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Introduction

The global financial crisis that began in 2007 and intensified in 2008 before transforming itself into a sovereign debt crisis in 2010 focussed the authorities on the need for reformed financial regulation. As a result of weak corporate governance in financial firms and major deficiencies in regulation and supervision these crises have imposed and are imposing significant economic costs on society¹. There is now almost total unanimity over the need to adopt an approach to financial regulation and supervision that involves linking micro-prudential supervision of individual banks with broader macro-prudential oversight of the financial system. Liberalised financial markets also demand more effective coordination between states in supervising markets both within Europe and internationally.

Over the past two to three decades financial markets in Europe and most developed countries had moved away from a bank-based model of finance to a wholesale capital market model of finance (Alexander *et.al.* 2007). The new structure brought diversification and increased liquidity but introduced new systemic risks into the financial system that regulators failed to identify and control.

Three major changes were:

First, the development of the structured finance market and in particular the role of securitisation in decomposing and distributing credit risk to wholesale institutional investors who were seeking higher yield in a low inflation environment.

Second, the dramatic growth of the credit derivatives market that made possible enhanced corporate balance sheet management, but also allowed traders to take excessive risks on the underlying assets referenced by these contracts.

¹ See Haldane (2010): "World output in 2009 is expected to have been around 6.5% lower than its counterfactual path in the absence of crisis. In the UK, the equivalent output loss is around 10%. In money terms, that translates into output losses of \$4 trillion and £140 billion respectively. Moreover, some of these GDP losses are expected to persist. Evidence from past crises suggests that crisis-induced output losses are permanent, or at least persistent, in their impact on the level of output if not its growth rate. If GDP losses are permanent, the present value cost of crisis will exceed significantly today's cost. By way of illustration, Table 1 looks at the present value of output losses for the world and the UK assuming different fractions of the 2009 loss are permanent - 100%, 50% and 25%., and also assumes, somewhat arbitrarily, that future GDP is discounted at a rate of 5% per year and that trend GDP growth is 3%. Present value losses are shown as a fraction of output in 2009. As Table 1 shows, these losses are multiples of the static costs, lying anywhere between one and five times annual GDP. Put in money terms, that is an output loss equivalent to between \$60 trillion and \$200 trillion for the world economy and between £1.8 trillion and £7.4 trillion for the UK".

And, third, the role of technology and statistical theory in the use of value-at-risk (VAR) models in risk management, that allowed financial firms to calculate how much they expected to lose if the markets turned sharply against them.

These structural changes in financial markets provided the ingredients that allowed risk to be under-priced and shifted around the financial system, making it difficult for regulators to monitor risk and assess its potential impact on the financial system. The spread of risk throughout the wholesale capital markets was facilitated by the originate-rate-and-relocate model of securitised debt finance that encouraged increased leverage across the financial system, and that in turn increased systemic risk. In addition, the excessive use of credit default swaps and other credit-linked instruments increased the complexity and inter-connectedness of financial markets and substantially contributed to excessive speculation in the underlying assets of those instruments, again putting the system at serious risk.

Although primarily at fault, bankers and other market participants were not entirely to blame, as regulators had contributed to the liquidity risks in the system:

First by requiring mark-to-market valuation for all financial assets without regard to the duration of their funding.

And second, by requiring regulated institutions to manage their risk in a relatively standardised way. This significantly enhanced herding during times of uncertainty. The homogeneity of regulatory requirements contributed to the homogeneity of market practices through the use of similar risk models. This contributed significantly to systemic risk, and exacerbated the volatility in markets during distress.

Regulatory practised prior to the crisis can be summed up in the trilogy of concepts that provided the intellectual underpinning of Basel 2:

- Enhanced transparency.
- Increased disclosure.
- Best-practice risk management by firms.

These measures made the operations of financial firms highly market sensitive. In normal times risk may have been introduced. But in the presence of severe stress these regulatory measures, by ignoring the externalities in financial markets, led to serious mis-pricing of risk and significantly increased the risk to the system as a whole.

Other factors contributed to the crisis included the incentives of rating agencies to provide AAA ratings to complex debt instruments and their failure to use adequate risk-measurement methodologies to assess the underlying risks embedded in these instruments – resulting in seriously defective rating.

As well as a new analysis of regulation, and new measures, practical policy requires consideration of the type of institutional structure and supervisory arrangements Europe should adopt to improve the regulation of systemic risk. The Lamfalussy supervisory framework will need updating because of the growing number of cross-border European financial institutions and the enhanced interconnectedness and complexity of wholesale capital markets. This involves consolidation of the Level 3 committees and granting of formal status to colleges of supervisors to oversee the cross-border operations of European banks. It also demands the creation of a single European clearing house to clear standardised credit derivatives and other derivative products in order to control systemic risk more effectively (Alexander *et al.* 2009). There must also be a new European resolution regime to unwind failed financial institutions with extensive cross-border operations.

The discussion in Chapter 1 comprises first an analysis bank risk management focussing on the similarity between bank risk models and the failure to take into account macro-prudential risks. In the aftermath of the crisis a new structural approach is likely to emerge in which risk models are not only built on internal recent data samples with a narrow distribution of outcomes, but also link these measures to external structural factors in the economy, such as correlations in investor behaviour and changing correlations over the business cycle. Next there is an examination of recent regulatory reforms proposed by the Basel Committee on bank capital, liquidity and leverage, and consideration of the economic impact of these proposals on the European banking system. The amended Basel 2 and the revised Capital Requirements Directive will probably require that regulatory capital – both internationally and across Europe – have a more harmonised definition and consist mainly of tangible common equity. Many banks operating in those EU states that allow most regulatory capital to consist of 'hybrid instruments' will consequently experience a large increase in the cost of regulatory capital.

In Chapter 2 recent European regulatory initiatives are considered, in particular the establishment of a new European Systemic Risk Board to conduct macro-prudential oversight and monitor systemic risk. The way the ESRB discharges its responsibilities will have an important effect on its credibility and effectiveness in performing its macro-prudential oversight functions. The European Supervisory Authorities will play an important role in overseeing member state supervisory practices and in establishing an effective network of colleges of supervisors. However, the EU regime governing the resolution of large cross-border banks based on home country control has become obsolete and merits reform. There should be a more harmonised set of principles in EU law to govern the resolution



of distressed financial institutions that would also cover non-bank financial firms that are systemically important. Also considered is the significance of the recent Greek sovereign debt crisis.

1. REGULATORY AND SUPERVISORY CHALLENGES

1.1 Risk management

The similarity in risk management models used by banks, encouraged by the Basel 2, led most banks to price credit and market risks in very similar ways without regard to the systemic risks which their risk-taking and instruments posed to the financial system. Advances in technology and sophisticated data management, combined with the use of value-at-risk (VAR) models, allowed the use of risk models that led firms to believe that they were diversifying and spreading risk to investors capable of absorbing risk, while increasing bank profits through higher leverage. Based on these models, banks developed the originate-rate-and-relocate model that allowed them to use sophisticated data management techniques to calibrate their risk exposures so that they could transform credit risk (originated as mortgage loans) into investable debt securities that could be sold to institutional investors looking for higher yield in a low inflationary environment. Regulators permitted banks to hold some of these debt securities in their trading books with lower capital requirements than would have been required with regular loans. Regulators and central bankers¹ were convinced that the so-called 'great moderation' had resulted in low inflation, and the low interest rates created conditions that drove assets prices even higher (Adrian and Shin, 2008). Risk management models reinforced the bankers' preference for more risk by underestimating the potential costs of the risks to shareholders and ignoring the systemic risks. They relied heavily on recent data samples with a narrow distribution of outcomes, especially in subprime mortgages.

1.2.1 The flaws in risk management

Over the past fifteen years, a common refrain during periods of financial dislocation, great and small, is the need more risk management. After fifteen years of considerable investment in risk management there has been little pay-off.

There are three fundamental reasons why common approaches to risk management proved inadequate and, more to the point, will always do so. Failure to address these issues in some way will precipitate further crises over the next 20 years.

First, financial crises invariably take place after a boom, where there has been a collective and often genuine belief that, often for some exogenous reason such as the arrival of a new technology, investment risks have fallen – or returns for a given risk have risen. This becomes self-feeding as the resulting boom gives the statistical appearance that the risk-return trade-off has improved, with generalized returns rising, and instances of default or other downside risks

receding amid surplus liquidity. Statistical measures of risk and return will not help this problem. Indeed, the tendency to use more and more up-to-date data in assessing risks and returns or incorporating market measures of risk will tend to reinforce the bubble (Persaud, 2004). Financial crashes occur because markets underestimate prior risks. Enhanced use of market estimates will make matters worse not better. At the same time, forcing banks, generally funded by short-term liabilities, to use more longer-term data on risk and returns and less market-sensitive data, will appear from the perspective of individual institutions to be perverse. The solution to the risk management problem is best carried out at the macro level.

Second reason, the risk management approach to the financial sector assumes statistical independence. When a firm's risk management model signals that its risk exposure is too high and the firm decides to respond to this by selling risky assets, it is typically assumed that the firm holds different assets from other institutions and is receiving a different signal from its risk model than others. So when it sells these assets there will be buyers and not only other sellers. One of the reasons why the approach assumes this is because to assume otherwise will mean that risk will be hard or impossible to compute. Risk would no longer be determined by factors internal to the risk models such as prices and past volatilities and correlations of the assets in the portfolio – but to things outside the models such as the strategic behaviour of other investors.

The response of individual institutions to this conundrum is that they should use a risk model with fatter tails. But the economy is never actually characterised by the average distribution, but by one or more separate distributions. The normal distribution may work well in the quiet times. But in periods of stress, with concentrated investments and increased liquidity demand, there is an altogether new and completely skewed distribution as everyone rushes for the exit at the same time. Trying to average the two distributions will make no meaningful difference: risks will appear to be overestimated for six out of every seven years, say, and substantially underestimated in the seventh.

Third, risk management techniques at Board level are defective. Chief executives and independent board directors have been quick to argue that they did not know what was really going on when they gave the order to leverage up. This is partly because the combination of "Risk and Audit" committees of the board has led to a standardised procedure for the "auditisation of risk". Risks are identified and given a colour - red, amber or green. The reds are fretted about and the greens ignored. This traffic light approach flies in the face of the observation that "it is not the things you think are dangerous that kill you" (Mark Twain). There is no shortage of financial victims citing some failure as a "once in a thousand year event" or "wholly unforeseen and unpredicted".

