflation. They would instruct their central banks to produce the required inflation. I expect the US (where the Fed has little operational independence) and the UK (where the operational independence of the Bank of England can be suspended instantaneously by the Chancellor invoking the Reserve Powers of the Treasury, and ended through a simple amendment of the Bank of England 98 Act) to fall into this category of countries whose governments would choose inflation before sovereign default. They have, after all, done so before.

De-facto default through unexpected inflation is not an option in the Euro Area. The independence of the ECB is embedded in the Treaties. A unanimous decision by all member states is required to change the Treaty. Given this operational independence ‘on steroids’ of the ECB, it is unlikely that any Euro Area national government or coalition of governments

could bully the ECB into engaging in a burst of public-debt-busting unanticipated inflation. Since the ECB cannot be made to bend, could this create a risk that the euro area would burst? The risk is minimal, because there are no debt-eroding benefits from a high domestic rate of inflation for a country leaving the Euro Area: the existing stock of debt would remain euro-denominated. Redenominating the debt into ‘new lira’ or ‘new drachma’ would constitute an act of default – the exact contingency that leaving the Euro Area was intended to forestall.

So the final lesson is that the ability of the state to support the banking sector and the rest of the financial system is limited by its capacity to extract resources from reluctant tax payers and its ability to impose public spending cuts against the opposition of vociferous beneficiaries from existing spending programmes. Isn't political economy a beautiful subject?

Conclusion

Reaction follows action in politics as in physics. The inevitable result of the financial collapse and deep contraction we are going through now will be at least a decade of over-regulation in the financial sector. Popular outrage at the excesses that were permitted to range unchecked during the era of self-regulation and light-touch regulation will have to be assuaged. The ‘pound of flesh’ demanded by the body politic is likely to involve a fair amount of ‘if it moves, stop it’ type regulation. That is regrettable but politically unavoidable.

The public no longer trust the captains of finance and the politicians and appointed officials who either actively contributed to the excesses (like Larry Summers and Timothy Geithner during the Clinton administration or Gordon Brown in the UK) or failed to warn or protest sufficiently vigorously when these excesses begin to materialise on their watch (Ben Bernanke (in public service since September 2002), Mervyn King (at the Bank of England

since March 1991) and most other leading central bankers). Neither the public nor the new vintage of politicians that will take over is likely to listen to those who either actively contributed to the disaster or failed to foresee it or warn against it.

Over-regulation will harm the dynamism of the economy. How serious the damage will be is not clear. What is clear is that a lot more regulation, and regulation different from what we have had in the past, will be required to reduce the likelihood of future systemic failures and to better align private and public interests. The seventeen recommendations made in this lecture would represent a useful first step for financial sector re-regulation. As long as measures not too far from these recommendations are implemented, I am not too worried about whatever over-regulation may be imposed on top of them in the short term.

The damage caused by financial sector excesses is way out of proportion to whatever gains from financial innovation may have accrued to the wider economy in the last couple of decades. The political economy of successful reform dictates that radical, sweeping reform be introduced as soon as possible, before the defenders of the financial status quo are able to collect themselves and launch a massive PR campaign to close the door on radical reform.

Under normal circumstances (financial calm and boom), the financial sector has 'owned' the policy makers and the regulators in the US, the UK and much of continental Europe during the past twenty years. Its current weakened state, the result of the biggest financial bust ever, prevents the financial sector from mounting the kind of massive lobbying effort it has been capable of in the past. We should seize the moment. If over-regulation, indeed destructive over-regulation is the immediate result, then so be it. It is easier to negotiate sensible modifications to a framework characterised by over-regulation than it is to add sensible regulation from a framework characterised by under-regulation.

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