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THE MACROECONOMIC AND FINANCIAL LANDSCAPE
IN THE AFTERMATH OF THE 2007 CRISIS:
NEW CHALLENGES AND PERSPECTIVES

Organised by Elena Carletti, Giancarlo Corsetti and Saverio Simonelli

EUROPEAN UNIVERSITY INSTITUTE, FLORENCE
ROBERT SCHUMAN CENTRE FOR ADVANCED STUDIES
GLOBAL GOVERNANCE PROGRAMME

*The Macroeconomic and Financial Landscape in the Aftermath of the 2007 Crisis:
New Challenges and Perspectives*

**ORGANISED BY ELENA CARLETTI, GIANCARLO CORSETTI
AND SAVERIO SIMONELLI**

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Introductory Remarks

Elena Carletti*, Giancarlo Corsetti** and Saverio Simonelli*

On 6 June 2011 the Global Governance Programme at the EUI hosted a High-Level Policy Seminar (HLPS) on the topic “The Macroeconomic and the Financial Landscape in the Aftermath of the 2007 Crisis: New Challenges and Perspectives”. The event consisted of a closed-door roundtable between the vice President of the European Central Bank, Vitor Costancio and a number of academics and policymakers.

The discussion centered around three themes: Sovereign debt problems, monetary and fiscal policies, and financial stability and macro prudential policies. In the first theme, the participants discussed various options to deal with the economic situation in Greece. These included the creation of a transfer union among Euro member states and the implications of a possible default for the functioning of the European Central Bank and the stability of the European banking system. In the second theme, it was discussed how to sustain and conduct a single monetary policy in heterogeneously growing countries, how to reach debt sustainability in a low growth environment and the desirability of common fiscal policies. The last part of the event focused on the new architecture for financial regulation and financial stability in Europe.

The discussion at the HLPS was very lively. Many different views were discussed and many suggestions and recommendations were put forth. This policy paper consists of seven papers ranging from economics to history and law written by some of the academics participating to the debate. The memoranda were reviewed and expanded after the event to reflect the discussion and to include other topics of interest related to the debate. The papers reflect the aim of the HLPS to contribute to an open debate between academics and policymakers on some key challenges that the economies worldwide are facing.

The paper by Thomas Cooley (New York University) discusses the challenges for the European Central Bank in the current situation both in terms of long term fiscal adjustments and of potential fragility of the European Banking system. The pair of papers by Giancarlo Corsetti (Cambridge University and EUI) and Massimiliano Marcellino (EUI) focuses on debt sustainability and the implications of the debt crisis for growth. The paper by Harold James (Princeton University) focuses more specifically on the challenges to monetary and fiscal policies in Europe. The joint paper by Joanna Gray and Patrick O'Callaghan (both Newcastle University) discusses the legitimacy and efficacy of the EU and Member State response to the sovereign debt problems in the Eurozone from a legal perspective. The joint paper by Franklin Allen (University of Pennsylvania) and Elena Carletti (EUI) turn the attention to the issue of systemic risk and the need for macroprudential regulation. Finally, Luigi Guiso (EUI) tackles the issue of trust and risk aversion in the aftermath of the financial crisis.

Our hope is that this joint policy paper will contribute to shaping the debate further and help policymakers to tackle the challenges emerged in the aftermath of the financial crisis.

Elena Carletti, Giancarlo Corsetti and Saverio Simonelli

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Challenges for the European Central Bank

Thomas Cooley*

In the period prior to the launch of the Euro and the formal monetary union of much of Europe the architects of the EU understood well that many of the countries lining up to join the EMU needed to impose a degree of monetary discipline and lower their inflation rates in order to prove their fitness for the enterprise. They also understood that, by showing the needed discipline and joining the European Monetary Union, the countries would benefit from lower interest rates, wider access to capital markets, and have better growth prospects. The hope of course was that this would lead to convergence in their economies. The concerns about monetary discipline and inflation were the greatest for some of the periphery economies – Portugal, Italy, Spain, Greece and others. But the design of the system insured commitment to monetary discipline because, once they joined the Euro, monetary policy was to be determined by the European Central Bank, which had a very clear mandate for monetary discipline.

Of course there were other concerns as well. It was well known that fiscal policies would have to be sustainable to support a monetary union. Hence the articulation of the Maastricht conditions for primary fiscal deficits and Debt/GDP ratios. And it was well understood that labor markets would have to be reformed to become more efficient and competitive to succeed. The monetary conditions were met, the fiscal conditions approximately so and the Euro was launched. Now it is threatening to come flying apart – why?

The answer is simple really. The institution to support monetary discipline – the ECB – was created. It solved the time consistency problem by creating an institution that could guarantee monetary discipline going forward. Unfortunately,

there was no such institution to constrain fiscal policy, only guidelines, and there was far too much discretion left to sovereign governments. Early on some of the strong economies, Germany and France, struggled to meet the fiscal criteria and struggled to reform their labor markets. In the 1980's unemployment rates were high throughout Europe and there was much talk of eurosclerosis. But those economies did reform and they made other decisions that were consistent with their long term strength: better labor market institutions, investment in the human capital needed to succeed in a strong currency country, more efficient tax systems.

Long Term Fiscal Arrangements. This is now a crucial juncture for the ECB. It needs to articulate an official view about the need for a stronger common fiscal policy within the Union and it needs to articulate a view about how the Union should be structured to solve the problem that it now has no mechanism to insure commitment to fiscal soundness by the member countries.

Once the ECB made the decision to buy sovereign debt, it signaled the need for an active pan-European fiscal policy by engaging in what is properly considered fiscal policy itself even though that was not within its purview according to the original charter. Evidently there was not total agreement on the appropriateness of taking this step. It would be interesting to know if there is now more agreement about this than there was a year ago and what the views of the various regions – core, periphery – are about the structure of this arrangement.

The U.S. Federal Reserve engaged in active fiscal policy by buying mortgage backed securities and Treasury Securities. But, it had a strong federal treasury to work with and can forge agreements with

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the Treasury to neutralize some of the fiscal effects of quantitative easing. A big question is how this might can be done most effectively in Europe.

The ECB and the European Banking system. The ECB continues to oppose a restructuring of Greek debt. Many market participants think this is still the official stance because of the impact that such a restructuring would have on the capital fragility of the European Banking System. How dire would these effects be for the capital of the banking system? In part markets are skeptical because a year ago the banks were subjected to stress tests that were widely viewed as not credible. More recent stress tests have sought to redress this criticism but the condition of the banking system is not well known.

Even a “soft restructuring” of Greek Debt would be regarded as a default event by credit rating agencies and probably by bank regulators. This would impair the regulatory capital of European banks and the balance sheet of the ECB itself. And yet markets continue to see debt extension and haircuts as inevitable and Greece continues to miss its fiscal targets. It would be nice to know if the ECB has contingency plans to cover a soft restructuring.

It now seems that if the EMU is to continue and prosper, it needs to accomplish two things: 1) Address the short term problems of the excessive indebtedness of the periphery countries in a way that does not cause excessive contagion and paralysis for the banking sector; 2) Solve the mechanism design problem to insure a degree of fiscal discipline in the long run.

There are multiple proposals circulating for addressing the first problem, not all of them workable. Any viable plan will probably involve two elements: i) A debt exchange of maturing issues for longer term bonds possibly with lower interest rates that make debt servicing feasible; ii) Some kind of guarantee of the new debt. This exchange will likely be treated as a default event by rating agencies because it would be a “distressed exchange” even if it were voluntary.

The thornier problem is the second one.

Moral Hazard and Long Term Stability. Looking beyond the immediate policy steps that must be taken to get through the current crisis the ECB needs to lead the discussion about policies to avoid the moral hazard issues associated with fiscal interventions in the future.

Economic reasoning suggests that one way to deal with the emergency needs of sovereigns created by idiosyncratic shocks to their fiscal situation is to require them to make ex-ante contributions to an insurance fund and to cause the size of the contribution to be tied to measures of their riskiness. At the same time moral hazard considerations require that some restrictions be placed on their fiscal policy. Does the ECB have a preferred approach to this set of problems?

A Proposed Framework. The members of the EMU agreed to give up a degree of sovereignty when they abandoned national currencies for the Euro. But that was easier than giving up fiscal sovereignty. Retaining fiscal sovereignty was critical to the spirit of the EMU. But for an idea of how to solve this dilemma it might be useful to look at the United States. The individual U.S. states have many sovereign powers and a great deal of financial discretion. They have the power to establish their own tax systems and they have their own spending powers. Many states are legally required to balance their budgets, although in many instances this is meaningless in a dynamic sense if they don't fund future obligations. In addition states cannot file for bankruptcy under the U.S. Bankruptcy Code.

So how do the states guard against default and preserve their access to capital markets? In spite of their well-advertised budgetary problems the states do have access to capital markets and at generally favorable rates. The answer is that, in most states, debt service for general obligation bonds holds constitutional priority over expenditures. This means that the “sovereign” debt has to be paid before

other expenditures. There are some minor exceptions. In California and some other states for example education funding has a prior claim on revenues and general obligation debt service is second. This mechanism does not prevent fiscal problems from arising, and they do and are severe. But fiscal problems become sovereign political problems, not threats to the stability of the union. The time consistency problem is solved by giving general obligation debt priority and making unsustainable fiscal policies a sovereign political problem for which the only solution is a built in austerity program. Is such a solution feasible within the European framework? If it isn't, it needs to be.

What is abundantly clear is that we need some kind of commitment mechanism to prevent these moral hazard problems from continuously repeating themselves. Larry Summers once wrote that policy makers should beware of moral hazard fundamentalists, arguing that moral hazard problems are not that severe. In a way he is right. Most of us do not take huge risks, whether in personal decisions or investing, simply because we are insured against them. But if there is a powerful lesson of the last few years it is that they are not that severe until they are – until the accumulation of many smaller risks becomes a systemic event. The small bad decisions taken by European Sovereign governments will continue until something is done.

Shrinking of the Eurozone. A last topic worth discussing is whether the Eurozone should perhaps get smaller. It seems almost certain that the costs of exiting the EMU would be much higher for Greece, or any other country, than the costs of making whatever adjustments are necessary to stay in. Would the effect of a soft restructuring or rescheduling be worse than the effect of a Greek departure from the EMU? An important piece of analysis that needs to be executed and communicated to the public are the results of stress tests of the European Banking System with respect to a possible departure of Greece from the EMU or a possible restructuring of Greek debt, even if the latter is designated as a selective default. As unlikely as Greek departure from the EMU may be it would have dire consequences for some banks in the EU and an analysis of the likely effects has corresponding repercussions for the ratings of sovereign debt throughout the EMU given the tendency for sovereigns to insure the survival of domestic banking systems.

The question of whether our faith in financial markets recovers from the recent crisis depends a lot on whether they are perceived as being made safer by the many new reforms and regulation that are underway in the U.S. as represented in the Dodd-Frank Act, in the UK by the Vickers Commission on banking that recently reported, and elsewhere in Europe by Basle III and the various regulatory bodies.

A key ingredient for continued confidence is transparency about not just the state of the banking system but its vulnerability to extreme events.

Fiscal policy and the crisis: emerging issues along the path to recovery

Giancarlo Corsetti*

Introduction

In response to the global crisis started with the financial turmoil in the summer of 2007, fiscal policy has so far undergone two distinct phases. In the first phase, up to the end of 2009, fiscal guarantees to financial intermediaries and fiscal stimulus are widely regarded, and resorted to, as key pillars for a strategy to overcome the risk of a new great depression. With monetary policy rates close to zero, governments let deficits rise with falling output, without taking any corrective measure; On the contrary, they undertake discretionary measures to sustain demand, either in cash, or by offering contingent support, especially to the financial system. What this phase essentially brings about is a massive transfer of risk from private to public balance sheets. In part because of the cost of borrowing remains very low for most governments throughout these initial years into the crisis, stimulus plans are pursued without a meaningful political discussion of strategies for budget adjustment and debt stabilization measures in the future. Differences in the market assessment of the fiscal outlook of a country are reflected mainly (but also noisily) in exchange rate movements.

When, with public debt on a sharply rising trajectory, financial markets starts to price sovereign default risk more systematically, budget policy is increasingly regarded more as a problem *per se*, than as an instrument to stabilize income. In this second phase starting in 2010, out of concerns with sustainability of public finances, national fiscal stances have progressively turn quite conservative, when not outright contractionary, even though the world economy is far from being on a robust recovery path.

As the fiscal crisis currently compounds with a possible negative turn in economic activity, many observers argue against upfront fiscal retrenchment, in favor of fiscal correction and reforms implying steady but delayed implementation of fiscal saving. With high unemployment and large output gaps, this would be indeed the best course of action, but only provided the commitment by the government to implementing reforms is credible in the eyes of the private sector --- i.e., provided that the announced future correction measures are sufficient to reduce and/or keep premia on government debt at negligible levels.

In many countries, however, given the difficulties to reach a strong political consensus on credible reforms, it is plausible that the process through which the governments may try to either maintain or win over the confidence of the markets will be time-consuming, and may well require some immediate tangible steps towards deficit reduction.