1.2.2 Systemic Risk

In response to the evident failures of regulatory theory and practice before 2007, a remarkable consensus has developed in the past three years over what should be the direction of financial regulation (see FSA, 2009; US Treasury 2009; EU

Commission, 2009; Brunnermeier et.al. 2009). There has been a widespread call for the development of a “macro-prudential” approach - for the regulation of “systemic risk”. This has in turn led to a number of policy proposals including pro-cyclical provisioning, leverage collars, enhanced liquidity requirements, and even new accounting procedures, all of which are designed to be counter-cyclical, and to enhance the resilience of the financial system at time of crisis.

Yet despite the unanimity concerning “what is to be done”, there has been rather less unanimity concerning the analytical framework within which these proposals should be examined. Faced with the desire to analyse “macro-prudential risk” economists have tended to turn to the analysis of underlying microeconomic relationships to define the macro-environment. For example, there identification of “systemic” with “interconnected” has led both to an interest in network theory (see, for example, Allen and Babus 2008; Haldane, 2009), and in analyses of covariance (Adrian and Brunnermeier, 2009).

The lack of any agreed model of systemic risk results in practice in a range of measures, seemingly credible in macro-economic terms, but not linked in any structured manner. The potential for incoherence is high.

1.2.3 Externalities and the Macroeconomics of Systemic Risk

Financial risk-taking is a concern of public policy because associated with the risk-taking actions of individuals there are externalities; i.e. costs and benefits accruing to the society that are *external* to the calculations of the individual investor, and not accounted for in the market place¹. A major financial failure imposes costs on society going far beyond the losses suffered by the immediate investors. In an economy where there are important externalities, competitive markets will be socially inefficient. The task of public policy, in this case of financial regulation, is to attempt to mitigate these market failures (without creating new ones).

Financial externalities are particularly potent because they are transmitted *macroeconomically*. Financial markets are markets for stocks of current and future assets, the value of which today is dependent on the expectation of their future value. To the extent that expectations are shared any factor that leads to a general shift in expected future values will have an immediate impact on financial markets, and on the major macro-financial variables, such as the interest rate and the exchange rate. So the failure of a single firm can, by influencing expectations, have an influence not only on its immediate counterparties, nor even just on firms dealing in similar products, but also, through its impact on expectations, on financial markets as a whole and hence on the real economy.

¹ There are a number of other important market failures in the financial sector which attract the concerns of public policy, most notably the asymmetry of information between individual savers and market professionals that is the motivation of consumer protection legislation. This lecture deals solely with the market failure manifest in systemic risk, and the implications for risk management by the authorities.

Efficient risk-management by firms is a fundamental component of competitive success in today's financial markets. It also makes an important contribution to general market stability – in normal times. However, in the face of extreme events (even “moderately” extreme events) rational risk-management by individual firms may precipitate a macro-economic reaction that is destabilising, can place those firms in jeopardy, and result in a general welfare loss¹.

The classic example is a bank run. Whilst a depositor may be certain about the probability of suffering a liquidity shock, the depositor cannot be certain about the probability that his or her shock will occur early or late relative to others. In other words, the depositor cannot be sure where they will be in the queue to withdraw funds. The result is the rush to withdraw.

However, in recent decades the structure of financial markets has changed, shifting from a bank-based to a market-based financial system (Hendricks, Kambhu and Mosser, 2006). Financial intermediation has moved from banks into markets, and as a consequence of this disintermediation, financial crises are now manifest in markets rather than institutions. Accordingly analytical interest has moved from bank runs to “market gridlock” as a source of systemic risk². A market oriented systemic crisis is a breakdown in the functioning of markets for traded assets. It may be triggered, for example, by a sharp decline in the price of one asset that sparks a widespread sell-off in the general rush for liquidity. In more formal terms, the individual agent knows the probability of a shock, but does not know the probability of being able to trade with the market counterparties on whom his or her liquidity depends. Not knowing, and being averse to uncertainty, the agent, and all other agents, has a collective bias toward liquidity (Caballero and Krishnamurthy, 2006). The collective rush for liquidity produces the market gridlock characteristic of market based systemic crises. It is important to note that a relatively small event can produce this gridlock in very large markets. The market for sub-prime mortgages was a relatively small part of the credit market.

1.2.4 Prices versus Quantities

The lack of an agreed model of systemic risk has resulted in a mixture of approaches to the management of externalities: taxation (capital charges) and quantitative controls (leverage collars, liquidity ratios).

Identifying the appropriate measures to use in the face of systemic risk is an uncertain task. The classic approach to regulation in the presence of uncertainty was outlined by Weitzman (1974). If the social optimum is found by equating the marginal social benefits of pollution-control and the marginal private costs of this

¹ Note that an “extreme event” is not the same thing as a “rare event”, and certainly not the same thing as a totally unexpected event or “black swan” (Taleb, 2007). Financial crises are part of the DNA of the financial system, and, far from being rare or “totally unexpected”, they occur regularly.

² The 2007 crises at IKB and at Northern Rock are examples of market gridlock, not of bank runs. In the case of Northern Rock the run was not a *cause* of Northern Rock's difficulties, but a *result* of the crisis and of the preliminary response of the authorities.

control, then with no uncertainty about either costs or benefits, a policymaker would be indifferent between taxation and restrictions when striking this cost/benefit balance.

When there is considerable uncertainty about both costs and benefits Weitzman provides criteria for choosing between taxation and quantitative restrictions:

If the marginal social benefits foregone of the wrong choice are large, relative to the private costs incurred, then quantitative restrictions are optimal. This is because fixing quantities while letting prices vary, does not have large private costs. When the marginal social benefit curve is steeper than the marginal private cost curve, restrictions dominate.

However, if the private costs of the wrong choice are high, relative to the social benefits foregone, adjusting these costs through taxation is likely to deliver the better welfare outcome. When the marginal social benefit curve is flatter than the marginal private cost curve, taxation dominates.

So the choice of taxation versus quantitative controls in controlling systemic risk is ultimately an empirical issue. Attempts to price an externality have at their core the idea that the market can be made more efficient. An alternative is to change the institutional structure of the market. Today, there is clearly an increased preference for quantitative measures.

1.2.5 Micro and Macro Solutions

The principal solution to these issues is for firms, but more importantly, regulators to take a more “structural” view and a less “statistical” view of risk. A statistical view measures risk as the excess return relative to the risk-free return, the volatility of these excess returns, and, perhaps, a public credit rating. These measures are highly cyclical and prone to underestimation of future risk in quiet times and overestimation of future risks in the aftermath of a crash. The Basel 2 “risk-sensitivity” approach to regulation, that in practice meant a greater sensitivity to market prices of risk, amplified the boom-bust cycle when the purpose of regulation, at its least ambitious, should be to moderate these cycles.

A structural view of risk is one that begins with the identification of different kinds of risk: liquidity risk, credit risk, market risk, operational risk; and considers the capacity to absorb each risk. A regulator may limit the activity of institutions without a capacity to absorb liquidity risk – such as short-term funded institutions – preventing them from holding those kinds of risks. Equally, firms with a capacity to absorb this risk – like long-term funded institutions or those with long-term liabilities – may be encouraged to do so. Limits might be achieved through a capital regime in which capital is set aside for the degree of each risk mismatch: principally liquidity risk mismatch, credit risk mismatch, and market risk mismatch. This would be a 21st century update to Glass Steagall: fragmentation, not by activity, but by the ability to absorb risk.

A structural approach would also embody the fact that credit mistakes are not made in the recession but in the boom. Consequently, the amount of capital required to set against credit risk should be contra-cyclical. A key issue is how the cycle is measured. Work at the Financial Stability Board and Basel Committee suggests that the growth of GDP above trend is one of the best measures of excessive credit growth and should coincide with the application of some regulatory brake. But in reality each cycle is different and a range of indicators should be used. That said, use of many indicators would blur the signal, so that the decision to raise capital requirements or not becomes discretionary, with the likely prospect that policy would then be too easily influenced by the perceived exceptionalism of each boom.

The structural approach also raises questions as to whether prices or quantities are the most appropriate regulatory measures.

1.3 Stress Tests and Concentration Risks

A higher degree of concentration will mean that past measures of risk such as volatility and co-variance are likely to underestimate risks going forward. Investment concentration is perhaps best measured by central authorities, either regulators or trade reporting entities. The assessment of concentration risk will require all financial market participants to submit to a common stress test on a regular basis.

An example would be for financial firms to assume a 40% drop in house prices and report the implications for assets, liabilities, liquidity, etc. While a common stress test will tend to underestimate spill-over effects, it provides more information on systemic risks than the results of the millions of independent stress tests carried out by individual institutions and may assist in the identification of the rise of new interdependencies.

1.3.1 Too Big To Fail

In recent months it has become fashionable to argue, in the words of Mervyn King, Governor of the Bank of England that if a bank is too big to fail it is too big. It is certainly the case that the bigger the institution, generally the bigger the systemic risks and so the greater the regulatory scrutiny and restraint should be. Large institutions also play a powerful lobbying role that can have systemically dangerous consequences. This suggests a preference for a more competitive market with smaller institutions (Haldane, 2010). However, requiring institutions to be smaller will solve the fundamental problem of systemic instability. It is probably as much an issue of competition policy as it is of financial stability policy.

Many financial crises have had their roots in small institutions. For example, the 1973-4 "Secondary Banking Crisis" in the UK had an even greater impact on the stock market than the current crisis has had so far. In the current crisis, the large and staid institutions proved far more resilient than fast growing, medium-sized ones. And it may well be easier to resolve a problem caused by excessive

lending of one large institution than the excessive lending of a large number of small, yet correlated, institutions.

Private institutions should be required to internalize the systemic cost of them becoming large. But shrinking and breaking up banks is not an obvious panacea to financial crises. It may it may prove a welcome consequence of the fragmentation of the financial system by risk-capacity, achieved through higher capital requirements on bank size and risk mis-matches. Such measures would impose a higher regulatory cost on bank size and inter-connectedness, thus leading some institutions to shrink as they refocus on what they have the greatest capacity to do.

1.4 Central Counterparties and Credit Derivatives

Since market gridlock is now the predominant manifestation of systemic risk, it is widely believed that a contributing risk factors are underperforming and poorly regulated clearing and settlement systems. Although the existing infrastructure for clearing and settling derivatives has not fail during the recent crisis, regulators and others clearly believe that management of risk could be improved. One of the reasons for regulatory interest in centralised clearing is a hoped for improvement in pricing and price transparency.

When confidence collapsed in Collateralised Debt Obligations (CDOs) and Credit Default Swaps (CDSs) this was in part because no-one knew what their value might be. It was this lack of any basis of valuation that led to the questioning of the value of bank balance sheets. No-one knew what the value of assets held on the balance sheet was and hence no-one knew whether the banks were solvent. The problem was complexity *not* transparency: securitised instruments typically come with many pages of elaborate documentation, describing the character of the asset in detail – but even those who attempt to read it all seldom understand it¹.

It is also argued that due to the bilateral nature of Over-the-Counter (“OTC”) derivatives, the risk of a counterparty defaulting before the contract expires is relatively high, particularly for credit derivatives that generally have long maturities, making it more likely that a purchaser will be left unprotected. In addition, collateralisation provisions in CDS contracts are not standardised and do not take account of how credit enhancement on one transaction affects risk exposures on related transactions. A further concern is that due to the nature of CDS contracts involving the referencing of other credit instruments and the posting of more collateral as default probability increases, a downturn is likely to cause a downwards spiral of pay outs and defaults, the type of which triggered the collapse of AIG in 2008. Finally, the customised structures of OTC instruments means that they are not typically susceptible to netting, resulting in high risk assessments (and collateral requirements) on gross positions.

¹ The documentation will typically be a combination of the work of sophisticated statisticians and lawyers – each of whom poses problems for the others.

It is these difficulties that have led to the now generally accepted policy conclusion that as many assets as possible should be forced into clearing systems and central credit counterparties (“CCPs”), facilitating price discovery and liquidity, standardising collateralisation provisions and encouraging the development of simpler “plain vanilla” assets that are susceptible to netting¹. To date, the message from the regulators has been confusing: the UK Financial Services Authority has stated that although it supports the greater use of clearing it could not endorse forcing all “standardised” OTC contracts into CCP clearing. By contrast, the US Congress is likely to approve a financial services reform bill in 2010 that will require all standardised OTC contracts to be centrally cleared by clearing houses or central counter parties. Similarly, the European Commission has indicated that it may propose legislation requiring standardised OTC derivatives contracts to be subject to mandatory clearing.

Aside from a more co-ordinated regulatory approach, the market needs some guidance on what is “standardised”. There has been some regulatory discussion about how to incentivise the market to move away from OTC. One idea is to increase the regulatory capital costs for OTC transactions or other types of risky short-term derivative transactions. It is possible that certain hedge contracts relating to underlying credit-linked instruments or foreign exchange transacted in the OTC market will obtain less or possibly no regulatory capital relief. Therefore, if banks and other regulated entities are not required to trade previously OTC derivatives, they instead will be rewarded with a lower capital charge on their derivatives exposure if they clear the relevant transaction through an approved clearing house.

However, as was noted above regulation by “price”, the capital charge, and by “quantity”, the legal requirement to trade on exchanges, are not perfectly equivalent. In this case, where the costs of OTC complexity are high and the benefits relatively low, quantitative regulation is superior (Haldane, 2010).

1.4.1 Naked Short Selling

Naked short selling refers to short-selling a financial instrument without first owning or borrowing the security or confirming that the security can be borrowed. In the CDS market the term is used to refer to the situation where the buyer of protection does not own the underlying credit risk. Greece’s recent sovereign debt problems have brought the long-standing short-selling debate into the credit default swap arena. As Greek sovereign credit spreads dramatically fluctuated with news of on-off bail-out plans, a number of senior European politicians have stated that the wider spreads were caused by CDS, and that this was increasing the cost for Greece to borrow and hence trading of CDS should be restricted. A similar debate has occurred regarding the sovereign debt financing needs of other European countries. The harmful activity is thought to be “naked short selling” – shorting credit risk in the CDS market with no long-positions to hedge. It has been suggested that laying off credit risk using CDS should only be authorised if the hedging entity “owns the underlying”

¹ See Alexander et al. (2009).

asset. On 19th May 2010 the German government banned unilaterally the "naked" short-selling of Eurozone government bonds; their credit default swaps (CDS) and the shares of the country's 10 biggest financial institutions.

There are many areas of misunderstanding in relation to the CDS market. One of these is how credit risk management actually works. The whole point of using CDS to manage bank risk is that credit risk comes in many shapes and sizes and most of it cannot be sold or directly hedged. The introduction of CDS for hedging was transformative because it created a standardised unit of credit risk that could be sold (shorted) to offset a bank's numerous non-standard credits. By definition the CDS is rarely hedging "the underlying".

It now transpires that CDS risk transfer was less than 5% of Greek debt and that the spread widening started in the bond market, not the CDS market. The attraction of the CDS is that it is a proxy hedge offering payouts close to any loss that might follow a corporate bankruptcy. A requirement to only exactly hedge underlying credit instruments (i.e. a ban on naked short selling) would put a stop to most bank hedging activity, which might have the perverse effect of limiting banks' ability to hedge risk, especially in volatile capital markets.

This debate highlights the widespread misconception concerning the relationship between price in the CDS market, the probability of default, and the impact of CDS activity on bond prices. Commentators are correct in stating that CDS contracts provide a form of insurance against default, but too often state that if the price goes up the market must believe that default probability has also increased. In doing this, they fail to appreciate the activities of bank credit portfolio managers and bond portfolio managers.

Banks monitor and manage credit limits as part of their standard risk management activities. A German bank might impose a country limit on its exposure to the UK economy. That exposure would be made up of a wide range of exposures to UK banks and corporates. From time to time, the sum of the parts might exceed the country limit so the bank would need to take mitigating steps. One of these could be reducing its exposure to the UK government. Buying protection on a sovereign borrower in the CDS market is considered acceptable risk mitigation. Over the last two years the need to adhere to limits has become so important that users have paid prices that appear to make no economic sense.

Another important use of the CDS is in the management of asset price volatility by fund managers subject to mark-to-market accounting. The last two years has seen increased volatility and correlation in most asset classes: witness the global market reaction to problems in Dubai in late 2009. To reduce excessive swings in portfolio valuations, the manager of a corporate bond portfolio might choose to short an appropriate sovereign or index of sovereigns. Any bond losses due to spread widening would be partially offset by gains from the CDS.

Both these activities involve shorting credit risk in the CDS market but in neither case are the users taking or expressing a view on default probability. They are

forced to pay the market rate and since the universe of CDS investors has been reduced by the financial crisis, from time to time supply and demand imbalances will raise the price. This is unlikely to have any impact on bond prices as investors in these markets are generally looking for a home for their cash. Further, the net risk transfer numbers (not the gross numbers that are almost always quoted) in the CDS market are normally a fraction of a borrower's bond issuance. The important point here is that benign activities by bank credit portfolio managers can affect CDS spreads and send misleading signals to the market.

1.5 Basel 2 and Beyond?

In December 2009, the Basel Committee proposed substantial revisions to the Basel 2 capital regime¹. The new standards have been called 'Basel 3' and are less reliant than the earlier Basel 2 standards on the banks' internal risk models². The main objective of Basel 2 was to make regulatory capital more market sensitive and to approximate the economic capital that banks were already holding. Before the crisis, Basel 2 had been extensively criticised for underpricing financial risk and thereby failing to take into account the social costs that bank risk-taking creates for the broader economy³.

With Basel 3 there is an attempt to address these weaknesses by requiring that the instruments of regulatory capital absorb more losses and that Tier 1 capital contains a higher proportion of common equity, in contrast to the average minimum of two percent of risk-weighted assets under Basel 2. Basel 3 will also require banks to hold less 'hybrid instruments' (part debt, part equity) because these instruments did not absorb losses adequately in the crisis. Instead, the Basel Committee is expected to permit banks to hold 'contingent bonds' as subordinated debt that transform automatically into equity if the issuing bank has financial difficulties or if the broader financial system experiences stress⁴. Basel 3 will also incorporate leverage ratios which are determined by the size of the bank's balance sheet, but are not risk-based. Unlike regulatory capital which

¹See Basel Committee on Banking Supervision 'Consultative proposals to strengthen the resilience of the banking sector' (BIS: Basel) (17 Dec. 2009); and 'International framework for liquidity risk measurement, standards and monitoring - consultative document' (BIS: Basel) (Dec. 2009).

² Although the proposed amendments to Basel II as set forth in the Committee's June 2009 proposals and the December 2009 consultation proposals would substantially amend Basel II if adopted, they are technically considered to be amendments and not a new Basel Accord. Draft proposals for 'Basel 3' are now under negotiation. The tentative plan is for 2010 to be a year of discussion and refinement with final proposals due by the end of the year. Phase-in and grandfathering is planned for late 2012. Whilst this may seem far away, it is likely that some of the changes will be adopted sooner. This can be achieved either by national regulators invoking changes bank-by-bank under Pillar 2 of Basel II; or, by banks voluntarily accelerating the timetable.

³ See Alexander et.al. (2006, 40-41), and Ward (2002).

⁴ Flannery (2009) argues that regulators should require 'contingent capital certificates' that convert from debt to equity automatically when the issuing banks equity falls too low. But some argue that such convertible instruments will be a very expensive way for banks to raise capital.

is a charge on risk-taking, leverage ratios are quantitative limits. Also under consideration is some form of counter-cyclical capital charge requiring banks to hold more capital during the good years and less during the lean years. This is intended to offset the current tendency for capital rules to encourage higher leverage during good times and insufficient leverage during bad times.

1.5.1 Counter-cyclical regulatory capital and liquidity requirements

A major weakness of Basel 2 and the corresponding Capital Requirements Directive (CRD) was that it was pro-cyclical. Regulatory capital calculations were mainly based on the riskiness of bank assets: in an upturn, bank assets would appear healthy and attract a lower capital charge, while in a downturn, assets would appear riskier and attract a higher charge. Regulators generally agree that this would exacerbate bank asset price movements and contribute to volatility in the market. Instead, regulatory rules should impose counter-cyclical capital requirements, such as higher capital charges during a market upturn and lower charges during a market downturn. The experience of using counter-cyclical capital rules - or dynamic provisioning - has been positive: Spain had dynamic provisioning rules that led to their banks having more capital available to absorb losses during the crisis than most other European banks.

Basel 3 may also go a few steps further than counter-cyclical capital by limiting capital distributions such as dividends, buy-backs and bonuses. It has also been suggested that broader macro-prudential measures such as leverage caps should be used to limit excess credit growth. This could mean that many different types of hybrid instrument issues will be culled over the next few years and replaced with common equity. In bank-led finance systems that have allowed regulatory capital to consist mainly of hybrid instruments, conversion to ordinary equity under Basel 3, will the cost of capital, thereby limiting credit growth as the main driver of improving employment and GDP growth (See Chart 2).

As far as bank liquidity and funding are concerned, it is likely that a new funding ratio will be proposed along with a measure of short-term liquidity buffers. The goal here is to strengthen the short-term resilience of the banking sector as well as reducing funding imbalances. During the last decade in Europe, loans exceeded deposits by about €3 trillion¹. In the UK, the gap was approximately £700 billion by the end of 2007 with 50% of the shortfall coming from overseas². Any new ratio would go beyond the loan-to-deposit ratio by weighing stability of funding versus liquidity of assets.