This note singles out two key lessons from recent academic and policy-related work, shedding light on the likely consequences of this scenario. The first concerns the effects of economic activity of fiscal contraction. The second concerns the macroeconomic risks raised by a failure to correct fiscal imbalances and ensure sustainability of public debt, in a context of weak global demand and financial turmoil.

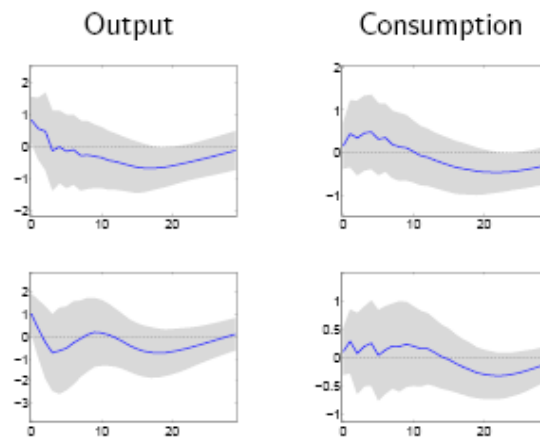
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Fiscal multiplier: one size does not fit all

Not surprisingly, the crisis has revived a long-standing debate on the fiscal ‘multiplier’ --- a topic which was slowly fading away from academic curricula, is now received disproportionate attention.

To start with, it may be worth noting that, if the decision to resort to fiscal stabilization during the crisis were to be based on the empirical evidence from time-series studies and from the result of quantitative models then available, it is reasonable to conjecture that no stimulus would have been provided. For the US, for instance, Vector Autoregressive (VAR) models typically predict an output multiplier for spending of about .5: this means that, at the margin, a dollar spent by the government raises output by only 50 cents (see the classical study by Blanchard and Perotti 2002). Quite recently, in a survey of the literature Valerie Ramey places estimates of the multiplier in the range .6-1.2, hardly worth acting upon (Ramey 2011).

By way of example, the Figure reproduces the estimate of the government spending multiplier for output and consumption for the US by Corsetti et al. (2010), based on quarterly data over the years 1983-2007. The empirical model includes seven variables: government spending, output, private consumption, long-term real interest rate, real exchange rate, inflation, public debt. The upper row relies on the identification strategy by Blanchard and Perotti (2002) --- shocks are identified by assuming that government spending is predetermined in a quarter. The bottom row follows Ramey (2010), who computes spending shocks using news survey of professional forecasters.



The picture (very similar across vastly different identification strategies) justifies no enthusiasm for fiscal policy!

Interestingly, while the predictions of quantitative models vary widely depending on parameters' values, in models calibrated to the US (a large, relatively closed economy, not pursuing any exchange rate target) multiplier effects are in the same range pointed out by Ramey (2011).

Nonetheless, with the eruption of the crisis, policymakers acted on firm beliefs that multipliers were actually much larger than suggested by the academic literature. These beliefs are embedded in policy models widely adopted by treasuries, positing multipliers close to, or even above 2, more than twice as large as consensus estimate.

Can this ‘divide’ be reconciled? A key intellectual advance has occurred during the crisis. Namely, the literature has made increasingly clear that the multiplier is not a constant parameter. The effects of stimulus or retrenchment on economic activity is bound to depend on economic circumstances---its key economic and policy determinants can be expected to vary both across countries and in time. Relying on linear estimates, averaging out the transmission across different economic situations, cannot be taken as a reliable guidance to policy making.

So, the main question concerns the conditions under which multiplier effects may be expected to be stronger, or weaker, relative to the average estimates. Theoretically, some contributions have stressed the key role of fiscal and monetary interactions, see e.g. Woodford (2010). Along this line of research, together with Kuester and Mueller, I have revisited fiscal policy transmission contrasting fixed exchange rates with a regime of flexible exchange rates where the Central Bank follows a Taylor rule (Corsetti, Kuester and Mueller 2011). Using a simple but powerful analytical characterization of the difference, we show that the real interest rate relevant to private expenditure decisions necessarily rises with spending under a fixed exchange rate; it may rise or fall as a function of monetary and prospective budget policy under flexible rates. Hence, the output multiplier under flexible exchange rate can be below or above that under fixed exchange rate, depending on policy specification, turning a widespread belief based on conventional models on its head.

Yet, the multipliers predicted by the standard (new Keynesian) models under conventional calibrations are still quite contained. Skeptics may attribute low multipliers to alleged limits of these models in accounting for meaningful transmission mechanisms. An alternative interpretation, which I prefer, is that multipliers may simply be quite low under 'normal circumstances'. For fiscal policy to be really powerful, it may well be the case that the economy operates in a situation of stress, to be carefully defined.

Exactly along this line, the contribution by Christiano et al. (2009) makes the strong argument that multipliers can be extremely high in a liquidity trap, whereby central banks are constrained in their ability to lower policy rates in the short run (and pursue a price level target in the future). To wit: suppose a drop in demand creates deflationary pressure that lower current and prospective inflation. With the central bank unable to respond to recessionary impulses (and unable to commit to future inflation as a way to compensate for the negative price dynamics in the short run), expectations of deflations translate into a high real rate, which further depresses current demand, feeding a negative price spiral. In these circumstances, public spending can offset at least in part the initial negative shock to demand, stemming the root of the vicious negative feedback effect between demand and deflationary expectations.

Not surprisingly, this contribution has dominated much of the early academic and policy debate. Using the same framework, for instance, Corsetti et al. (2009) stresses that, by the very nature of the transmission mechanism via long-term rates, fiscal stimulus may become more effective when accompanied by prospective budget cuts in the medium term. Prospective budget cuts in fact help containing the real rate on the path of recovery, by allowing the central bank to pursue any given target of inflation with a mix of looser monetary, tighter fiscal policy. As private market anticipate this mix, long-term rate tend to fall, with expansionary effects on demand today. Note that the notion that anticipations of future retrenchment are expansionary today lends some support to the desirability of gradualism in the implementation of budget corrections when the economy is not firmly on the path of recovery.

However, the issue of whether a liquidity trap is necessarily associated with large multiplier is far from settled. Mertens and Ravn (2010) for instance warns about the possibility of multiple equilibria. These authors show that, in a liquidity trap, agents may react to stimulus coming to believe that the economic conditions are worse than they would think absent fiscal expansion. Self-fulfilling expectations may then end up worsening the downturn. This is an important qualification to the claim that demand stimulating policies are necessarily more effective in a liquidity trap, relative to normal circumstances.

Also, not all types of stimulus can be expected to have the same effects when policy rates are at the zero lower bound. Critical remarks on the effects of income and wage tax cuts as part of the stimulus package are discussed early on by Eggertsson (2009). Conditional on a unique equilibrium, cutting wage taxes may actually exacerbate the vicious circle activated by deflationary expectations feeding into low demand --- as firms respond to falling marginal costs by further lowering prices.

It is worth emphasizing that the transmission mechanism underlying these models is the standard one in new Keynesian economics, with demand being driven by movements in long-term interest rates in real terms. Financial crisis still matters --- as clarified by Curdia and Woodford (2010), the reason for the monetary policy to be stuck at the zero lower bound may well reflect financial stress (which imply a rise in the risk premia for private borrowers that the central bank may try to offset by cutting rates). But financial stress does not necessarily shape the way fiscal stimulus/retrenchment is transmitted.

Fiscal policy can nonetheless operate through a variety of transmission mechanisms, whose weight may change depending on circumstances. One may expect new work to provide a better grasp of, say, the role of uncertainty and precautionary saving, or market segmentation and market failure, to determine the ultimate effects of fiscal stabilization. This is in fact a vastly unexplored area of research.

Together with theoretical work, also many empirical contributions have recently provided estimates of multipliers controlling for factors/circumstances which can be expected to determine their size or even their sign, e.g., conditional on monetary policy, prospective budget adjustment and banking and financial turmoil.

While this short note cannot give a proper account of the literature, it is worth mentioning that traditionally, the focus of the empirical literature was on the budget precondition for fiscal policy to be successful --- see early work by Perotti (1999). This focus is again emerging in response to pressing concerns, motivated by the deterioration of the fiscal outlook (and the recent debate on so-called 'non-keynesian effects' of fiscal contractions). Similarly new research is again focusing on the traditional notion of an asymmetry of multipliers across recessions and expansions, see e.g. Tagkalakis (2008) and Auerbach and Gorodnichenko (2011). Interactions with monetary policy are discussed by Corsetti et al. (2010) and Ilzetzi et al. (2010), who provide empirical evidence contrasting fixed and flexible exchange rates.

The most pressing question nonetheless regards the effect of stimulus/retrenchment when the economy is in a state of financial and banking crisis. In ongoing work, based on an innovative methodology applied to a sample of OECD countries, Meier Mueller and I find that fiscal multipliers becomes much larger in years of financial crisis --- with point estimates for output multipliers around 2, corresponding to large effects on consumption and investment.

Clearly, much more need to be done on this issue. Nonetheless, taking the results above at face value, there are at least two implications worth stressing in relation to the current policy debate. On the one hand, evidence of large multiplier conditional on a state of financial crisis lends support to the use of fiscal stimulus early on in the crisis. On the other hand, the historical experience and recent development also suggests that many countries may now face the need to cut back government spending, even though the financial crisis is not over, out of concern over debt sustainability. A large conditional multiplier means that the costs of debt consolidation in terms of output cannot be expect to be negligible.

Sovereign risk raises the risk of macroeconomic instability

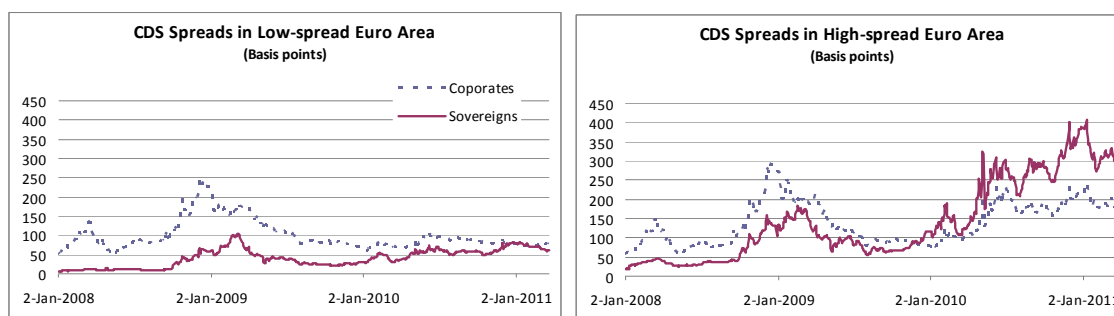
The case for immediate fiscal consolidation has become stronger in Europe and elsewhere, as financial market pressures have intensified over the summer of 2011. With sharply rising sovereign risk spreads in several countries, few governments can consider their public finances solid beyond doubt.

In light of the discussion in the previous section, fiscal tightening may be expected to be quite costly at a time of weakening aggregate demand, especially when central banks cannot provide much extra stimulus. However, the dampening effect on output from fiscal tightening has to be weighed against the risk of inaction. Recent experience in the Eurozone clearly shows that investor concerns

about government solvency can emerge very suddenly, driving up funding costs and potentially plunging countries into a full-blown fiscal crisis.

What difference does the emergence of sovereign risk premia make for the fiscal transmission channel? Based on ongoing work with André Meier and Keith Kuester (CKMM 2011), an answer can be sketched by emphasizing the link between sovereign risk and macroeconomic instability,

The starting point is the simple observation that sovereign default risk – reflected by rising interest rate spreads -- spills over to the rest of the economy, as it affects the borrowing conditions in the private sector. Some evidence is provided in the Figure below, reproduced from CKMM 2011.



For the Eurozone countries only, the panels in the Figure display time-series data on credit default swap spreads for sovereign debt (solid line) and non-financial corporate debt (dashed line). The two panels distinguish between countries with relatively low sovereign spreads (Austria, Finland, France, Germany, and the Netherlands) on the left; and high-spread countries (Belgium, Greece, Italy, Portugal, and Spain) on the right.

Clearly, sovereign and private sector spreads move together, especially in countries that face fiscal strain (right panel). It may be worth stressing that the evidence in the Figure may actually understate the strength of the correlation, as most corporations in the sample are large international players with direct access to bond markets. As is well known, such companies are able to insulate their financing conditions from sovereign spreads in the national market, to a much greater extent than smaller firms that rely on local bank financing.

In principle, of course, causation may run the other way around, from corporate to sovereign risk. But for many of the Eurozone countries included in the figure there is little doubt that otherwise healthy non-financial corporations are weighed down by concerns about their government solvency. Indeed, the findings documented in Figure square well with the notion of a "sovereign ceiling", by which government bond yields have typically been considered a benchmark for broader financing conditions in a country.

According to CKMM (2011), these spillovers constitute a distinct channel through which fiscal policy impacts the economy --- the 'sovereign-risk channel' ---, quite consequential for macroeconomic stability.

To explore the implications of a sovereign risk channel, posit that private credit spreads realistically rise with sovereign risk, because strained public finances imply a greater threat from taxation. In CKMM (2011), we formalize this idea by using a variant of the model suggested by Curdia and Woodford (2009). An advantage from doing so is that we can embed the new channel quite simply, in the canonical New Keynesian model. Namely, for given monetary policy, aggregate demand falls with an increase in sovereign risk, raising private borrowing costs. Monetary policy can nonetheless offset the effect on private sector funding costs via a cut in the policy rate, as long as this remains above zero.

This model clarifies the specific circumstances under which sovereign risk becomes a severe source of macroeconomic instability. Suppose that private expectations about the economy turn gloomier for some (non-fundamental) reason; firms and households expect demand to fall. Holding interest rates fixed, such expectations, in turn, imply an upward revision of the projected government deficit, as weaker economic activity leads to lower tax revenue. Investors thus ask for a higher risk premium on public debt. Via the sovereign-risk channel, however, the cost of private borrowing rises as well. The logic comes full circle as higher credit costs slow down activity, validating the initial adverse shift in expectations.

Under normal circumstances, this scenario of a self-fulfilling crisis can arguably be averted by the central bank. The central bank can in fact stem the link between public and private credit conditions through interest rate cuts or other measures, preventing pessimistic expectations from coming true. To the extent that monetary policy is constrained, however, expectations driven down turn may materialize, especially when sovereign risk is initially high.

The analysis in CKMM 2011 suggests that, with policy rates at the zero lower bound and a deteriorated fiscal outlook, the usual case for counter-cyclical fiscal policy can be easily turned on its head. At times of intense financial market pressure—with high risk premia on government debt—the use of expansionary fiscal stimulus is bound to worsen the fiscal outlook, raising the risk of macroeconomic stability. Any desirable stimulus effects are likely to be offset by the negative impact of the sovereign-risk channel on macroeconomic stability -- unless of course the government is able to commit immediately and credibly to medium-term consolidation measures, stemming sovereign risk at its roots.

CKMM 2010 also includes an assessment of the quantitative relevance of the argument. The exercise assumes an empirically motivated, reduced-form link between risk premia and the expected path of public debt and deficit. Admittedly, this assumption is crude --- a number of factors may impact on markets' assessment of sovereign risk beyond the expected path of debt and deficits. Yet, under standard calibration of the model, the model easily predicts that the most adverse effects of the sovereign risk channel materialize for levels of public debt somewhat above 100% of GDP.

Conclusions

The main message of this note is straightforward. In the present circumstances, in most countries the likely impact of contractionary measures will be recessionary. Yet, without an upfront adjustment of the budget, economies with a relatively large debt, on which financial markets charge a risk premium, would be vulnerable to risks of instability and expectation-driven slow downs. An upfront adjustment, no matter how contractionary, may well be desirable, to contain the risk that these negative scenarios materialize.

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Some Considerations on Government Debt Sustainability and Solvency

Massimiliano Marcellino*

The financial crisis turned the spotlight on the budget situation of private banks and financial institutions but now most of the attention is on public debt, its recent evolution and its expected future developments. The keywords are solvency and sustainability, and most of the political and economic debate focuses on how to ensure them.

Debt sustainability typically refers to the stabilization of the debt level, in general expressed as a ratio to Gross Domestic Product (GDP). Debt solvency to the capability of a government of repaying its debt. The two concepts are closely related: a (real or only perceived) non-sustainable debt creates problems of solvency, in particular by making debt roll-over more complex and by increasing the interest rate burden. Questioning solvency, on the other hand, increases the risk premium and therefore the interest rate, a major problem for debt sustainability, as we will see.

Debt sustainability is not a sufficient condition for solvency, since default can happen even if the debt is sustainable. However, it is necessary, since if the debt is not sustainable sooner or later there will be a default. Hence, let us consider the determinants of debt sustainability and the policy options to influence them.

The key drivers of the debt to GDP ratio (b) are the real (i.e., net of inflation) interest rate paid on the debt (r), the real rate of growth of GDP (g) and the primary deficit (total expenditures net of interest payments minus total receipts) as a ratio to GDP (d). Let us assume for the moment that r , g , and d are stable over time, and consider how their interaction determines the evolution of b .

When the interest rate is higher than growth ($r-g>0$), the debt to GDP ratio keeps growing without bounds, independently on the level of d . Hence, in general debt is not sustainable, unless the primary deficit is turned into a surplus that more than offsets the negative effects of low growth and high interest rates. This is unfortunately the situation at the moment in a few euro area countries such as Greece and Portugal, where r is positive and high while g is negative, creating the well known solvency worries, notwithstanding the attempts of these countries at lowering d .

When the interest rate is lower than growth ($r-g<0$), the debt to GDP ratio is sustainable, it converges to a value given by $d / (g-r)$. Hence, the steady state value of b is small when d is small, g large and r small. The debt can become unsustainable even when $r-g<0$ if d keeps growing too fast over time, a cause of concern for example for Ireland, where d skyrocketed due to bank bailouts.

Even larger countries such as the United States could have problems unless a clear and credible deficit reduction plan is implemented, as testified by the downgrading of the US debt outlook by the rating agency Standard and Poors. It is however true that the US could monetize the debt, but that would create in any case large problems. The lack of the possibility of monetizing the debt of euro area countries who delegated their monetary policy to the ECB is sometimes considered as an additional problem to convince markets of their solvency. But monetization is not really a solution, since the ensuing loss of real value of the debt repayment would anyway wipe out its value. In addition, it could drive-up inflation expectations, again worsening the economic conditions.

In practice, not only d but also r and g are not stable over time. This complicates a bit the derivation of the evolution of the debt to GDP ratio, but qualitatively the results remain the same. In particular, during the financial crisis the deficit to GDP ratio has increased substantially due to the major increase in public spending to help the financial sector and sustain the economy, and the lower receipts related

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to the large drop in income. At the same time, the growth rate has plunged and the interest rate has decreased, but in general to a lesser extent, so that $g-r$ has been drastically reduced. The combined effect of larger d and smaller $g-r$ has been an increase in the speed of growth of the debt to GDP ratio but also, what is perhaps even more worrying, an increase in its expected long run value. Even worse, as mentioned, in a few countries g has plunged while r has not decreased, does making the difference $g-r$ negative and debt unsustainable, and generating solvency worries. To address this situation, policy makers have tried to act on d , r and g . Let us see briefly what they have done and what else they could do.

Central banks around the world have adopted a very expansionary monetary policy, aimed at reducing the interest rate. Lower interest rates are positive not only for public debt sustainability but also to incentivise consumption rather than savings and to stimulate investment. This in turn increases the growth rate of the economy, g , providing additional support for debt sustainability. In addition, lower rates decrease the mortgage related costs and support the real estate market, and indirectly the banking sector when the latter is heavily loaded with real estate related assets.

This traditional explanation of the benefits of a loose monetary policy has been challenged during the recent crisis. First, even before the crisis, it was not obvious that monetary policy could affect the long term rates, which are more relevant for the investment decisions but also for the public interest rate burden, following a generalized tendency of lengthening the duration of government bonds. Second, notwithstanding the low policy rates, consumption and investment were only mildly stimulated: the uncertain perspectives of the economy were a more powerful brake. Third, the banking crisis dried up liquidity and tightened credit standards. Fourth, the problems in the real estate sector persisted in several countries (and actually are still there in a few countries) since the drop in prices led to major wealth losses that more than offset the benefits from lower rates. Finally, the combination of low growth and high deficits generated sustainability and solvency problems for several euro area countries, with a major increase in their debt financing costs even in the presence of very low official policy rates.

These complications led to so-called non conventional monetary policies, ranging from providing unlimited liquidity to the banking sector to major programmes of direct purchases of private and public bonds. These emergency measures were quite useful, but they were indeed emergency measures and if they stay in place for too long they risk to create more problems in the future, and to reduce the ammunitions for the next crisis. Banks should be able to find liquidity in the market, bonds should be bought and sold on the market, interest rates should go back to a level that guarantees price stability, and the border between monetary and fiscal policy clearly marked and restated.

Fiscal policy also did its part to exit the crisis. In most countries massive support plans for the banking and financial sectors were implemented. These were helpful to restore confidence and prevented the financial melt-down. Actually, and perhaps a bit paradoxically, the cumulated losses in valued added in the financial sector during the crisis were in most countries much smaller than those in the industrial sector. The counterpart is a major increase in the primary deficit, d , in most countries, but also an additional decrease of attention (and of funds) for policies to sustain growth, g , notwithstanding bold announcements to the contrary. Well, just consider what happened with the Lisbon strategy that should have made Europe the most competitive and knowledge oriented economy of the world...

A constitutional limit on public deficit, combined with a serious external assessment of the public accounts, can be a good idea to prevent emulators of Greece. But even better could be the requirement to put long term growth and employment as the main goals of fiscal policy. As an explicit (and credible) inflation target anchors inflation expectations, which is key to lower actual inflation and reduce its volatility, so an explicit growth and employment target could stimulate private investment and consumption, thus helping to achieve the target.

Fixing targets for the future evolution of d and g , and possibly r , or at least providing credible information on their expected future behaviour is a key requirement for debt sustainability, since what matters is not so much the past behaviour of these variables but how they will evolve in the future. Even a high level of debt can be sustainable if the market believes that it will be reduced or at least stabilized. On the contrary, a low but fast growing debt can create sustainability and hence solvency worries. Recent changes in EU regulations point in this direction, but it remains to be seen whether they will be really implemented.

Another message for the euro area from the financial crisis, and from the sovereign debt crisis of some of its member states, is that it is difficult to have a monetary union without a stronger economic union. And this requires stronger fiscal coordination, a larger federal budget, and common monitoring of the financial conditions (and institutions). The implemented and planned changes in regulation and the creation of new monitoring and stability enhancing institutions go in the right direction, but seem to fall way short of being sufficient.

Moreover, the incentive and governance structures of the banking and financial sectors have been only mildly modified so far, which can be dangerous in particular since there seems to be still uncertainty on the real conditions of these sectors, and on the possible effect on them of a sovereign default. Indeed, it is unclear at the moment whether a default on the sovereign debt of some euro area countries can be really avoided. The growth perspectives in these countries are grim, additional fiscal consolidation can only make things worse, and only massive bond purchase programmes could lower the interest rate. And if a default happens, it is also unclear whether we are well prepared to handle it or whether it can trigger the next (phase of the) crisis.

Perhaps the strategy of buying time and meanwhile attempting to improve the conditions of the banking sector is a good one. But it is also hardly credible, and financial markets can realize that and collapse very quickly, as the crisis reminded us.

Two other messages from the crisis are I think relevant for this discussion. First, financial markets are much more closely related than we believed, and more interconnected with the real economy. The troubles with a sovereign default in a euro area country could spread much faster and strongly than expected to other asset classes, sectors and countries. Hence, not only from a political but also from an economic point of view it is sensible to do as much as possible to prevent a default. Moral hazard considerations are correct, but they are more than offset in this context but the risks associated with a default.

Second, the developing world (and the BRICs in particular) had an important role in the exit strategy from the financial crisis. There was a direct effect through financial interventions and sustained demand for developed world goods (after an initial dramatic drop in world trade). But also an indirect effect, since the growth perspectives in these countries remained good and improved the global confidence in a recovery. However, fast growth in these countries has negative side effects too. The increase in oil and raw material prices is the most obvious one, though also partly related to their enhanced role as inflation protected financial assets. Many of the previous recessions, in particular in the US, were preceded by major increases in energy prices. Creeping inflation in the BRICs and gradual appreciation in their exchange rates also suggest that the era of cheaper and cheaper intermediate goods for the developed countries can be close to an end, pushing up inflation and favouring a tighter monetary policy. Hence, the effects on r and g could be negative in the following years, worsening the scenario for debt sustainability.

A more hidden and long term worry is related to a rebalancing of the aggregate demand in these countries in favour of consumption and government expenditure. This would reduce private and public savings, hence decreasing the demand for developed world government bonds and increasing the supply of (perhaps safer) fast-developing world government bonds. The effect could be an additional increase in the financing costs of the public sector in the developed world, associated with the need of restrictive fiscal policy to guarantee debt sustainability. Higher demand in the developing world also

stimulates exports in the developed countries, but that could not be enough to offset the consequences of higher interest rates and deficits.

Overall, the main message is that achieving debt sustainability and avoiding solvency issues is difficult in a low growth environment. Hence, while policies directly aimed at sustainability and solvency are positive, growth should remain the long run goal of economic policy.

Europe: The Challenge to Monetary and Fiscal Policy

Harold James*

The aftermath of the financial crisis, now often called the Great Recession, and the outbreak of a crisis of governance in the Euro-zone, have raised many questions about the appropriateness of policy responses. The answers should respond to larger and fundamental issues about the role of the economy in a well developed and healthy society. What began as a banking crisis became a fiscal crisis, raising highly political issues. In particular, financial turbulence has in many countries produced a debate about fiscal policy, about the sustainability of deficits and debt, and about the use of inflationary monetary policy as a way of reducing both government and private sector indebtedness. The problems are particularly acute in areas where responsibilities are divided between different levels of government.

Learning from Crises

Crises – especially very severe crises - are often learning opportunities. In such a situation, the process of drawing the appropriate lessons comes in two parts. First, identify the problem. Second, think of an institutionally workable measure to correct it. Often, however, responding to crisis involves merely “crisis management”, postponing the day of reckoning, or in the currently most over-used term in Europe, “kicking the can down the road.”