1.5.2 Leverage

Perhaps the most significant change relates to leverage. Macro-prudential supervision will necessarily involve regulators in managing and overseeing systemic risk across the financial system. One way to do this is to monitor the aggregate levels of leverage and impose additional controls on banks depending

¹ See European Central Bank (2010).

² See also, Bank of England, *Financial Stability Report 2009* (HMSO: London).

on whether *aggregate* levels are breached. The idea of a gross leverage limit (tangible equity to tangible assets) has been recently proposed in Europe, while having been in place for commercial banks in the US for many years (Chart 1).

Basel 1 allowed capital to be calculated on the risk-weighted notional of assets where, for example, OECD sovereign risk had a weighting of zero thus attracting no capital. Hence, by having large holdings of sovereign bonds, a bank could boast a very strong regulatory capital ratio but very high leverage. Basel 2 refined the risk weightings by linking them to credit ratings and allowing economic capital models which produced risk adjusted capital numbers: the lower the risk, the lower the capital. But while the calculation of bank capital became more complex, the US retained the crude leverage limit that had been in place for so long. US deposit-taking banks have had many problems over the last few years but excessive leverage was not one of them. This problem was however acute for the US securities firms where much higher leverage was permitted by the Securities and Exchange Commission, whilst also being tolerated for European banks who adhered to Basel 2 but in order to optimise capital usage, were allowed to take on higher levels of leverage.

As national regulators move towards a common response, one of the many challenges they face is the dramatically different bank leverage ratios in the US and Europe. As Chart 1 illustrates, amongst the largest banks, leverage in Europe is more than double that in the US. Should the US leverage limit of 4% (25 to 1 asset to equity ratio) be adopted the impact on bank capital in Europe will be far greater than in the US. Chart 2 shows the IMF estimates of capital needed to meet differing limits of Tier 1 capital to risk-weighted assets and, on the right of the chart, to meet 4% limit of Tangible Common Equity to Tangible Assets. To achieve this leverage target the IMF estimates that European banks would need to raise an additional €300 billion of new capital. This would have an enormous effect on the existing ability of European banks, especially those in bank-led financial markets, to generate long-term economic growth.

(millions)	Quarter	Ccy	Total assets	Tier 1 ratio (%)	TE/TA (%)
US banks					
Bank of New York	4Q09	USD	212,224	12.0	3.8
Morgan Stanley	4Q09	USD	773,420	15.4	5.1
JPMorgan	4Q09	USD	2,031,989	11.1	5.7
US Bancorp	4Q09	USD	281,176	9.6	5.9
Citigroup	3Q09	USD	1,856,164	11.7	6.0
Bank of America	3Q09	USD	2,223,299	10.4	7.6
Wells Fargo	3Q09	USD	1,243,646	9.3	7.7
Goldman Sachs	4Q09	USD	849,000	15.0	7.8
PNC	3Q09	USD	269,863	11.5	8.1
SunTrust	4Q09	USD	174,165	12.9	9.6
Average			991,495	11.9	6.7
European banks					
Deutsche bank	3Q09	EUR	1,659,557	11.7	1.4
UBS	3Q09	CHF	1,476,053	15.0	1.7
Credit Agricole	1H09	EUR	1,605,364	9.7 ¹	1.8
Barclays	1H09	GBP	1,545,338	10.5	1.9
Royal Bank of Scotland	3Q09	GBP	1,644,445	8.0	2.1
BNP Paribas	1H09	EUR	2,289,322	10.1 ¹	2.1
ING Bank	3Q09	EUR	1,187,915	9.7	2.2
Credit Suisse	3Q09	CHF	1,064,208	16.4	2.3
Lloyds Banking Group	1H09	GBP	1,063,129	8.6	2.9
Santander	3Q09	EUR	1,082,370	9.0	3.9
Société Générale	1H09	EUR	1,050,859	10.4 ¹	4.0
HSBC	1H09	USD	2,421,843	10.1	4.2
Average				11.0	2.5

Chart 1: U.S. and European Bank Leverage Ratios
¹at 3Q09. Source: Company reports, SNL, CreditSight

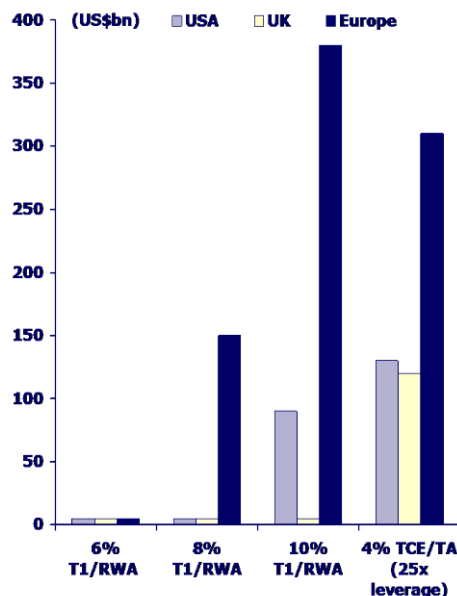


Chart 2: IMF Estimate of Bank Capital Needs. Source: IMF staff estimates

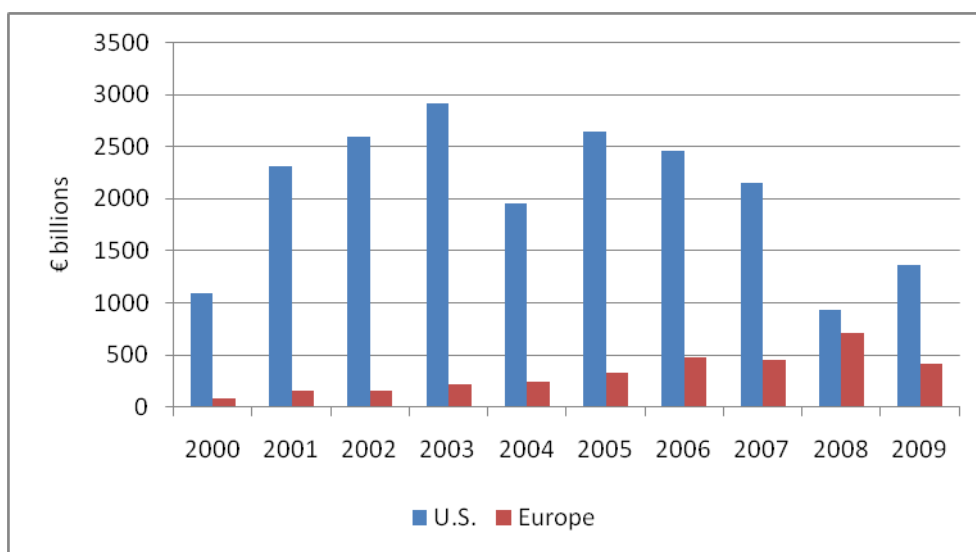
1.5.3 Will the Securitisation Market Revive?

Securitisation has been used by banks and corporate since the 1970s when securities backed by pools of US residential mortgages were created and sold to investors. Since then the assets that have been securitised have grown to include most forms of debt with particular focus on residential and commercial mortgages, consumer credit and corporate loans. Up to the end of the 1990s the rationale for securitisation was balance sheet and risk management for the originator. The last decade saw the rationale switch to the composition of investor demand and this contributed to the huge growth and ultimate collapse of the securitisation market. By 2007, in order to provide compelling returns to yield hungry investors, the arrangers resorted to ever increasing levels of complexity and leverage. The market ground to a halt in a matter of months resulting in two significant problems. First, hundreds of billions of dollars of existing securitisations had to be valued, written down and maybe sold in an environment where there were virtually no buyers. Second, the assets that would normally be securitised now have to be held on bank balance sheets that are facing calls for less leverage and more capital. A restart of the securitisation market is considered key to fixing both of these problems.

A glance at Chart 3 would suggest that the securitisation market has suffered but is now recovering. However, this data is very misleading: most of the issuance in 2008 and 2009 was bought, underwritten or funded by central banks. For

example, in Europe there was €417 billion of issuance in 2009 but only €8 billion (2.1% of total) was sold to end investors. The bulk of issuance was kept by the issuer and posted to the central bank under a repurchase contract. In 2008 only 1.2% of the €825 billion of issuance was sold to end investors. In the US most new securitisations were either bought by Fannie Mae and Freddie Mac or by the Term Asset Liquidity Facility (TALF).

Chart 3: European and U.S. Securitisation Issuance. Source: SIFMA



The extent of the problem is well illustrated by the ratings migration in the synthetic CDO market. Chart 4 illustrates that sub-investment grade tranches grew from being a few percentages of total tranches in late 2007 to over 80% of outstanding by late 2009. Not only does this suggest significant mark-to-market losses for holders of the paper but in many cases it suggests extensive forced selling. Most investors would not have the authority to hold 'BB' or lower rated investments. To make matters worse the main group of investors in CDOs – the banks – are facing higher capital charges for securitized products and calls for less leverage. To date, sellers of CDOs are still plentiful and there is little sign of a slow-down in selling. A reversal that results in significant net buying is unlikely in the medium term.

Given the apparent damage caused by securitisation and the resulting loud political and popular call for it to be severely restricted or even banned, commentators are asking whether we actually need securitisation. Unfortunately, the rationale for such calls is a belief that securitisation only exists to enrich the banks at the expense of investors. There is little appreciation for the benefits brought by securitisation that enables banks and other firms to



manage their balance sheets more efficiently and to generate more liquidity to expand investment and output.

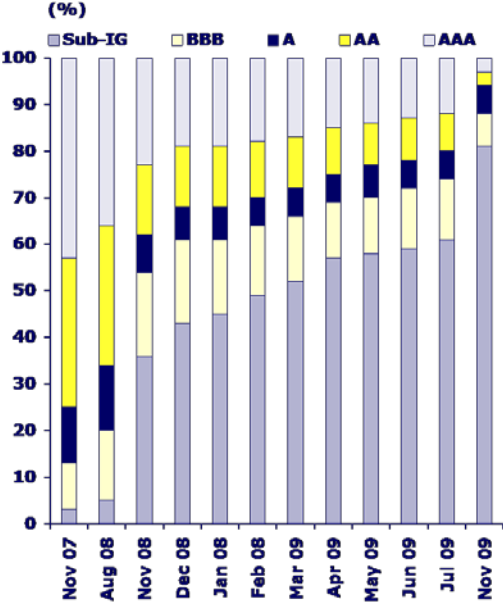


Chart 4: Distribution of Ratings for CDO

Source: S&P, Morgan Stanley Research

1.5.4 Regulatory Changes

Due to the role of structured credit products in causing the credit crisis, regulators have responded with a range of possible regulatory changes. Their main objective is to address at least two problem areas: first, since banks had no residual economic interest in the products that they were selling (referred to as “skin in the game”) there was no incentive to ensure their long-term robustness; second, since bank capital charges for holding CDOs were relatively small, banks accumulated vast holdings of CDO tranches which proved to be very illiquid and susceptible to material downward price adjustment.

The introduction of a risk retention rule would ensure that the “securitizer” retains an economic interest in a material portion of any asset used to back an issuance of securities. The actual definitions vary between Europe and the US. In Europe the issue is addressed in the new Capital Requirements Directive and applies to originators, sponsors and original lenders. An economic interest of not less than 5% will need to be retained for new deals issued from 2011 onwards and for all deals from 2015 onwards. In contrast, the main proposals in the US Congress would define ‘securitizer’ differently and would either adopt a 5% or 10% for the risk retention rule.

At this stage it is not clear how the retention rule will affect the various parties involved in a CDO. In a traditional “balance sheet” CDO where the arranger is a bank managing its own loan book not much will change since such an arranger

would normally retain some of the risk. The motivation for a balance sheet CDO is management of leverage, funding and capital – the profitability of the transaction itself is not the primary concern. But in an “arbitrage” CDO where an arranger sources the collateral in the secondary market and is only motivated by profit, the requirement to retain some of the risk could significantly reduce the arranger’s appetite for such transactions.

Regarding risk weights, the changes currently being considered will see most securitisations attracting higher capital charges and so-called resecuritisations incurring additional risk weights to account for higher risk, mainly due to concentration. This change was prompted by the numerous problems seen in the securitisation market and particularly in the market for CDOs of Asset Backed Securities. The proposals currently under consideration raise two issues: first, the definitions are vague and hence the true impact is not known; second, regardless of definitional uncertainty, the impact on old and new securitisations will be material and not necessarily beneficial.

One of the definitional uncertainties relates to resecuritisations: some have interpreted it to apply to subordinated corporate debt instruments. This could include leveraged loans and, if so, would result in dramatically increased capital charges for securitisations of such assets.

One of the material changes relates to trading books – the section of a bank’s balance sheet that holds relatively liquid assets and is subject to mark-to-market accounting. Securitised products held in the trading book used to attract lower capital charges due to the fact that any reduction in value would be identified on a daily basis via the profit and loss statement. This distinction is set to disappear and hence many holders of securitised products in a trading book may be inclined to reclassify them as banking book items in order to avoid price volatility. This will reduce liquidity in an already illiquid sector as intermediaries will be less inclined to hold inventory of securitised products.

The other material change that merits discussion relates to counterparty risk. It has been recognised that the relationship between a credit-risky derivative and a credit-risky counterparty is complex and merits special treatment. One such area of focus is referred to as “wrong way risk”: where the deterioration of the risk being hedged is accompanied by a deterioration of the counterparty’s credit quality. In the future such a transaction would attract an additional capital charge. It has also been suggested that there should be a multiplier for large bank counterparties and for counterparties that are not regulated. Finally, there are plans to introduce capital incentives to encourage the market to use Central Credit Counterparties (“CCP”s).

A troubling feature of the regulatory developments in this area is the apparent failure to appreciate the difference between “good” and “bad” securitisations. Few would disagree that a product created solely to meet the return and rating goals of a specific investor is of little value if the goals can only be achieved through excessive complexity, leverage and abuse of shortcomings in rating agency models. Significant issuance of products of this kind became a source of

systemic risk and are rightly characterised as “bad”. But where the product provides the arranger with effective methods for managing bank leverage, risk, capital and funding then, so long as any additional risks are well understood and can be controlled, most would agree that such securitisations could be “good” for the market. Unfortunately, much of the basic workings of these products are similar and hence rules created to limit bad securitisations may well restrict good ones too.

1.6 The impact of regulation on credit markets

The combination of a less levered banking sector and a diminished shadow banking sector raises the question of whether the medium term credit needs of the US and Europe can be met. Given the economic down-turn it is no surprise that private sector credit growth has slowed. Chart 5 shows the slowing growth in the US and Europe and the credit contraction seen in the UK during the first half of 2009. IMF estimates of credit growth over the next five years shows a significant reduction compared to the previous decade. However, public debt is growing and it may be that total funding needs are not met by supply. A popular economic view is that credit rationing is a cause not a symptom of economic slowdown; if this is correct, then a shortage of credit presents a problem.

It is difficult to predict how the credit needs of Europe and the US will evolve but a good place to start is to look at the refinancing of existing debt instruments. Clearly this can overstate the problem to the extent that borrowers are deleveraging. But it can also understate the problem by not addressing the migration away from banks and shadow banks to the bond market which, for reasons stated above, could become a bigger source of finance for the European economy.

The market for emerging market debt exhibits a less troubling refinancing profile (Chart 6) with the peak in 2008 and 2009 not producing any noticeable market stress. With debt service of bond and loans in 2010 and 2011 estimated at \$400 billion it is possible that this material demand for funds could divert cash from the US and European credit markets. However, the number of institutions that would divert money on an *ad hoc* basis from, for example, a US high yield risk exposure to add an emerging market exposure, is few. Such behaviour is probably the domain of risk-seeking investors. The challenge to other markets will come if, at the institutional level, asset allocations are materially adjusted to reflect the growing importance of emerging markets relative to most other markets.

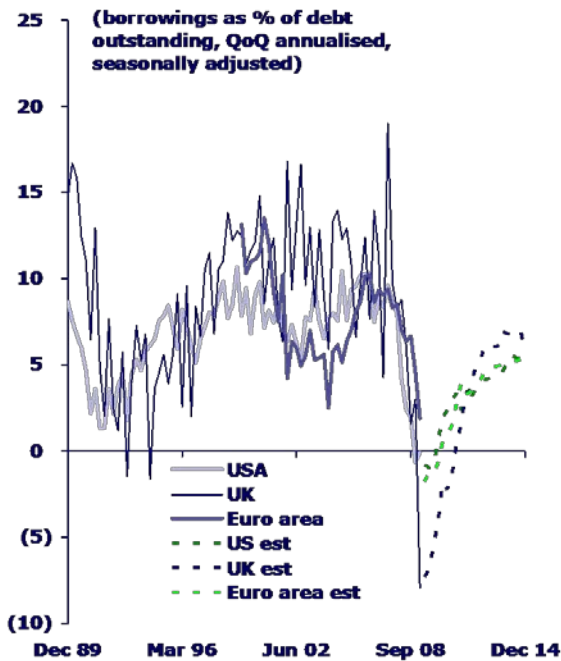


Chart 5: Private Sector Credit Growth. Source: IMF Staff Estimates

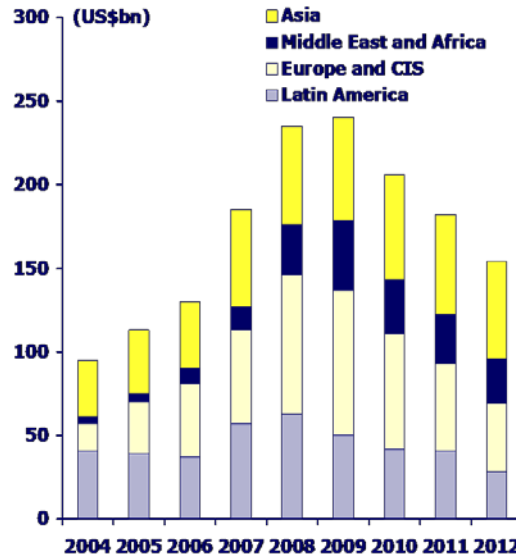


Chart 6: Refinancing needs of emerging market forex-denominated corporate debt, Source: Bloomberg L.P.; IMF

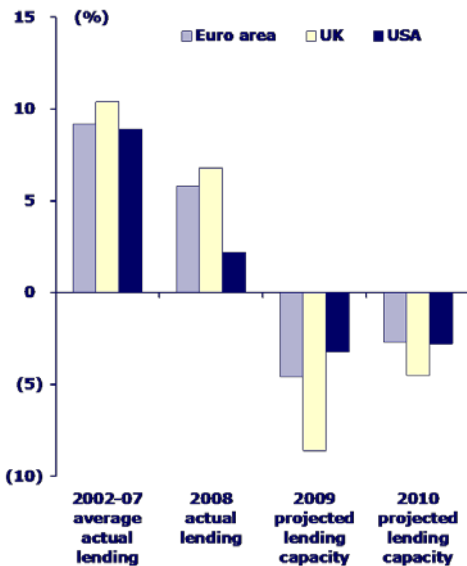


Chart 7: Bank lending capacity growth Source: IMF

It appears that increased regulatory requirements along with a fragile economic recovery combined with the prospect of increased competition from Asian banks will limit the capacity of European banks to raise capital and thereby also limit their ability to make loans to European businesses and consumers. This is not helped by IMF estimates of a reduction of bank lending capacity during 2010 (Chart 7). But this has to be put in the context of the ability of market sentiment



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2. EU Crisis Management, Burden Sharing and International Initiatives

2.1 European Financial Market Supervision

The European Commission's proposal to establish a European System of Financial Supervisors (ESFS) and a European Systemic Risk Board (ESRB) are premised on the importance of linking micro-prudential supervision and regulation to the macro-prudential oversight of the financial system¹. Indeed, the linkage is essential for building an efficient EU supervisory regime that allows member states to exercise more effective supervisory oversight over individual firms and investors, while monitoring and measuring systemic risk in the broader European financial system and across global financial markets. Although adopted in the wake of the crisis, these proposals are an extension of the Commission's earlier policy under the Financial Services Action Plan and the Lamfalussy framework of promoting EU financial integration through convergence of supervisory practices and harmonised implementation of EU financial legislation. The FSAP and Lamfalussy process, however, were not able to overcome different sets of standards, responsibilities and powers of member state supervisors that hampered the integration process and resulted in disjointed supervisory practices and a failure to identify and monitor risks building up in the financial system (IMF 2007).

The proposed ESFS and ESRB embody recognition of the importance of linking the supervisory practices of member state authorities in a more durable manner so that they can oversee more effectively the growing number of cross-border financial activities and the changing nature of systemic risk in the European financial system. Moreover, the ESFS and the three European Supervisory Authorities will ensure that member state regulatory and supervisory authorities can work more effectively together to control and manage systemic risk and develop a harmonised regulatory code and implementation across all EU states.

2.2 A Reformed European Resolution Regime

Europe now has over fifty financial groups consisting of multiple subsidiaries and branches established in different EU states. During the financial crisis, several of these financial groups collapsed and were taken into receivership, administration, or were bailed out by the group's home authority². When the financial crisis began in August 2007, the impending failure of these financial institutions led to a chaotic scramble by member state supervisory authorities to freeze and seize assets over which they had jurisdiction so that they could be marshalled for later distribution to creditors and depositors if recapitalisation or state bailout was not practicable. As it turned out, most EU states did not have special bank resolution regimes and could only restructure failing banks by taking them into insolvency under domestic law or state ownership. This situation dramatically highlighted the need for an effective EU legal framework to govern the resolution of failing

¹Kern Alexander (2010) 'Which supervisory model for Europe' Report to the Committee on the Financial Crisis.