Let me give two examples from the past of successful learning. First, trade policy. In the Great Depression, a spiral of trade protection measures were used to combat monetary deflation. What political process produced the reaction? The trade quotas and tariff restrictions came about as a result of log-rolling in the legislature, as well as from a general demand for political action. A political science analysis of the process, by Schattschneider, was influential in transferring responsibility for trade measures from the U.S. Congress to the President.¹ Second, monetary policy. Our understanding of monetary policy has improved over the past forty years. We understand that monetary policy can produce short term stimuli, that appeal to politicians facing elections; but that these short term stimuli have no effect on the overall course of development but a substantial effect on prices. The result is a powerful consensus that central banks should be insulated from political pressures. That consensus is articulated nowhere as clearly and directly as in the statutes and the operations of the European Central Bank.

In contrast, in the course of the current financial crisis, today’s policy framework has become much more uncertain. And at the moment, it does not seem as if we have done a great deal of learning.

We have only reached stage one of the process of drawing lessons. There is much conventional agreement about the causes of the post-2007 financial crisis. Most explanations rely on some combination of the following five sources of instability (though the weights put on different elements differ, and some analysts will deny the relevance of one of the points – which one it is depends on a range of prior assumptions):

- - the peculiarities of the U.S. real-estate market (government incentives for increased house ownership; imprudent lending).

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¹ E. E. Schattschneider, *Politics, pressures and the tariff; a study of free private enterprise in pressure politics, as shown in the 1929-1930 revision of the tariff* (New York, Prentice-Hall, 1935).

- - wrong incentives in financial institutions that led to the assumption of excessive risk (partly induced by the logic of too big to fail); the public sector then had to absorb the contingent liabilities built up in the financial sector.
- - global imbalances, with long-term current account deficits in some countries (the U.S., U.K., Australia, Spain, Ireland) and long-term surpluses in others (China and other rapidly growing Asian economies, Gulf oil producers).
- - loose monetary policy, especially in the U.S.
- - the fiscal consequences of major banking problems, that have led to problems of debt unsustainability. They have in turn the capacity to destabilize the banking sector.
- - for the sake of completeness, a sixth dimension, peculiar to the European problem, should be added: the relatively long run divergence of relative labor costs relative to productivity developments in a single monetary area, a problem that antedated the financial crisis, but contributes greatly to the problems encountered by the Eurozone.

The first of these is probably only a precipitant, in that the total amount of sub-prime mortgages by itself was not sufficiently large to trigger a global financial crisis of the magnitude witnessed since 2007.

With the exception of the first, however, the amazing feature – and an indictment of current ability to learn – is that all of these problems are still around:

- - there is some discussion of financial sector reform, with a gradual consensus building around sliding or incremental capital adequacy rules, with bigger buffers required for large, interconnected and systemically important institutions.
- - global imbalances were immediately reduced in the course of the initial crisis, with the U.S. adjusting its deficit relatively rapidly; but they are emerging again. The non-disappearance or persistence of imbalances may be something of a blessing. Indeed, a complete reversal of imbalances, as occurred in the 1930s, when capital returned to the creditor countries, would probably have created a new version of the Great Depression.
- - the major industrial countries are maintaining very low interest rates, with a widespread suspicion that this is part of a strategy of currency depreciation by the United States (“currency wars” in the oft-quoted phrase of the Brazilian Finance Minister), and that loose monetary policy is fueling commodity and food prices rises (and social unrest in many emerging countries, including those that are perceived to be the major competitors of the U.S: i.e. China). There is also a widely held belief that any tightening of monetary policy will produce immediate problems, which will immediately damage the prospects for fiscal sustainability of many governments with high debt ratios (the U.S. and Japan, as well as some European countries).
- - we do not know how to handle the fiscal issues posed by the financial crisis. Doubts about the sustainability of government debt produce sudden surges of interest rates, as risk premia rise dramatically with perceptions of the likelihood of default. Such rises do not take place in a linear way, but occur with great suddenness. The UK is exceptional in a European comparison at the moment because despite its poor debt and fiscal position it is still sustaining low costs of government debt service. That achievement that would be threatened by hints of new fiscal imprudence or by the abandonment of plans for long term debt consolidation and reduction. In those circumstances, the additional costs of debt service easily outweigh any gains that might come from some measure of fiscal relaxation.

Fiscal uncertainty is affecting all major industrial countries. In the United States, it produces political paralysis. In the EU, disputes about how to do rescues of over-indebted high deficit countries – in particular on how to distribute the costs - threaten the whole process of integration. In Japan the very high level of government debt (in large part the consequence of an older banking and financial

sector crisis of the 1990s that was not adequately resolved) threatens to be unsustainable once interest rates rise from extraordinarily low levels.

So while we understand quite well what may have produced the financial crisis, we are pretty helpless about actually drawing useable lessons. As a result, the prospects of large-scale banking or financial sector failures and large-scale public sector insolvencies continue to pose a serious threat. The two sets of problems are intrinsically inter-connected in that major banking sector difficulties require public bailouts, while government insolvencies threaten banks as well as other institutions that hold large amounts of government debt.

Before the crisis, monetary policy, financial sector policy, and fiscal policy were all carefully separated in institutional terms, with clearly delineated respective particular goals or objectives: monetary (price) stability, avoidance of banking or financial sector breakdowns. Only the third policy area seemed to offer a chance for political activity: for the choice of what is held to be a general or public good, and for the realization of objectives formulated as part of a political process. After the crisis, all three of these policy domains have become highly, and dangerously, politicized.

A great deal of the discussion has focused on immediate actions that promise to patch up a current problem, but may generate greater and even more intractable long-term problems: in particular, the writing-down of debt and the use of looser monetary policy to inflate away debt.

Default

The debt arithmetic of the European Union is uncertain and precarious. Over the past year, policy was based on the assumption that fiscal consolidation in the Mediterranean countries might just do the trick, and – at great cost - allow a return to normal financing. But persisting market nervousness, coupled with doubts about the political sustainability of the reform program, mean that the spreads over the rates for secure German debt remain so high that the debt level in some south European will rapidly become unsustainable.

It might in consequence be desirable for the European Union to prepare a mechanism that spells out how debt can be trimmed down. Many economists have argued this case on the basis of arithmetic calculation. There is also an attractive case that financial institutions which misjudged debt sustainability should bear a large part of the cost of the resulting damage.

However, the case against some form of debt reduction is a profound and deeply moral one. The argument has been spelled out elegantly by the European Central Bank, notably by Lorenzo Bini Smaghi.² Not reneging on public debts is a central principle of political life that is deeply intertwined with the development of legal security, of representative government, and of modern democracy. In the late seventeenth century, in the wake of Britain's Glorious Revolution in 1688, when Britain revolted against the spendthrift and autocratic Stuart dynasty, the British government adopted a new approach to debt. Voting budgets in parliament – a representative institution - ensured that the people as a whole were liable for the obligations incurred by their government. A constitutional approach limited the scope for the wasteful spending on luxurious court life (as well as on military adventure) that had been the hallmark of early modern autocratic monarchy.

The experience of wartime inflations and de facto defaults in the twentieth century made the theme of responsible finance a crucial part of a new European consensus. A foundation of the European integration process was a recognition of the importance of a stable currency to political legitimacy.

² Lorenzo Bini Smaghi, "Europe cannot default its way back to health," *Financial Times*, December 16, 2010: <http://www.ft.com/intl/cms/s/0/0c5511d4-0955-11e0-ada6-00144feabdc0.html#axzz1RDS6Gbf3> .

The critical French-German axis of the European Union was held together by the conviction that political order in a democracy depended on the security of debt. In Germany, the expropriation of two generations of middle class bond holders was seen as the outcome of the Kaiser's war, and then of Hitler's war: in other words, as the outcome of democratic failure. After inflation and unstable government, Charles de Gaulle rebuilt the French political system, but also the idea of the French nation, by championing currency stability. He explicitly went back to the legacy of Napoleon, and argued that France could only be stable with a strong currency.

There are also cautionary examples from other parts of the world. Countries that are sometimes held up as models of how default can restore financial and economic health – Russia and Argentina – in fact eroded public trust and confidence and created longer term governance difficulties.

The financial revolution that swept the world over the last two decades seemed to sever the link between democracy and representative government on the one hand and the rules of government financing on the other. Derivatives and complex financial engineering seemed like a way round the iron laws of the responsibility of citizens for expenditure to which they had consented.

Modern government finance constituted the equivalent of the ability of subprime mortgages to deliver on the illusion of universal home ownership. Rules and limits no longer applied. Countries could practice generosity on the never never. The apparently hard rules of the Maastricht Treaty and the Growth and Stability Pact, with a three percent of GDP limit on overall government deficits and 60 percent on government debt, encouraged ingenious accounting to shift expenditure in order to meet the externally imposed terms.

The financial revolution went in parallel with the effective political disenfranchisement of Europeans. For the past twenty years, it looked as if power was being shifted to a technocratic elite. Behind the scenes accounting tricks were accompanied by behind the scenes political tricks. Citizens unsurprisingly complained about the declining legitimacy of the European Union institutions.

The idea of some part of existing government debt of member countries being shifted to a European bond has many technically appealing aspects. But it will only work if there is a return to the British principles of 1688 (or the principles of the American Revolution). Taxpayers across the European Union need to have the sense that they control what they must pay in the future: and that they will not be held responsible for the mistakes and frauds of irresponsible finance coupled with irresponsible government. In this sense, a fundamental reform of fiscal policy is needed.

Monetary Policy as a Substitute for Fiscal Policy

Before 2008, there was a general consensus that central banks were primarily concerned with price stability and with monetary policy. Money plays a special role in economic life as it is a store of value and a unit of account. There is a symmetry between the operation of inflations and deflations. If imperfectly anticipated inflations are a tax on creditors and a subsidy to debtors, unanticipated deflations subsidize creditors and tax debtors. Both have redistributive consequences and both increase to an unsustainable point the pressures on the political process.

After 2008, the financial crisis has brought an involvement of central banks in financial sector stability issues and in issues of credit allocation and credit policy. They had to make choices about "unconventional" policy, about what types of security to take into their portfolio. When there is some possibility of loss, there is an implicit subsidy involved. These are fundamentally fiscal issues. But after the crisis, monetary institutions began to be expected to do fundamentally fiscal things, purchasing government bonds or providing regular financing over long periods of time to financial institutions that are not able to access normal inter-bank markets.

The more quasi-fiscal policy is made by central banks, the more the basis of a sustainable monetary policy is undermined. The effects are already quite visible. The decision-making bodies, especially the

UK Monetary Policy Committee, or the US Federal Reserve Board of Governors (which is responsible for approving securities purchases “in unusual or exigent circumstances’ under Section 13/3 of the 1932 Emergency Relief and Construction Act, or (to a much lesser extent) the ECB Council have become arenas where high profile quasi-political figures with reputations as hawks and doves slug it out. The longer emergency measures are needed, the more likely it is that the politicization of the ECB Council will increase. This outcome is a long way removed from the supposed autonomous operation of the organs that determine monetary policy.

The intellectual shift towards central bank independence, which characterized the late twentieth century, and which brought a considerable degree of price stability, was only possible on the assumption that there was a really clear rule or principle that the central bank should follow. When that rule or principle became muddied, and discretion in policy making returned, the case for central bank independence began to look more problematical. Thus the historical pendulum is swinging back, toward a politically controlled Bank of England, a more politically accountable Federal Reserve, and an ECB that answers to the people of Europe.

This move to greater political influence is analogous to the process by which trade policy in the interwar period became politicized and nationalized. The primary lever that is used in the critique of central banks is a new kind of financial nationalism. The Fed’s policy of the early 2000s is reinterpreted as having been largely to the advantage of China – in the same way as the accusation of the 1930s was that the Fed had helped Europeans unfairly.

Nationalist-flavored criticism is even more acute in regard to the handling of the financial crisis. Tax payers demand that their money is not used to support foreigners. Banks that are under some measure of government control because of crisis recapitalization or other support – whether in Britain, the U.S. or Europe - are pressed to cut back their foreign lending. Central bank swaps that seem to help foreign banks are consequently a source of embarrassment for the central bankers. The U.S. bank bailouts in the September 2008 crisis are criticized because they involved the support of foreign institutions. The principal beneficiaries in the rescue of AIG apart from Goldman Sachs were the big European investment banks, Credit Lyonnais, Deutsche Bank, or UBS. The post-crisis assumption is that something that helps other countries must be bad for one’s own country. In short, international financial cooperation is unpatriotic and treacherous.

The motives behind such political accusations against the central banks are not difficult to detect. The idea of intensified political control, especially by parliaments, opens up central banks and the financial community in general to political pressure. That strengthens the parliamentarians. Monetary policy is seen as offering free lunch, rather than as providing a reliable measure of value. Politicians want to decide where credit should flow: to their constituents, rather than to the clientele of an internationalized banking community. The new public debate sees a zero-sum distributional game. Monetary institutions in that game are concerned with credit allocation rather than monetary policy goals. The result has been the attempt to restrict money policy to a national framework, and to produce the equivalent of Smoot-Hawley style protectionism. In a European framework, such financial nationalism would prove disastrous. If it becomes the regular mode of politics, it would drive a rapid unraveling of the European integration process.