²The most dramatic of the group collapses were those of Royal Bank of Scotland, Fortis and Dexia.

and failed banks, especially for those banks that operate on a cross-border basis in Europe and are managed in group structures.

At present, EU law simply applies the law of the state where the financial institution is incorporated or has its headquarters to the resolution and insolvency of the bank's cross-border operations. EU states, however, have different domestic insolvency laws and procedures for organising a regulator's or administrator's intervention into the affairs of a seriously weak or failing bank. In the recent crisis, these different national approaches in resolving and restructuring the cross-border operations of financial institutions led to the segregation of assets of failed institutions in some EU states which were then not available to pay legitimate claims of depositors and other creditors in other EU states. The uncoordinated and disjointed efforts by EU national authorities highlighted the need for a more effective cross-border EU legal framework to govern the resolution of failing and failed banks.

The European Commission (2009d) has published a Communication entitled 'An EU Framework for Cross-Border Crisis Management in the Banking Sector' which analyses many of these issues and suggests reforms in certain areas which may require more substantive harmonisation of bank resolution requirements. Although these are important proposals, it should be borne in mind that the adoption of a more harmonised EU bank resolution regime will not accomplish the objective of limiting systemic risk unless it is accompanied by stronger powers for national supervisory authorities to exercise prompt corrective action against weak and failing banks and non-bank financial institutions. Lehman Brothers was an example of a complex, interconnected financial institution that however did not carry on the traditional banking business of taking deposits, but nevertheless was a systemic actor whose failure in September 2008 nearly caused a meltdown of the global financial system. An effective EU resolution regime must provide strong powers to national authorities to intervene in the decision-making of management if the supervisor determines that the bank or its management have failed to adhere to prudential standards. Judicial review of supervisory action in the area of prompt corrective action and prudential regulation should be narrow and provide supervisors wide discretion to intervene in weak and failing banks and to restructure them if necessary. For instance, the supervisor should have the authority to require the bank to recapitalise itself, if necessary over shareholder and management objections. EU company law, however, provides strong rights in the Second Company Law Directive for shareholders of limited liability companies to approve any change in the financial structure of a company. An effective EU resolution regime should require that the Second Company Law Directive be amended to provide stronger powers for supervisors to require weak and failing banks to change their capital structure to satisfy prudential regulatory requirements.

Any proposed EU reforms on bank resolution should perhaps consider closely some of the reforms that have been adopted recently by member states. The UK Banking Act 2009 provides a special resolution regime for deposit banks that empowers the Bank of England to intervene in shareholder rights and the rights of creditors of banks experiencing serious difficulties or which are failing and might possibly be taken into administration or liquidation. The Act provides the Bank of England with stabilization powers to transfer property and shares from a failing bank to a state-owned bridge bank or private bank. Although the exercise of these resolution powers can substantially interfere with shareholder rights and other property rights, these powers have the objective of striking a balance between the legitimate rights of bank shareholders, creditors and depositors while preventing a failing bank from causing a systemic crisis and threatening depositor rights. The UK special resolution regime provides a model for how other states can manage the uncertainties of the present financial climate by balancing the rights and interests of bank owners and creditors with those of broader stakeholders and society who can potentially suffer severe economic damages as a result of a mismanaged bank that results in failure and substantial losses to the broader economy. Nevertheless, to implement an effective resolution regime that provides EU states with prompt corrective powers may require amendments to existing EU Company Law (Second Company Law Directive) in order for authorities to take the necessary measures that require shareholders to recapitalise the bank and to move away from socially risky business models.

2.3 G20 and the Volcker rule

An important component of the international policy response to the global financial crisis has been the strengthening of the macro-prudential orientation of financial supervision. Macro-prudential regulation involves a greater focus on the financial system as a whole and its linkages to the macro-economy (FSA 2009, De Larosiere, 2009, and FSF, 2009). The origins of the term ‘macroprudential’ have taken on great significance in the wake of the financial crisis and have been elaborated in the development of EU financial policy. An important aspect of macro-prudential oversight involves monitoring and assessing systemic risks – that is, the risks created by individual banks and the risks across the financial system¹. International regulatory reform efforts are being spearheaded by the Financial Stability Board (FSB) – the G20 body consisting of supervisors from the leading twenty seven developed and developing countries – which is overseeing a number of initiatives ranging from capital and liquidity requirements, migrating over-the-counter derivatives onto clearing houses, organising colleges of supervisors to oversee international banks, the adoption of ‘living wills’ for systemically-important banks and common principles for resolution regimes.

¹ However, “macro prudential” and “systemic risk” are not well-established terms in EU financial market legislation and regulation. Systemic risk however is referred to in EU financial legislation. See Directive 98/26/EC Settlement Finality Directive; and proposed Alternative Investment Fund Management Directive, art 25. However, it is not comprehensively defined.

In early 2010, the FSB endorsed President Obama's proposal to prohibit deposit taking banks from proprietary trading in capital markets (i.e., trading for their own account) and from investing in hedge funds and private equity. The Obama proposal – the so-called Volcker rule – does not seek a complete separation between commercial and investment banking. Rather, investment banks would still be permitted to engage in securities brokerage, asset management and corporate finance so long as these activities are undertaken on behalf of their client customers and not for the bank's own account. Banks that rely on deposit insurance for retail deposits would simply be prohibited from using those funds in the bank's own investment activity, and specifically could not invest in hedge funds and private equity. An effect of the proposal would be to limit further growth of banks' non-retail deposit liabilities because they would not be able to invest the money (as many did prior to the crisis) in speculative structured investment funds. The Volcker Rule is an example of quantitative regulation as distinct from price regulation. In a broader sense, the traditional regulatory approach seeks to make markets work better (by internalising externalities), whereas the quantitative or legal approach seeks to change the structure of markets.

The proposal has been strongly criticised on several grounds. For example, the proposal does not provide any meaningful details about how regulators would distinguish between a bank's investment services on behalf of its clients and its proprietary trading activities for its own account. It has also been criticised for focussing on deposit taking banks, and failing to address the systemic risks that arise from non-deposit taking financial institutions like Lehman brothers and Bear Stearns, whose interconnected exposures in the wholesale funding market and miscalculated risks on credit default swaps nearly toppled the global financial system in 2008.

It should be emphasised that this proposal is intended to supplement other regulatory reforms the US has adopted such as a 10% cap on national market share for retail deposits and should not be considered a panacea. Once the details are worked out, there is no reason why the proposal should not prove to be effective and workable. Its effectiveness, however, will depend on how well regulators adopt a more holistic approach to controlling the systemic risk that arises in wholesale capital markets and the particular risks posed by complex financial instruments and interconnected institutions and trading systems. EU policymakers should consider the Obama proposal to be a quantitative supplement to a broader regulatory framework that should have what Mervyn King has described as a three-legged stool: 1) more stringent capital and liquidity requirements, 2) resolution regime with living wills that allows unviable banks to fail, and 3) a restructured banking system whose fault lines rely less on wholesale funding liabilities, and that involves banks conducting more of their

cross-border business through subsidiaries as opposed to branches so that regulatory capital can more easily be segregated in the jurisdictions where banks are taking the most risks.

2.4 Sovereign Debt Crises

The problems arising from the Greek sovereign debt crisis raise important issues regarding how the EU and the Eurozone institutions should assist member states which are experiencing liquidity and/or insolvency problems. The EU Growth and Stability Pact presently requires member states not to run annual budget deficits in excess of 3% of gross domestic product and not to have national debt in excess of 60% of GDP. The lack of enforcement of these rules and their uniform application across all member states regardless of where they are in the business cycle has undermined the Pact's effectiveness. Indeed, the Pact has resulted in neither growth nor stability. Essentially, the EU lacks a fiscal policy dimension to assist states experiencing financial difficulties in crisis situations. Indeed, Article 125 of the Lisbon Treaty prohibits EU institutions from bailing out EU states experiencing fiscal problems.

EU states sharing the euro must therefore devise a more effective and flexible fiscal policy mechanism to monitor and ensure that states are controlling their debt and to provide an adequate liquidity mechanism for them to access funds during a liquidity crisis that would involve refinancing its debt over a protracted period.

The shape of necessary reforms has been defined by the Greek episode. The mismanagement of the Greek economy, exacerbated by the collapse of world trade and hence the collapse of shipping revenues, led to cumulative severe pressures on the bond sales necessary to fund the Greek government deficit. Since Greek government bonds are denominated in euros, investors faced no currency risk. However, they did face increasing fears of default.

The reaction in European capitals was to initiate a protracted, indecisive debate on raising the funds for a Greek "bail-out". As vague pronouncements were piled on indecision, the fear of default increased, so that when the €120 billion bail-out was at last agreed, it proved inadequate as a defence against the rising tide of default pessimism.

The confused handling of the Greek crisis stands in stark contrast to the rapid and effective measures taken by the United States Government in the Mexican crisis of December 1994, which was very similar. In the latter case, investors in Mexican government tesobonos faced a complex mixture of currency risk and default risk. Yet the \$50 billion package assembled by the Clinton Administration in a few days, predominantly in the form of guarantees, stemmed the run and rapidly restored confidence. As Alan Greenspan recounts in his autobiography:

"Mexico ended up using only a fraction of the credit. The minute confidence was restored, it paid the money back-the United States actually profited \$500 million on the deal".

If a credible Eurozone institution had guaranteed Greek bonds at the outset, the immediate crisis would be over, at negligible cost. Finally, EU finance ministers held an emergency meeting on 9 May 2010 where they agreed to adopt an extraordinary rescue package guaranteeing all of Greece's sovereign bonds and the bonds of other Eurozone members by establishing an off balance sheet entity which would issue bonds worth up to 660 billion euros (including an IMF 250 billion facility) to banks and other investors which would be fully guaranteed by Eurozone states. The emergency rescue package essentially bailed out the banks and other creditors who had purchased Greek sovereign debt and it imposed the burden of adjustment almost entirely on the taxpayers of Greece and indirectly on the taxpayers of all Eurozone states. The Greek rescue package will have the effect of increasing moral hazard for the creditors of EU sovereign states by incentivising them to make more and riskier loans to Eurozone states with the cost of any adjustment borne by the debtor state and indirectly by European taxpayers.

The confusion and delay in putting together the guarantee fed the flames of volatility and it is now not clear that even this sum will be enough. A more damaging sequence of events would be difficult to imagine, but worse is to come.