Fiscal Policy Debates

Fiscal policy traditionally has been much more about the redistribution of resources, and in that sense it is properly political. Crises are testing moments.

Nobody – or at least very few - would deny that there is some need for government activity in the regulation and management of economic life. In particular, governments can solve some collective action problems that arise from specific market failures, when a particular conduct produces costs or disadvantages for others. Governments provide collective goods, most importantly internal and

external security and basic infrastructure. The institutions that make free exchange possible – the definition and enforcement of property rights, the arbitration of disputes, and the rule of law in general – depend on government. Governments thus have a fundamental and indispensable role to play in ensuring the proper, competitive and free functioning of markets.

That operation also demands as a prerequisite sustainability, and that depends on perceptions of the legitimacy and fairness of the social order. There is thus a legitimate demand that fiscal policy should promote some sort of social justice. It must offer a safety net, when other – better – mechanisms that should produce social cohesion and solidarity (such as greater levels of entrepreneurship, raised skill levels) for some reason are not effective. Indeed failure to do so can produce bad and destabilizing consequences, and dramatic market failures. One of the contributing causes of the financial crisis lay in the perception that widespread access to credit and borrowing could offer a compensation for poor wage growth and falling real incomes. The credit boom – one that was ultimately unsustainable – was thus a compensation for inadequate productivity growth, both for people (above all in the U.S.) and indeed for whole countries (above all in Mediterranean Europe).³

Government action is constantly expanded because there is a sense that existing control provisions are inadequate and should consequently be extended. When government starts to be active in a particular field of endeavor, that action requires new legal provisions. The creation of such a framework by itself often means that it is more difficult for the private sector to be active in the same area; and it establishes an assumption that government has a proper role here. Such calculations contribute to the ratchet effect that characterizes a great deal of modern government activity.

One of the features of complex tax deductions is that they create a demand both for ever more complexity and for greater access to special treatment. This is a powerful argument against the often-made attempt to use tax policy to promote particular kinds of activity. A simplified tax system will reduce the extent of lobbying and its ability to produce new distortions.

Sometimes government may spend rather aimlessly simply in the hope of achieving an aggregate stimulus that may promise a political pay-off. It is hard to see how this kind of spending is constructive. In the words of a recently leaked 2006 UK cabinet memorandum, “We’ve spent all this money, but what have we got for it?”

Finally, many programs are established with an initially modest cost but later expand, perhaps as the result of the availability of new technology (for instance in medical provision) or because of the expansion of recipient categories because of demographic change (as most notably in social security provision). Both developments mean the opening up of large funding gaps.

There is in consequence a tendency inherent in the operation of many legislatures to accept a build-up of expenditure that cannot be financed in the longer term, and thus imposes high costs and limits on the actions and choices of subsequent generations. While it is clear that there are circumstances in which unanticipated economic or financial shocks may demand a temporary increase in the extent of government activity in order to stabilize both overall economic activity and economic expectations, and that such an increase may be expected to raise government debt, the long term stabilization of expectations also requires that such increases in expenditure need to be funded. These are circumstances in which appropriate government action may contribute to the building of confidence and trust. Confidence and trust in turn are important factors in generating successful economic outcomes; their absence leads to sub-optimal equilibria. In the long term, government debt that increases at a faster rate than the overall growth of the economy will eventually become unsustainable, and will erode confidence and sap trust.

³ See on this Raghuram G. Rajan, *Fault Lines: How Hidden Fractures Still Threaten the World Economy*, Princeton: Princeton University Press, 2010.

Different societies will choose different levels of government activity. It is possible to identify some societies (mostly lower income countries) in which the small size of government leaves basic tasks unprovided, in which there is inadequate security, enforcement of law, or infrastructure. People need to provide privately for their own security, and are constantly mistrustful of others. The absence of an effective state makes it impossible for anything that we might identify as society to exist. It is also possible to identify societies where the size of government has become so large as to crowd out the room for individual action and initiative. In Sweden in the 1970s and 80s the average marginal tax rate was close to 90% and the share of government in GDP was close to 60%. A government that is too big undermines society just as surely as a government that is too small.

The creation of new tasks for government in response to a build-up of political lobbying often means that some of the most basic tasks of government are left undone so that, for instance, complex welfare systems exist alongside inadequate or antiquated infrastructure. Some economists have tried to identify a maximum sustainable level of government activity as 30 percent of GDP, but such precision is quite hard to justify on the basis of general principles.⁴ For some societies, higher rates may be sustained for long periods of time if they are adequately funded; other societies would find even a 30 percent level corrosive. The historic concerns of American society in limiting government activism may mean that a preference for a lower level fits most easily with U.S. political traditions.

Markets have been distorted more frequently by excessive claims than by inadequate expectations about what governments can and should do. Such over-optimistic claims about the effectiveness of government often produce a vicious cycle, in that such claims build up expectations of positive outcomes; and when they fail to achieve their aims, the failure is blamed on the partiality or the inadequate extent of government action, and there is in consequence an even more vocal call for government action. The state's over-extension tends constantly to excite larger demands for how the state might determine or alter the market process. As a consequence it is expedient to delimit the right or appropriate area for and extent of state activity.

There is a need for sustainable long-term fiscal guidelines or rules that hold the size of government stable and limited, that exclude a long-term increase in government debt, and that over the course of a business cycle limit government deficits. Such guidelines do not exclude the possibility of short-term responses to unanticipated events (such as severe recessions and natural disasters), but require that emergency responses cannot be made into a permanent mechanism. Some countries have experimented with variants of balanced budget requirements: that was a German policy initiative in 2009, which Germany is now proposing to extend as an EU-wide approach. Actual experience of such legislative compulsion is rather mixed: the U.S. Gramm-Rudman-Hollings Act of 1985 was briefly effective, but has not been a long-term model, and failed to prevent the rapid reintroduction of complex tax clauses after the major and apparently innovative 1986 U.S. tax simplification.

There may need to be an additional mechanism for drawing up the guidelines for sustainable fiscal policy. An independent fiscal council with advisory functions should provide a desirable counterweight to the tendency for fiscal issues to be driven by particular interests in legislative bodies. A new institution with a more general mandate would be a way of making sure that a long term and general vision of the country's interests are articulated, and would balance the particular interests reflected in the legislature.

There are important precedents: significantly they always are a response to severe crises and shocks. In the wake of severe fiscal crises, some European countries have instituted such councils: Sweden in 2007, Hungary in 2009, and the United Kingdom's Office for Budget Responsibility in 2010. These have been characterized by a high degree of independence, and a willingness to offer critical assessments of government forecasts and of government policy; but the consequence has also been conflict with the government (the current Hungarian government is trying to replace the fiscal

⁴ Vito Tanzi and Ludger Schuknecht, *Public spending in the 20th century: a global perspective*, Cambridge: CUP, 2000.

council after receiving a great deal of criticism).⁵ Their role should be systematized and expanded, and such Councils should become a European norm. The national Councils could be coordinated through a parallel Council for the Eurozone as a whole.

There is an analogy with commissioning a central authority to make decisions on trade policy, or an independent central bank to make monetary policy. Such an effort is also analogous to the recent US establishment of an Office of Financial Research, mandated to collect data with the goal of analyzing concentrations of systemic financial risk. A fiscal council would need to have the broad task of examining concentrations of fiscal risk: programs that risk exploding costs because of increased take-up or because of new challenges. Legislatures or parliaments should decide what the desirable objectives of public policy should be – health, education, security etc. – and also what level of expenditure is politically desirable. But a fiscal council should evaluate whether money is being spent effectively, and consider alternatives for getting the same outcomes at a lower cost. Above all, it should evaluate the long term consistency of spending plans.

Such a Council would not only examine long-term fiscal sustainability, but would also have a mandate to examine the balance between costs and outcomes or results in every branch of government activity, including spending on defense, foreign policy, social security, medical care and education. All are indisputably public goods, but there is a legitimate expectation that public goods should be delivered efficiently. The Council should offer both an analysis of long term sustainability and a particular and comprehensive analysis of the cost-effectiveness of all government programs: what they are designed to achieve, whether that is a benefit that can be measured, the likely path of future costs in order to achieve that benefit.

In the sphere of monetary policy, expectations are anchored by a credible and explicit inflation target, which in general is not set by the central bank itself but by the political authority: the desired rate of inflation is a political objective or choice; it is then up to the central bank how to achieve it. The analogy might be an explicit growth and employment target over the long term, that would encourage the private sector activity that might result in that target being achieved.⁶

As in the case of monetary or trade policy reform, action can only come when there is a widespread and deep recognition that something is really broken. Europe has now reached that point: a crisis, to use the original medical sense of the term, is the moment when the disease is either cured or it moves on to a termination fatal for the patient.

⁵ There is a comprehensive list of fiscal councils and of academic treatments of the proposal in: http://www.economics.ox.ac.uk/members/simon.wren-lewis/fc/fiscal_councils.htm .

⁶ See also the paper in this volume by Massimiliano Marcellino.

Legal Perspectives on Tensions at the Heart of the ‘Project’

Joanna Gray* and Patrick O’Callaghan*

In the preamble to the Treaty of Rome (1957), the signatories declared that they were ‘determined to lay the foundations of an ever-closer union among the peoples of Europe’. So began the European ‘project’. Monnet’s ideal of an ‘ever-closer union’ was intended to be a ‘realistic utopia’ in the Rawlsian sense, its ‘long-term goal of political endeavour’ denoting a process rather than a finished product.¹ Over the past half a century, this process has brought about unprecedented intergovernmental cooperation and has fashioned a European Union with supranational institutions, unique in international law. But from De Gaulle onwards, European leaders have rejected the ultimate federalist impulse to take those final political steps to ‘complete’ the ‘project’.

There is thus an awkward tension at the heart of the European project. European leaders wish the process of integration to continue but refuse to commit to a full political federation. However, logically, a process of convergence, by its very nature, cannot be infinite because convergence must at some point occur. This tension can be seen in the current wording of the Treaty on European Union in which the Member States pronounce that they are ‘resolved to continue the process of creating an ever closer union among the peoples of Europe, in which decisions are taken as closely as possible to the citizen in accordance with the principle of subsidiarity.’ Here, the drafters promote again that indefinite process of integration that is at the heart of the project but, perhaps conscious of charges of a democratic deficit, they reassert the principle of subsidiarity.

It is this tension or paradox, as it were, that has caused immeasurable difficulties for those at the helm of the European project. The financial crisis and the ensuing problems of the single currency is a case in point. But the often repeated phrase of Jean Monnet of the history of Europe being forged in crisis seems never truer and some interesting new institutions are emerging from the (perceived) need to respond to the effects of sovereign financing problems within certain Eurozone governments. These have exposed fault lines to monetary union without fiscal and political union that sceptics about the project always said were there. However fault lines do not necessarily result in fracture and rupture (default and a breakup of the Eurozone) and the legal obligation incumbent on the ECB in Art. 127 TFEU, being to maintain price stability (and *ergo* defend the value of the Euro) explains much of its public stance which, to those outside of the Eurozone and many a critic on the pages of the *FT*, can appear Canute like to say the least. It can be tempting, when faced with real and painful tension involving hard choices to try to neutralise tension and obfuscate the stark realities of choice between undesirable alternatives. Law and lawyers appear to offer a lifeline here for beleaguered politicians and hemmed in technocrats. For the artifice of legal solutions to challenges of private ordering and public choice knows no bounds and the immense practicality and real time responsiveness of the pedlars of legal answers to existential problems explains the persistent grip on power of law and lawyers through the centuries.² We highlight here how EU law has been stretched to the limit to cloak the essential tension at the heart of the European project and innovation within the EU legal order faces challenge from national courts which may well take up the task of voicing and exploring the tension that Europe’s political leaders have been so keen to avoid all talk of.

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We would like to record our thanks to Professor Schachtschneider for responding to our request for sight of the arguments being advanced before the German Constitutional Court on 5 July 2011

¹ J. Rawls, *The Laws of Peoples* (Cambridge: Harvard University Press, 1999), p 128.

² A. Beattie, ‘Take a deep breath, economists, it’s time for the lawyers’ *Financial Times* June 18/19, 2011

The Legitimacy and Efficacy of the EU and Member State response to the sovereign debt problems in the Eurozone

EU Law – Stretching the Treaty Parameters of Monetary Union

The EU and Member States responded to the Greek sovereign debt crisis in the summer of 2010 by issuing bilateral loans, establishing a European Financial Stabilisation Mechanism (EFSM) and agreeing to a European Financial Stabilisation Facility (EFSF). The legality of these initial measures, arranged in haste in the face of the Greek crises, is questionable in light of the EU Treaties.

It is often assumed, perhaps too readily, that the issuance of bilateral loans, while politically controversial, is unproblematic from a legal perspective. In principle, sovereign states are free to enter into any sort of bilateral agreements they so choose as long as these agreements are in accordance with the rules and procedures of national law. However, EU Member States are further obliged to ensure that bilateral agreements are compliant with directly applicable EU law. In particular, the question arises as to whether the bilateral agreements made in response to the Greek crisis are compliant with Art. 125 (1) TFEU (the so-called 'no-bailout clause').