Having at last chosen to follow a sensible guarantee strategy, the Eurozone Governments plan to resuscitate the growth and stability pact. The Eurozone has been gripped by deficit hysteria, with all Governments being forced to commit to massive cuts in public expenditure. The path to recovery is to be paved with unemployment and bankruptcy. As the *Financial Times* leader argued on 25th May 2010,

"growth is a precondition for stability, not something to be traded off against it. Putting countries on the rack of debt deflation will not stabilise their economies, only destabilise their politics".

The Greek crisis demonstrates the inadequate crisis management framework in the EU and the need to establish a clear structure of macro-crisis management. As well a clear cut lines of responsibility and decision making, this might include a sovereign liquidity fund to which EU states experiencing short-term funding problems would have access to borrow during times of crisis until they regain access to capital markets. If instead the country is not merely illiquid, but insolvent, more drastic measures should be taken and the EU sovereign liquidity fund would continue to be available, but needs to be supplemented by a mechanism for determining collective guarantees. These should be offered on the basis of strict conditionality, in which the state in question may be required to take undertake significant structural reforms to, for example, the fiscal system, the structure of macro-economic management, or the labour market. Short-term

austerity measures may be a necessary component of a rescue package. But their impact should always be assessed against the needs of medium term recovery.

2.5 The German Paradox

The fundamental dilemma of macro-economic management in the EU, the dilemma that underpins the current sovereign debt crisis is the German paradox: the country with the most efficient and competitive manufacturing industry in the world is one of the slowest growing developed economies in the world.

The key to the paradox of the coexistence of competitive success and low growth may be found in the structure of macro-economic relationships that has been forged over the past thirty years within the European Union in general, and within the Eurozone in particular.

The central analytical insight derives from simple (yet fundamental) national income accounting identity:

$$(M - X) \equiv (G - T) + (I - S)$$

The important truth is that the balance (surplus or deficit) in one sector is not and cannot be independent of what is happening in other sectors of the economy. The key to economic policy is to establish what are the determining relationships between these magnitudes – what are the independent variables, and what outcomes are dependent.

This national income accounting identity can be supplemented by a complementary international identity, the sum of surpluses and deficits around the world must be zero:

$$\Sigma(X_i - M_i) \equiv 0.$$

Chart 8 illustrates the evolution of the German trade balance over the past forty years. It is notable for the growth of the surplus in the 1980s, until cut short by the domestic demands of reunification in the 1990s. Then, once the major domestic strain of ten-year reunification programme had been overcome, the tendency toward surplus reasserted itself after the millennium. The chart associates the two distinct phases of growing surpluses directly with the development of monetary arrangements within the European Union. During the 1980s the Exchange Rate Mechanism (ERM) limited changes in nominal exchange rates between states that joined the Mechanism. The Eurozone was established in 1999. It is this latter period which is of greatest interest, since the definitive structure of monetary relationships was finally established. It is the impact of the introduction of the euro, and the structure of monetary and fiscal policy that is peculiar to the Eurozone, that, it will be suggested, embodies the clear demonstration of the German paradox. Nonetheless, those structures are the outcome of a process that stretches back over three decades.

Chart 8

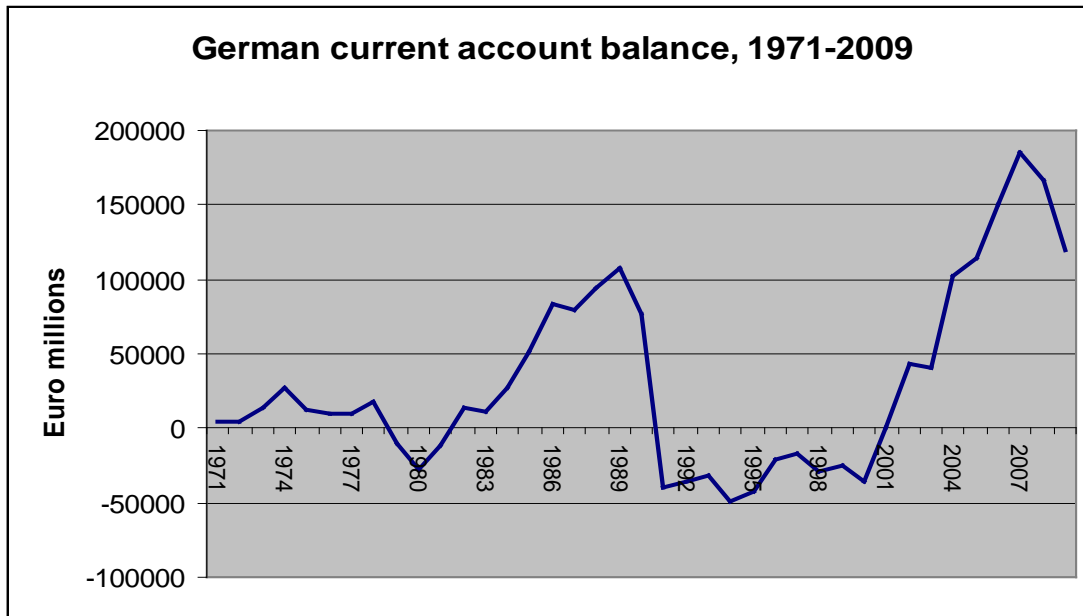
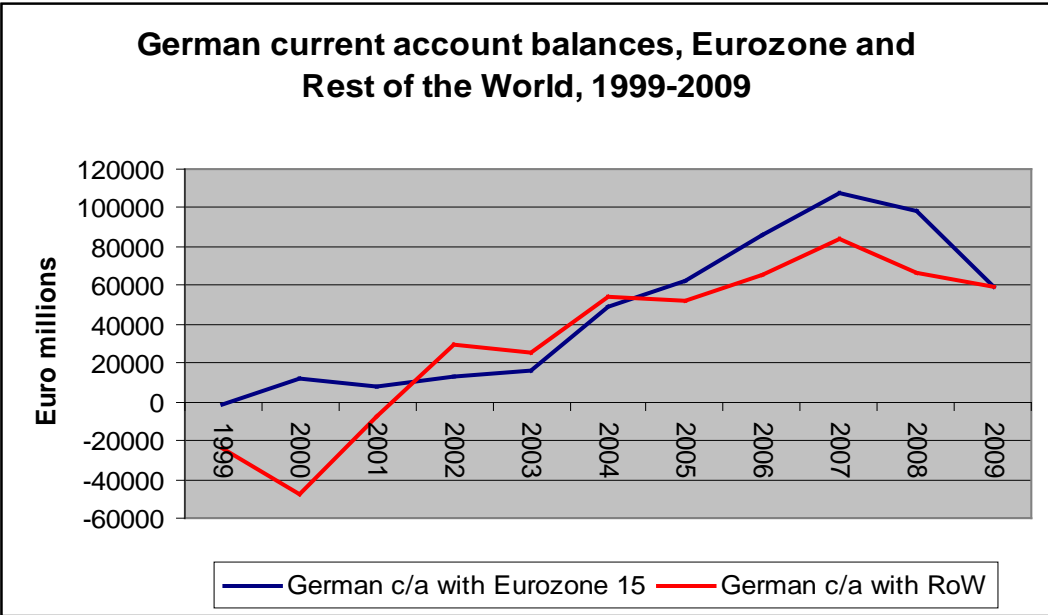


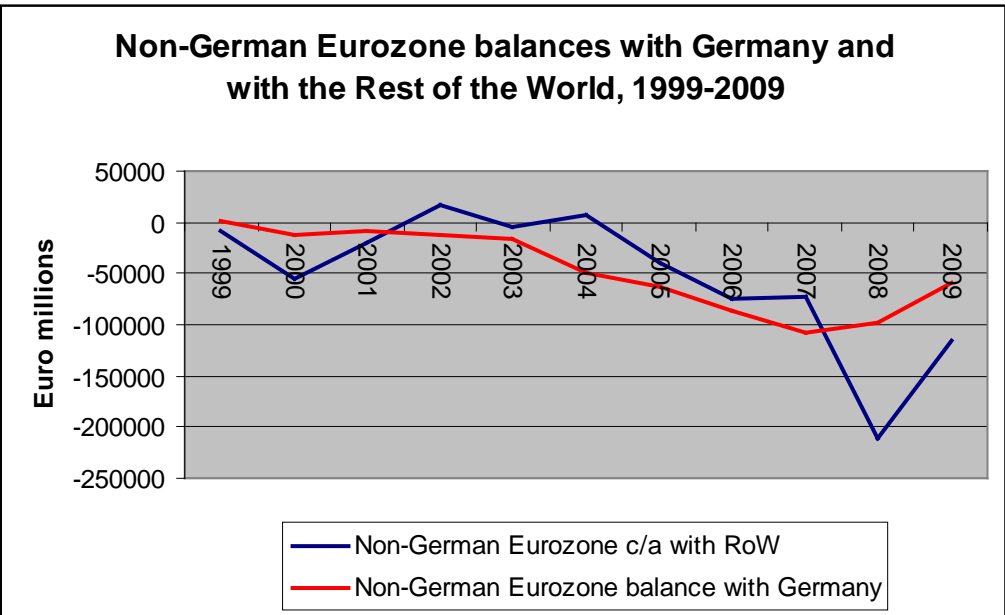
Chart 9 displays the evolution of the German current account balance with the other fifteen members of the Eurozone, and the current account balance with the non-Eurozone “Rest of the World” from 1999 to 2009. Two factors are notable. First, German competitive success, as represented by trading surplus, is evident both in the markets of the Eurozone and the markets of the Rest of the World. Second, that the surplus Germany earns from its trade with the Eurozone has typically been greater than the surplus earned from the Rest of the World (which includes the non-Eurozone members of the European Union).

Chart 9



Extra-ordinarily, this position is replicated in the non-German Eurozone, as may be seen in Chart Three. The current account balance of the non-German Eurozone with the Rest of the World was in balance at the beginning of the decade before sliding into deficit in the final years of the boom, and then deteriorating sharply in the international downturn associated with the financial crisis. But the deficit with Germany has risen steadily throughout the decade, and for many years exceeded the deficit with the Rest of the World (including, once again, the non-Eurozone members of the EU).

Chart 10



It is clear that not only does the non-German Eurozone have a growing and persistent deficit, but that deficit is dominated by the deficit with Germany, and that deficit counterpart of more than half of the German current account surplus.

There is another, rather more disturbing counterpart relationship that emerges from the accounting identities outlined above. The counterpart of the non-German Eurozone current account deficit ($M - X$) must be a deficit in either private sector ($I - S$) or the public sector ($G - T$) of the non-German economies. These growing deficits (painfully evident in public sector accounts in the recent crisis) and the associated growing indebtedness severely restricts the medium-term growth rate of the Eurozone, *including, given the predominance of Eurozone trade in German trade, the growth rate of Germany.*

The competitive success of German industry results in growing deficits in the rest of the Eurozone with consequent slow growth throughout the zone. The success of German industry, relative to its Eurozone partners, is, given current international relationships, a contributory cause of German slow growth!