Alongside the euro convergence ('Maastricht') criteria originally set out in Art. 121 (1) EC (now Art. 140 TFEU), the 'no-bailout clause' of Art. 125 (1) was intended to ensure price stability in the Monetary Union and counter fears of a 'transfer Union' and was ultimately key to ensuring the participation of several Northern European Member States.³ Some analysts suggest that the bilateral loans and the EFSF are not caught by Art. 125 (1) because the Member States do not intend to assume liability for Greek, Irish or Portuguese debts, rather they have committed to providing loans, with the expectation of repayment.⁴ This appears to be the line adopted by EU leaders. But Schachtschneider *et al.*,⁵ argue that the 'loans' do not represent any value for Member States because the credit referencing agencies repeatedly describe Greece's credit rating as having 'junk status' and unlike the IMF loans, the Member States and the EFSF do not have 'preferred creditor status'.⁶ On their account, this means that there is 'no chance' that the loans will be repaid and the general public is 'being hoodwinked'. The suggestion here is that Member States are fully cognisant of Greece's inability to repay the loans but have created a fiction of debt repayment so as to placate a sceptical public and to ensure that their actions are compatible with Art. 125 (1) TFEU.

Further concerns have been raised about the legality of the Council Regulation 407/2010 establishing the European Financial Stabilisation Mechanism (EFSM). The Regulation authorises the Commission, using the EU budget as a guarantee, to borrow up to €60 billion on the capital markets to raise funds for the purposes of providing loans to Member States facing a 'deterioration of borrowing conditions'. In return, the Member State seeking EU financial assistance must draft an 'economic and financial adjustment programme' in consultation with the Commission and ECB. The recitals to the

³ See J.V. Louis, Guest Editorial: The no-bailout clause and rescue packages' (2010) 47 *Common Market Law Review* 971, at 982. See further J. Pipkorn, 'Legal Arrangements in the Treaty of Maastricht for the Effectiveness of the Economic and Monetary Union,' (1994) 31 *Common Market Law Review* 263.

⁴ Herbert Smith LLP stress that 'there is no evidence that the Member States are otherwise assuming or becoming directly liable for Greece's debt obligations. Therefore, it is doubtful that Article 125(1) would prohibit the Member States loans to Greece'. See Herbert Smith LLP, Briefing Document on European Financial Stability Measures and EU Law, July 2010, available at <http://www.herbertsmith.com/Publications/>

⁵ Verfassungsbeschwerde und Antrag auf einstweilige Anordnungen der Professoren Hankel, Nölling, Schachtschneider, Spethmann und Starbatty vom 7. Mai 2010, p 80, available at <http://www.kaschachtschneider.de/en/downloads.html>

⁶ Thompson explains the rationale of these loans ranking *pari passu* with private creditors: '[T]oo many creditors with "preferred" status (like the IMF) can crowd out private investors wishing to purchase sovereign debt... This is because the larger the proportion of debt held by preferred creditors, the greater is the burden of any default on the remaining "ordinary" creditors.' See G. Thompson, *House of Commons Library Standard Note*, SN/EP/5973, 19th May 2011.

Regulation indicate that its legal basis is Art. 122 (2) TFEU which permits the granting of EU financial assistance to Member State in difficulties or threatened with severe difficulties caused by a natural disaster or 'exceptional occurrences beyond its control.' The recitals specify that the 'unprecedented global financial crisis', which threatened the economic stability of several European states constitutes an 'exceptional situation' beyond the control of Member States. Bandilla has argued that Art. 122 acts in this way as a 'counterweight' to Art. 125 and Louis calls it the 'true crisis clause'.⁷ Louis and others are under no doubt that the recent financial upheaval constitutes such a crisis within the meaning of the provision. But Schachtschneider *et al* are more sceptical and suggest that the financial difficulties facing the PIIGS are a direct consequence of economic mismanagement predating the financial crisis and therefore do not constitute an 'exceptional occurrence' beyond the control of the state. On their account, not only did Greece massage its figures to secure entry into the Euro in the first place, it continually flouted the deficit rules of Art. 126 TFEU and the Stability and Growth Pact following entry. According to Schachtschneider *et al*, far from facing difficulties beyond its control, as a consequence of years 'living beyond its means', Greece 'brought its budgetary difficulties on itself.'⁸

Perhaps recognising the precariousness of Art. 122 (2) TFEU as a legal basis for the EFSM, the Council resolved in December 2010 to amend Art. 136 TFEU by means of the simplified revision procedure (contained in Art. 48 (6) TEU) so as to ensure that the new European Stability Mechanism (ESM) has a solid footing in the Treaty. The ESM will permanently replace the EFSF and the EFSM and is intended to 'safeguard the financial stability of the euro area as a whole'. According to the Council, Art. 122 (2) TFEU 'will no longer be needed for such purposes'.⁹

Is the ECB acting rationally and properly in buying up Greek debt? If not, then can it be called to account?

Alongside, the various activities of the Member States, EU Council and Commission, the ECB initiated liquidity measures and debt swaps in order to calm the markets. But first the European institutions needed to circumvent the strictures placed on them by Art. 123 (1) TFEU which prohibits the ECB and national central banks from providing credit facilities to Member States and further prohibits them from directly purchasing debt instruments of Member States. The key word here is 'directly', and so the ECB and national central banks simply bypassed this requirement by purchasing Greek, Irish and Portuguese bonds on the open market.¹⁰ However as the value of Greek sovereign debt as collateral looks ever more questionable this opens up interesting legal questions as to the accountability of the ECB for losses it would incur should the consequences of any eventual default fall on its subscriber national central banks which comprise the European System of Central Banks and, ultimately, on Eurozone taxpayers. Although the constitutive legal instruments of the ECB go to great lengths to enshrine its independence from political influences and to purify and sterilise the context in which it pursues its mission that does not mean it either does or should have a complete and absolute immunity from subsequently being called to account for its actions in a legal forum. The European Court of Justice has recognised this fact, albeit in the rather different context of countering fraud on the European Union's financial interests, when the ECB was called to account before the ECJ to acknowledge the investigatory jurisdiction of the European Anti- Fraud Office (OLAF) over the Bank's resources and expenditure. The ECJ had no difficulty in seeing OLAF's claims to be able to investigate the ECB as being entirely consistent with of the Treaty objective of protection of the

⁷ See R. Bandilla in Grabitz/Hilf, *Das Recht der Europäischen Union* (Beck's Verlag, 2006), p 3 quoted by Louis, *supra* note 3.

⁸ Schachtschneider *et al*, *supra* note 5, p 84.

⁹ Draft Council Decision of the 20th December 2010, EUCO 33/10.

¹⁰ See Louis, *supra* note 3. See further, as cited by Louis, U. Häde, 'Haushaltsdisziplin und Solidarität im Zeichen der Finanzkrise' [2009] *Europäische Zeitschrift für Wirtschaftsrecht* 399.

financial interests of the Union (now contained in Art 325 TFEU) and did not see the principle of central bank independence as being an obstacle in any way.¹¹ The ECB enjoys the same immunities and privileges under national laws in the exercise of its functions as do the other EU institutions. But these immunities from liability under national laws are to be determined by reference to the legislative functions of the ECB and there are limits to what can be said to be rational pursuit of legislative functions, even in conditions of crisis management and great uncertainty. The fact that the ECB has consistently signalled that if a default is determined the ECB will no longer consider Greek debt to be good collateral shows a recognition that there may well come a point when continuing deployment of its resources in such purchases carries legal risk. The Bank of England was called to account in the UK Courts for the common law tort of misfeasance in public office for what it argued were entirely good faith and finely balanced supervisory judgments in the context of the years leading up to the collapse in 1991 of the Bank of Credit and Commerce International (BCCI).¹² Although that case was eventually discontinued, and involved the Courts in scrutiny of a central bank's exercise of its supervisory jurisdiction over an individual institution rather than stewardship of the stability of a monetary system (as any challenge to the ECB for its continued programme of buying up Greek bonds), it serves as a useful reminder that central bank immunities can be tested in Courtrooms.

Kompetenz-Kompetenz : The Role of National Law and National Courts

In principle, the EU does not enjoy the competence to extend its own powers. Therefore, in their efforts to ensure an effective response to the sovereign debt crisis EU leaders face a stark choice. They must manoeuvre within the strict confines of the existing Treaties or seek approval for Treaty amendments or a new Treaty from national parliaments (or referendum in the case of Ireland). From the discussion above, it is clear that EU leaders have chosen the first option, insisting on the repayment of loans, interpreting Art. 122 (2) TFEU widely and ensuring that the ECB purchases debt instruments on the open market rather than direct from Member States.

But the question as to whether the EU has acted within its competence or *ultra vires* the Treaties is not a matter for the EU itself. The constitutional or supreme courts of Member States regard themselves as the ultimate arbiters of EU competence. So the question arises as whether national courts can and will speak truths about the limits of engineering ever more complex solutions based in EU law to problems that in reality demand full, transparent and participatory solutions from the afflicted and affected sovereign peoples of Europe? Where national political leaders have failed to voice the choices that may need to be made in order to secure (or otherwise) the future of a stable monetary union perhaps legal argument and discourse can fill the vacuum or at least start the debate at national level in such a way that national polities can acquire a greater sense of ownership of any eventual decisions as to expansion of EU competence and cementing or fragmenting of monetary union. For there is a fine line between national law and national politics and that line is an especially fine one in Germany.

The German Constitutional Court's defiant attitude towards the doctrine of supremacy of EU Law is well-known. In *Brunner v. The European Union Treaty* (the *Maastricht* judgment),¹³ the Constitutional Court reaffirmed the principle of *Kompetenz-Kompetenz*, as set out in *Solange II*.¹⁴ The Court acknowledges the supremacy of EU law within its sphere of applicability but emphasises that it retains the ultimate competence to define the scope of EU competence.¹⁵ The German Court can thus

¹¹ *Commission of the European Communities v European Central Bank* Case C-11/00- ECR [2003] ECR I-7147

¹² *Three Rivers District Council and others v Bank of England (No 3)* [2000] 3 All ER 1; *Three Rivers District Council and others v Bank of England (No 3)* [2001] 2 All ER 513, [2003] 2 AC 1

¹³ BVerfGE 89, 155; [1994] 1 CMLR 57.

¹⁴ *Re Wünsche Handelsgesellschaft (Solange II)* BVerfGE 73, 339; [1987] 3 CMLR 225.

¹⁵ BVerfGE 89, 155; [1994] 1 CMLR 57, at 91.

review any obligations imposed on Member States that materially affect the fundamental rights guaranteed by the Basic Law¹⁶ and is entitled to review the actions of EU institutions and agencies (including the Court of Justice) to ensure that they do not extend their powers in any way.¹⁷ The German Court has recently reemphasised its position on *ultra vires* review in the *Lisbon* and *Honeywell* decisions.¹⁸

Conscious of the implications of the *Maastricht* judgment and subsequent decisions, a number of applicants have submitted constitutional complaints about the bilateral loans and financial stabilisation mechanisms to the Karlsruhe Court. The most prominent applicants are a group of six professors, Schachtschneider *et al*, who had initially attempted by means of an interim injunction to block the German legislation authorising bilateral loans to Greece.¹⁹ The applicants argued that their fundamental rights under the German Basic Law (*Grundgesetz*), particularly their right to democratic participation (*Wahlrecht*) and their right of ownership/property (*Eigentumsrecht*), were threatened by the impending legislation. The Constitutional Court rejected the injunction request reasoning that when balancing the consequences of either course of action (granting or refusing to grant the injunction), the potential for serious harm to the general public would be far greater in the case where an injunction had been granted but the constitutional rights were later found not to have been infringed. Here, the Court emphasised the view of the Federal Government that the stability of the single currency was at stake. Drawing on a separation of powers argument, the Court went on to say that there was no indication that the Government's monetary and financial policy was deficient in any way and the applicants had failed to provide enough evidence that their fundamental rights, particularly their right to property, would be damaged irreparably should an injunction not be granted. While the injunction request was rejected, Schachtschneider *et al* proceeded with the constitutional complaint, twice expanding its scope, arguing that their constitutional rights were further infringed by the EFSM, EFSF and the ECB's liquidity measures. On the 5th July 2011, the Constitutional Court began hearing arguments from Schachtschneider *et al* and two other sets of applicants.²⁰

Schachtschneider *et al* argue that the Federal Government has infringed their *Wahlrecht* (literally right to vote) under Art. 38 of the Basic Law. That particular provision guarantees free and open elections to the *Bundestag* (German Parliament) and provides that the members of Parliament shall be representatives of the entire people and not beholden to any special interests. The Constitutional Court has interpreted Art. 38 widely and has declared that it constitutes a general right to participate in a democracy; it ensures not only the 'legitimation of state power by the people' but also that they retain 'influence' over the exercise of this power.²¹

The *Wahlrecht* under Art. 38 is a fundamental guarantee of the right to participate in a democracy. In the recent *Lisbon* decision, the Constitutional Court held that Art. 38 permits constitutional challenges on 'deficits of democracy' at European level, as well at the national level.²² The Court reached this conclusion because Art. 23 (1) of the Basic Law declares that Germany may only participate in a European Union which is 'committed to democratic principles'. On the Court's

¹⁶ Ibid at 81-82. The Constitutional Court has become more accommodating on the issue of fundamental rights protection given that it sees the rights in the Basic Law as being similarly protected in the Treaty framework. See the so-called 'Bananas cases', in particular the decision of the GCC in BVerfGE 102, 147. See further C. U. Schmid, 'All Bark and No Bite: Notes on the Federal Constitutional Court's Bananas Decision' (2001) 7 *European Law Journal* 95.

¹⁷ BVerfGE 89, 155; [1994] 1 CMLR 57, at 105.

¹⁸ BVerfGE 123, 267 (*Lisbon*); BVerfG, 2 BvR 2661/06 of the 6th July 2010 (*Honeywell*).

¹⁹ 2 BvR 987/10, 7th May 2010.

²⁰ 2 BvR 987/10; 2 BvR 1099/10; 2 BvR 1485/10.

²¹ BVerfGE 89, 155; [1994] 1 CMLR 57 at 77.

²² BVerfGE 123, 267 at para 177.

account, a 'legitimising connection' must exist between those entitled to vote under the German constitution and the EU public authority.²³

The professors argue that the 'legitimising connection' does not exist in this particular case because the will of the People has been bypassed.²⁴ The bilateral loans and EU agreements are of such magnitude that have the potential to threaten the very existence of the social state in Germany (*Socialstaatsprinzip*) and, as such, a new Treaty is warranted. A fiscal union cannot be introduced by stealth; in order to be a thing of the people, a *res populi* as Schachtschneider puts it,²⁵ it requires the consent of the German people through the *Bundestag*.²⁶ Moreover, the idea of a monetary union as a *Stabilitätsgemeinschaft* ('community based on stability') is at the heart of the original German legislation ratifying the Treaty on European Union. The Constitutional Court has stated that the will of the people is clear in this legislation: if monetary stability is not maintained, then the 'Treaty conception is abandoned'.²⁷ It is instructive to note the terms in which the argument is being advanced in the GCC as to the deficiencies in enforcement of the Stability and Growth Pact (SGP). Schachtschneider *et al* challenge what they see as the EU's erroneous characterisation of the results of deficiencies in Greece's macroeconomic and fiscal policies as being 'difficulties beyond its control' in order to invoke Art. 122. This argument seeks to place the macroeconomic reasoning grounding the SGP centrally before the Court to assist it in its reasoning. This is refreshing and is in stark contrast to the convoluted manner in which the ECJ resolved (or more accurately failed to resolve) the dispute between the Commission and the Council in 2004 as to enforcement of the SGP criteria over the national governments of France and Germany when the ECJ in effect subverted the Commission's attempt to annul the Council's decision to hold the excessive deficit procedure in abeyance.²⁸ Such decision of course being (as is common) little more than an expression of Franco-German political will and desire to manage their own national budgets in accordance with their national economic and electoral cycles to the forefront rather than with thought to the risk of sowing the seeds of weak EU level governance of the monetary union.

An interesting secondary argument being advanced by the complainants in the GCC is that that their general freedom of action under Art. 1(1) and 2(1) of the Basic Law has been infringed, and that their right to property, their *Eigentumsgewährleistung* (literally guarantee of ownership) under Art. 14 (1) has been injured. The latter is an interesting and novel argument in the sense that its logic raises an essential tension in law and economic reasoning. Insofar as it is possible to argue, as many economists would, that the monetisation of sovereign debt and continued liquidity injections taking place within the Eurozone (and of course outside it too) will bring about inflationary pressures, then the financial assets of private owners will lose value, and a legal argument can be made that their right to property is injured. The law's preference for seeing values as fixed, certain and immutable sits uneasily with economists' views of money values as being little more than institutionalised measures of trust, confidence and indeed market price as the ultimate measure of preference. Just as company law had to feel its way slowly to understanding and living with the difference between legal measures of capital for the purposes of the maintenance of capital doctrines and "real" capital or economic value of a company,²⁹ so too Courts are now hearing the same dissonance between the legal view of fixed entitlement to property, for example, and economic and political revaluations of entitlements to property and assets as these surface in Human Rights law challenges to bank nationalisation and

²³ Ibid.

²⁴ Schachtschneider *et al*, *supra* note 5, p 19.

²⁵ Ibid, p 24.

²⁶ BVerfGE 89, 155; [1994] 1 CMLR 57, at 93.

²⁷ Ibid at 90.

²⁸ *Commission v Council* C-27/04 [2004] I-06649.

²⁹ Bayless Manning, *A Concise textbook on Legal Capital* (1st edition 1977; University Textbooks)

stabilisation measures taken in the interests of financial stability that result in the apparent confiscation or dilution of shareholder value.³⁰

What next?

It remains to be seen what the outcome to the German challenge will be. It may well be that the Court will not go so far as to say that the bailout mechanisms are ultra vires but rather may fall into line with the EU official sector and accept the reasoning of the extraordinary and necessary crisis management action invocation of Art 122 and effective circumvention of Art 125. The Court may instead talk about separation of powers and insist on further safeguards for future bailouts such as 2/3 of parliamentary votes needed as with constitutional amendments or Treaty amendments.

But whatever the outcome is we would argue that the German hearing is an essential step in the legitimisation process of whatever the next steps prove to be for the European monetary project as well as crisis management within it. This legitimisation process extends well beyond German borders and, uncomfortable as it may be for those whose main concerns lie primarily with the smooth running of 'the project' or whose gaze is trained on the horizons of 'ever closer union', it is a reality that global debt markets, national Courts and the streets of European capitals are all pointing to the same tension at the heart of the European monetary project. It is a tension between movement to a coherent, politically legitimate unitary fiscal policy and infrastructure for the Eurozone as currently constitutes as the ECB President cogently (if somewhat wistfully) argued for in June 2011³¹, and between a monetary project with fewer members. Indeed the two outcomes may well not be mutually exclusive and the challenge may well be to manage orderly exits from the Eurozone and managed defaults on obligations denominated in the 'old' Euro. Indeed Schachtschneider *et al* suggest that Greece should voluntarily leave the Euro and they make the point that Art. 50 TEU allows a Member State to withdraw from the Union but there is no such provision for leaving the Euro. A fundamental design flaw in what was only ever a partial monetary union and never a true single currency. Rather all the indications in the Treaty are that the Euro will eventually become the permanent currency for all MS.³² This omission of an exit mechanism is characteristic of the overly optimistic faith in the transformative power of grand declaration of those who frame each stage of the evolution of the EU legal order and the attendant failure to look round corners and practically plan for the unexpected and unwelcome eventuality. It explains much of the scepticism and ambivalence towards the whole European project in an intensely practical common law legal tradition such the UK.

National courts are responsive to ultimate stakeholders in the project (people) in way that Treaty framers can never be and so the German Constitutional Court has held in the Maastricht judgment that German withdrawal from the monetary union may follow as an '*ultima ratio*' in the case of failure of the *Stabilitätsgemeinschaft* ('community based on stability').³³

However the fundamental tension at the heart of the project has yet to be voiced, explained and confronted by the political leadership of the member states involved. In order for the Euro and the European project to be firmly rooted and resilient there needs to be a direct link of 'legitimation', as

³⁰ The current challenge to compensation arrangements on nationalisation of their shares following the bank run of 2007 that has been brought by former shareholders in Northern Rock bank before the UK Courts and is now heading to the European Court of Human Rights in Strasbourg exposes the differing visions of property value held by the law and economics. See (1) *SRM Global Master Fund LP*, (2) *RAB Special Situations (Master) Fund Ltd*, (3) *Dennis Grainger & Ors v Commissioners of HM Treasury* [2009] EWCA Civ 788

³¹ Speech by Jean-Claude Trichet, *Building Europe, Building Institutions* on receiving the Karlspreis 2011 in Aachen, 2 June 2011, <http://www.ecb.int/press/key/date/2011/html/sp110602.en.html>

³² Art 3 (4) TEU 'The Union shall establish an economic and monetary union whose currency is the euro', and Arts. 119 (2) and Art 139 TFEU.

³³ BVerfGE 89, 155; [1994] 1 CMLR 57, at 101.

the German Constitutional Court would put it, between the people and the EU. There appears to be an inescapable tension between achieving financial stability and democratic legitimacy in the Euro as it is currently constituted.

The right to one's day in court in a liberal democracy to be a meaningful exercise of voice has perhaps been overlooked by European politicians and institutions as they sought to reserve to themselves as much competence and discretion as they can in the face of the need to manage crisis in 2011 in the sovereign debt arena and damage to monetary stability more effectively than they managed the European financial sector crisis in 2008. But it is the same crisis and the very same tension that underlay the lack of a co-ordinated and robust response to the financial sector problems in 2008 has simply been transferred to the sector of sovereign financing but this time it is the ultimate expression of faith in the project that has been put at stake – monetary union itself. We would argue it is time for heresies to be spoken and debated, for only then can their destructive power be neutralised.

POST SCRIPT : Shortly after this piece had been written the Heads of Government in the Euro Area and the EU institutions announced on 21 July the latest round of support for Greece which appears to involve (*inter alia*) an element of default on some of its outstanding indebtedness along with an expanded surveillance and more proactive and interventionist role for the EFSF and the ESM 'linked to appropriate conditionality'. A European Monetary Fund in all but name and the same problems that beset multilateral action and surveillance through the IMF (funding, legitimacy, accountability..) are sure to surround such a body too. However unlike the IMF, a common fiscal and macro-economic management framework appear to have now been agreed at the level of European political leadership as the choice has been made to reaffirm strong commitment to a 17 member monetary union. This time that commitment must be made practically operational *and* legitimate throughout every layer of governance in each one of the 17 members. With 17 differing legal systems, concepts of property, title, and ways of structuring business it will be hard enough to co-ordinate into a common fiscal framework, but add to the mix 17 differing business cycles and 17 differing degrees of cohesion, integrity and fragility of the infrastructure of public finance (levels of tax compliance and enforcement etc) and the enormity of the challenges facing those still determined to make the Euro project work in its current form can be seen. It will be a question of continuing and day to day leadership at every level of governance, not just crisis driven European summits, and domestic courts will play a valuable and front line role in this and should not be seen as subverting or derailing the project. Rather they are bringing it closer to the peoples whose lives are affected by such a grand and ambitious project.

Systemic Risk and Macroprudential Regulation

Franklin Allen* and Elena Carletti**

1. Introduction

During the recent crisis microprudential regulation of the banking system turned out to be unable to maintain financial stability largely because it did not recognize the problem of systemic risk. This paper discusses in detail the sources of systemic risk, their importance for financial stability and the macroprudential policies that are necessary to address them.

Systemic risk arises from the following sources:

1. Common exposure to asset price bubbles, particularly real estate bubbles;
2. Liquidity provision and mispricing of assets;
3. Multiple equilibria and panics
4. Contagion;
5. Sovereign default;
6. Currency mismatches in the banking system

We discuss each of these in turn in Section 2. Section 3 then considers the macroprudential policies that can be used to counter these systemic risks.

2. Systemic Risk

1. Real estate bubbles

Herring and Wachter (1999) and Reinhart and Rogoff (2009) provide persuasive evidence that collapses in real estate prices, either residential or commercial or both, are one of the major causes of financial crises. In many cases these collapses occur after bubbles in real estate prices that are often created by loose monetary policy and excessive availability of credit. When the bubble bursts, the financial sector and the real economy are adversely affected.

The current crisis provides a good example of this. Allen and Carletti (2009) argue that the main cause of the crisis was that there was a bubble in real estate in the U.S. and in a number of other countries such as Spain and Ireland. When the bubble burst in the U.S., many financial institutions experienced severe problems because of the collapse in the securitized mortgage market. Problems then spread to the real economy. Figure 1 shows the movement in property prices in the U.S., Spain and Ireland. It can be seen that in all three countries house prices rose significantly and then dropped.

The real estate bubble in these countries was the result of loose monetary policy and global imbalances that led to excessive credit availability. Central banks, in particular in the U.S., set very low interest rates during the period 2003-2004 to avoid a recession after the tech bubble in 2000 and the 9/11 terrorist attacks in 2001 at a time when house prices were already rising quite fast. As argued by Taylor (2008), these levels of interest rates were much lower than in previous U.S. recessions relative to the economic indicators at the time captured by the “Taylor rule”. In such an environment

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of low interest rates, people in the U.S. started to borrow and buy houses to benefit from their growing prices. Unlike stock prices where returns follow random walks, returns on housing are positively serially correlated as found by Case and Shiller (1989), Englund, Quigley and Redfearn (1998), and Glaeser and Gyourko (2007). This means that by lowering interest rates significantly below the current rate of house price appreciation, the Fed effectively created a profitable opportunity to buy property. Other public policies such as the tax deductibility of interest rates on mortgage contributed further to the housing boom.