In the presence of international imbalances there are a number of adjustment mechanisms that might alleviate the pressure toward stagnation exerted by the German surplus.

First, less competitive countries might seek to reduce the prices of their goods relative to German prices. It is not clear how effective this would be in circumstances in which the dominant country produces qualitatively superior industrial goods, but a large reduction in relative prices should at least mitigate the situation. However, within the Eurozone, with no possibility of a change in exchange rates, this change can only be brought about by a large and persistent fall in wages and prices relative to German wages and prices. Given that German inflation is very low, this would require absolute falls in wages and prices in the non-German Eurozone. Such falls are only likely to be brought about by a long period of stagnation and very high unemployment.

Second, there might be funding transfers from Germany to the non-German Eurozone. This, after all, is what happens in nation states. Most states have systems of revenue sharing, whereby local authority spending is supported by transfers from the central authorities to poorer localities. This conscious transfer is reinforced by the “unconscious” transfer brought about by a progressive tax system – wealthy areas pay more tax than do poorer areas to support national services. The Cohesion Funds of the European Union play this role. But the Cohesion Funds are a tiny proportion of Eurozone GDP (less than a third of 1 percent) – far smaller than the transfers that take place within nation states. They are simply not relevant to the scale of the problem.

Third, the German surplus could be “recycled” to the rest of the Eurozone, through financial placements or direct foreign investment. Financial placements will have little or no effect on Eurozone interest rates, since these are centrally

determined, and hence will not provide any significant stimulus to domestic capital formation. Direct foreign investment will provide a necessary stimulus, and may raise the competitiveness of non-German Eurozone industrial sectors. Yet it is difficult to imagine that direct foreign investment will proceed on the requisite scale. In the letter quoted above, Mr. Wilhelm argues that German direct investment in the *whole* EU is “more than €500 billion”. But that total, accumulated over decades, would only offset a few years’ deficits.

Fourth, the non-German Eurozone might increase its competitiveness with the rest of the world, earning surpluses there to counterbalance the deficit with Germany. Unfortunately, this is also unlikely in current circumstances. Not only do non-German Eurozone companies have to compete with German companies in third markets, but also any competitive advantage they might hope to achieve by devaluing the euro relative to the Rest of the World is ruled out by the strength of the euro – itself a product of Eurozone success, i.e. German success. And it is difficult to see the necessary investment in technology and skills taking place against a background of persistently growing indebtedness.

Fifth, steps could be taken to increase the trend rate of growth of domestic demand in Germany, either by fiscal measures or by measures to redistribute income from wealthier savers to poorer spenders. Important characteristics of German society suggest that such steps are unlikely. As noted above, Germany is an aging society with a very high household savings rate. The consequence is that the counterpart of the current account surplus is a substantial private sector surplus, and a relatively weak fiscal position. Moreover, substantial redistribution already takes place in German society (particularly toward the eastern Länder), and the introduction of a further redistributive policy on the scale required is improbable.

It is difficult to see any way out of this dilemma, short of a break-up of the Eurozone and substantial movements in exchange rates between Germany and former Eurozone members. Absent such a dramatic (and potentially calamitous development) the prospect for the next twenty years must be a continuation of very slow growth in the Eurozone as a whole making it very difficult for Germany to grow at the rate which would seem to be warranted by its industrial success.

2.6 Macro-Prudential Policy

As Jacques De Larosiere noted in 2009 in evidence to the Economic Affairs Committee of the House of Lords:

“When you exercise macro-prudential regulation you are bound to ask yourself questions of economic policy. Let us not hide ourselves from reality. Often...fiscal policies can be part of systemic risk”.

The sovereign risk crisis in Europe suggests that a major re-think of the political economy of the EU in general and the Eurozone in particular is necessary. It will

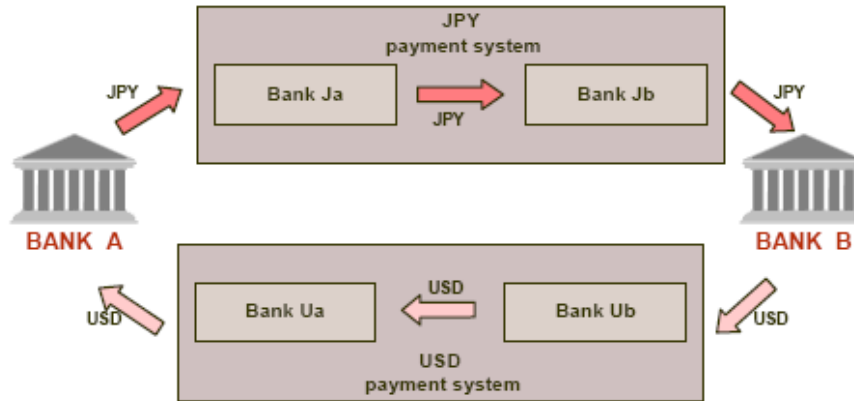
require a significant change of direction in fiscal policy, with discretionary policy replacing the rules of the Growth and Stability Pact that have so conspicuously failed. Whether the institutions for discretionary policy can be constructed on a European scale is a fundamental issue for the next twenty years. To avoid the EU becoming an engine of cumulative deflation that will ultimately undermine the credibility of its institutions, a number of crucial issues in economic decision making must be resolved.

As far as financial regulation is concerned, the breadth of activities permitted in financial markets defines the parameters within which discretionary policies can operate. Re-thinking macro-prudential regulation is therefore an integral part of the wider reform of economic policy-making.

Annexes

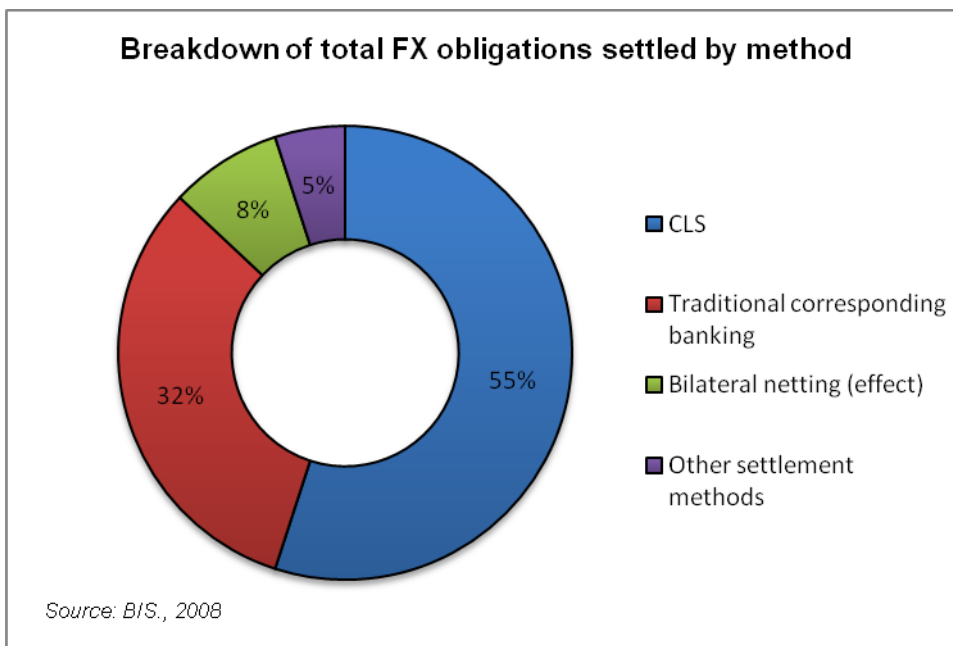
Annex I

An example of how traditional correspondent banking settles FX trades



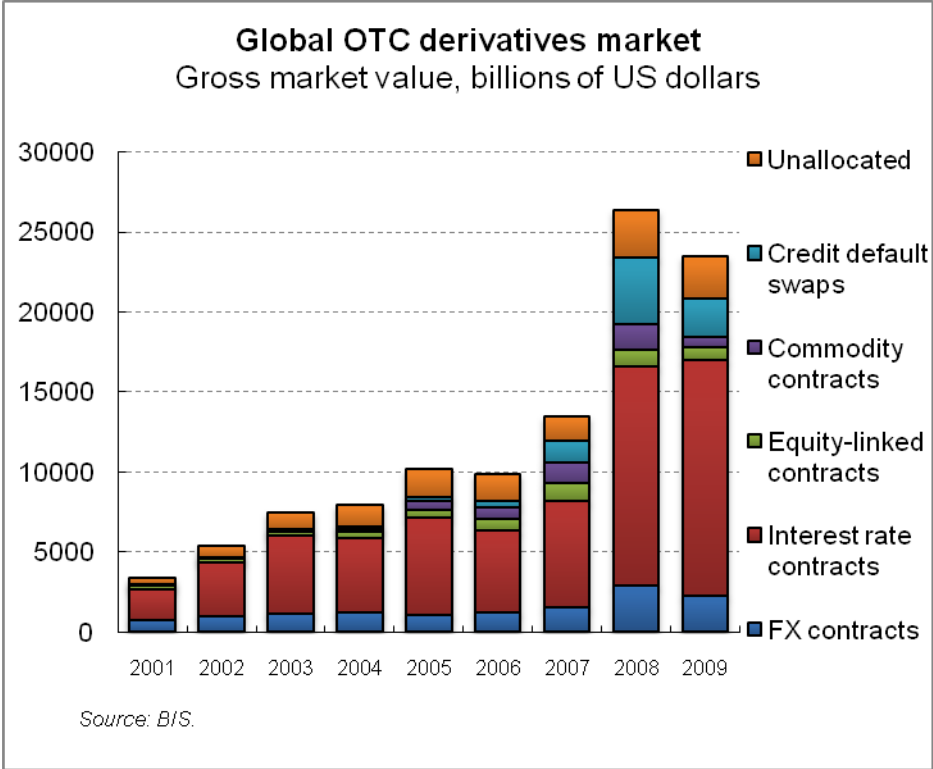
Data source: BIS 2009

Annex II



Annex III – Global OTC derivatives market

To consider the breadth and scope of the global OTC market and the potential for applying a transaction tax to this market, the data below provide the gross market value in trillions of US\$ on a daily basis. In considering whether to impose a tax on the OTC market, we consider the BIS’s estimates of how the volume of the OTC market has grown in recent years. Between 2004 and April 2009, the average daily turnover in the OTC market across all asset classes increased dramatically from about \$8,000 billion a day to about \$23,500 billion a day. See also data in BIS Triennial Survey (2007). As the chart indicates, interest rate contracts are the largest part of the OTC market amounting approximately to \$13,500 billion a day (about 60% of the total OTC market).



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