As Figure 1 showed, Spain and Ireland also had very large run ups in property prices. According to Taylor (2008), these countries also had loose monetary policies relative to the Taylor rule. Spain, which had one of the largest deviations from the rule, also had the biggest housing boom as measured by the change in housing investment as a share of GDP. Other countries in the Eurozone such as Germany did not have a housing boom. Their inflation rates and other economic indicators were such that for them the European Central Bank's interest rates did not correspond to a loose monetary policy.

As Allen and Gale (2000a, 2007) have argued, asset price bubbles are also caused by growth in credit. During the recent crisis, credit expanded rapidly in the countries with a loose monetary policy due to the presence of global imbalances. Several Asian countries have accumulated large amounts of foreign exchange reserves since the late 1990s. Figure 2 shows that much of this acquisition of reserves was by Asian countries. The reserves in Latin American and Central and Eastern European countries did not increase significantly. There are a number of reasons behind this accumulation. Allen and Carletti (2009) argue that the Asian countries affected by the crisis of 1997 started accumulating reserves in response to the tough conditions that the International Monetary Fund imposed on them in exchange for financial assistance. The motivations for the reserve accumulation of China, which is the largest holder, are probably more complex than this. Beside the precautionary reason, China started accumulating reserves to avoid allowing its currency to strengthen and damage its exports as well as to increase its political power. The accumulated reserves were mostly invested internationally. Much of it was invested in U.S. dollars in debt securities such as Treasuries, and Fannie and Freddie mortgage-backed securities. The large supply of debt in the U.S. helped to drive down lending standards to ensure that there was enough demand for debt from house buyers and other borrowers. However, funds did not only flow to the U.S. Spain and Ireland also ran large current account deficits.

The burst of a bubble has a clear effect on the stability of the financial sector as documented in Herring and Wachter (1999) and Reinhart and Rogoff (2009). In the current crisis, for example, the sudden drop in asset prices starting in the summer 2007 triggered by the fall in real estate prices and the large volatility that followed worsened the balance sheets of financial institutions significantly and froze several financial markets including also the normally stable interbank market.

The financial crisis then spread to the real sector. The burst of a bubble can, however, also create direct damaging effects on the real economy. In the current crisis, for example, the burst of the property bubble in Spain led to a doubling of unemployment without the financial sector being much affected, at least initially. This was thanks to strict financial regulation and the use of some macroprudential instruments such as countercyclical loan loss reserve ratios. The fact that the burst of a bubble can affect both the financial and the real sector significantly underlines the importance of preventing bubbles.

2. Liquidity provision and mispricing of assets

Another important source of systemic risk is inefficient liquidity provision and the mispricing of assets. Asset pricing theory in financial economics relies on the assumption of fully rational agents and perfect and complete markets. Under these assumptions, assets are always correctly priced at their fundamental values. Agents understand risks perfectly; financial institutions and liquidity do not play any role and crises should not occur. The recent crisis, however, has shown the flaws of these theories

in practice. Financial markets, including money markets, can work badly, and financial institutions and their role as liquidity creators can be at center stage.

The theories explaining the role of liquidity in creating systemic risk (see, e.g., Allen and Gale (2004, 2007), Allen and Carletti (2006, 2008a) and Allen, Carletti and Gale (2009)) combine the functioning of financial institutions and markets in a model of liquidity. Financial intermediaries provide liquidity insurance to consumers against their individual liquidity shocks. Markets allow financial intermediaries (and hence their depositors) to share aggregate risks. If financial markets are complete, the financial system provides liquidity efficiently in that it ensures that banks' liquidity shocks are hedged. By contrast, in the plausible case where markets are incomplete, banks cannot hedge completely against shocks and the financial system stops providing an efficient level of liquidity. This can generate mispricing of assets and even the prices of safe assets can fall below their fundamental values. The reason is that with incomplete markets, liquidity provision is achieved by selling assets when liquidity is required. If liquidity is scarce, asset prices are determined by the available liquidity or in other words by the "cash-in-the-market." Some financial institutions must hold extra liquidity that allows them to buy up low price assets when liquidity is scarce. However, holding liquidity is costly as it prevents investment in the more profitable long asset. With incomplete markets, the suppliers of liquidity must be compensated for the cost of holding liquidity across states rather than state by state as with complete markets. To do this, asset prices must be low in the states where banks need more liquidity. This is inefficient as banks in need of liquidity have to sell at a low price to the providers of liquidity. There is negative insurance and suboptimal risk sharing. If asset prices are sufficiently low the banks in need of liquidity will go bankrupt and this can lead to large deadweight costs. The asset price volatility is costly because depositors are risk averse and their consumption varies across banks with high and low idiosyncratic liquidity risk. This leaves scope for central bank intervention to improve welfare.

To summarize, liquidity is costly to hold and asset price volatility is necessary to provide incentives to agents to hold it. But price volatility can cause crises. When prices fall to low enough levels, financial institutions can go into bankruptcy. There is a market failure that provides the justification for central bank operations and other kinds of intervention to improve the allocation of resources and to avoid crises (Allen, Carletti and Gale, 2009).

3. Multiple equilibria and panics

The importance of panics in the current crisis is unclear. However, they remain an important source of systemic risk and thus deserve some attention as one of the macroeconomic aspects of systemic risk. Two distinct theories for the origins of banking panics have been proposed in the academic literature (see Allen, Babus and Carletti (2009) for a survey). One line of argument maintains that panics are undesirable events caused by random deposit withdrawals unrelated to changes in the real economy. In the seminal work by Bryant (1980) and Diamond and Dybvig (1983), for example, panics are self-fulfilling events. Agents have uncertain needs for consumption and long-term investments are costly to liquidate. They deposit their endowment in a bank in exchange for a demand deposit contract which insures them against their liquidity needs. If all depositors believe that the other depositors withdraw their funds only according to their consumption needs, then the good equilibrium arises in which the bank can satisfy all depositors' demands without liquidating any of the long term assets. If, however, depositors believe that other depositors will withdraw prematurely, then all agents find it rational to redeem their claims and a panic occurs.

The second set of theories suggests that banking crises are not random events but a natural outgrowth of the business cycle. The idea is that an economic downturn will reduce the value of bank assets, raising the possibility that banks are unable to meet their commitments. If depositors receive information about the impending downturn in the cycle, they will anticipate financial difficulties in the banking sector and try to withdraw their funds prematurely, as in Gorton (1988). This attempt will

precipitate the crisis. In this case crises are a response of depositors to the arrival of sufficiently negative information on the unfolding economic circumstances.

The empirical evidence is mixed. Friedman and Schwartz (1963) argue that the systemic risk and financial instability in the U.S. in late eighteenth and early nineteenth century were panic-based, as evidenced by the absence of downturns in the relevant macroeconomic time series prior to the crises. In contrast, Gorton (1988), Calomiris and Gorton (1991) and Calomiris and Mason (2003) provide a wide range of evidence that most of the crises occurred in the U.S. in that period were fundamental-based.

We have only touched on some highlights of the literature on banking crises and panics here. More complete surveys are provided by Gorton and Winton (2003), Allen and Gale (2007) and Freixas and Rochet (2008).

4. Contagion

One source of systemic risk that does appear to have been important during the recent financial crisis is contagion. This refers to the possibility that the distress of one financial institution propagates to others in the financial system thus leading ultimately to a systemic crisis. Central banks often use the risk of contagion to justify intervention, especially when the financial institution in distress is big or occupies a key position in particular markets. This is the origin of the term “too big to fail”. The recent crisis abounds with examples of this. For example, Bernanke (2008) argues that the takeover of Bear Stearns by J.P. Morgan arranged by the Federal Reserve Bank in March 2008 was justified by the likelihood that its failure would lead to a whole chain reaction where many other financial institutions would have gone bankrupt. There would have been contagion through the network of derivative contracts that Bear Stearns were part of.

When Lehman Brothers failed in September 2008, it was presumably expected by the Federal Reserve that its failure would not generate contagion. In fact there was contagion but it was quite complex. The problem spread first to the money market funds and the government had to intervene rapidly by providing a guarantee of all money market mutual funds. In addition, the failure of Lehman led to a loss of confidence in many financial firms as investors feared that other financial institutions might also be allowed to fail. The volumes in many important financial markets fell significantly and there was a large spillover into the real economy. World trade collapsed and in trade based economies such as Germany and Japan GDP fell significantly in the fourth quarter of 2008 and the first quarter of 2010. This dramatic fall in GDP in many countries underlines the importance of the process of contagion.

Despite its importance, our understanding of the effects of contagion risk is still limited. The academic literature has provided a few explanations of the mechanisms at play, but much work is still needed. The literature on contagion takes a number of approaches (see Allen, Babus and Carletti (2009) for a survey). In looking for contagious effects via direct linkages, early research by Allen and Gale (2000b) studied how the banking system responds to contagion when banks are connected under different network structures. It is shown that incomplete networks are more prone to contagion than complete structures. Following research focused on network externalities created from individual bank risk and some others applied network techniques to the study of contagion in financial systems. The main result in this theoretical literature is that greater connectivity reduces the likelihood of widespread default. However, shocks may have a significantly larger impact on the financial system when they occur.

Wagner (2010), Ibragmov, Jaffee and Walden (2010) and Allen, Babus and Carletti (2010) consider a second type of contagion where systemic risk arises from common asset exposures. Diversification is privately beneficial but increases the likely of systemic risk as portfolios become more similar. The use of short term debt can lead to a further significant increase in systemic risk.

The recent crisis has shown that asset price volatility can also be an important form of contagion. Prices drop when banks have to sell their assets in response to a negative shock. These sales depress asset prices and may have negative spillovers on other banks in various ways. For example, low asset prices may affect the solvency of other financial institutions that need to raise liquidity in the market by selling assets (e.g., Allen and Carletti (2006)). Because of the low prices, banks in need of liquidity raise little money from the asset sale. This forces banks to sell larger quantities of assets with the consequence of further deterioration in asset prices. A similar mechanism holds when mark-to-market accounting is in use (Allen and Carletti (2008a)). In an integrated financial system this form of contagion can easily transmit shocks internationally, in particular through large institutions operating cross border or on global financial markets.

The key issue is how likely contagion is in practice. A substantial strand of empirical literature is based on the first type of approach where financial institutions have direct linkages resulting from the mutual claims they have on one another. Most of these papers use balance sheet information to estimate bilateral credit relationships for different banking systems and estimate the stability of the interbank market by simulating the breakdown of a single bank. This literature is surveyed in Upper (2007). Overall the main finding in the empirical literature is that contagion is unlikely. However, there are a number of reasons for caution in accepting this result and concluding that policymakers need not worry about contagion between banks. The first is that they do not model price effects of bankruptcy. Cifuentes, Ferrucci and Shin (2004) have argued that these price effects are the main transmission mechanism for contagion. As Upper (2007) points out, they also rely on the initial shock being confined to a single bank. If there is an initial shock that affects several banks simultaneously, then this can also lead to contagion being more likely.

5. Sovereign default

The problems of Greece, Ireland and Portugal have underlined the problem of sovereign default. Until recently there was not credit risk for sovereign debt in developed countries for many years. The introduction of the Euro led to a significant integration in the European bond market. The spread on the sovereign debt of the different Euro countries had decreased significantly over the last decade. This reflected the idea that the monetary union across countries together with the fiscal rules of the Stability Pact would suffice to guarantee a greater fiscal harmonization across Europe and thus the solvency of all Euro countries. During 2010 and the first part of 2011 it became clear that the architecture embedded in the Maastricht Treaty is not sufficient to achieve the predefined goals and that there can be credit risk in sovereign debt. This is a serious problem in its own right but also a critical problem because of its effect on the stability of the banking system.

The problems that started in Europe in the spring of 2010 show clearly that a sovereign debt crisis and the stability of the financial system are closely interlinked. The relation works both ways: The Euro crisis puts pressure on the financial system and the financial crisis in Europe puts pressure on the Euro. Moreover, the financial system and the Eurozone share important features like the lack of resolution procedures and burden sharing, the reliance on voluntary cooperation among Member States and the presence of imbalances. There is no resolution procedure in Europe for a sovereign default. Cooperation and collaboration among European countries to bail out a government in distress is voluntary in that there are neither clear rules nor guidelines on how this should be pursued. Allen, Carletti and Corsetti (2011) contains an analyses of sovereign default in the Eurozone from an economic and legal perspective.

The sovereign debt crisis has put pressure on banks' balance sheets through different channels. For example, it has increased the cost of funding for financial institutions since it has increased the risk of their assets. Being perceived as being riskier, financial institutions holding large proportions of sovereign debt issued by countries in distress may have to pay higher interest rates and have more difficulty in raising funds in the wholesale markets. There may be potential pressure on these financial

institutions to raise capital and liquidity holdings. Finally, financial institutions operating in the country in distress may also suffer if the country experiences capital outflows and asset substitution and if the large amount of sovereign debt leads to a crowding out of private investments.

6. Currency mismatches in the banking system

One of the major problems in the 1997 Asian Crisis was currency mismatch. Banks and firms in Korea, Thailand and the other countries had borrowed in foreign currencies, particularly dollars. When the crisis hit the banks and firms found that they were unable to borrow. Central banks did not have enough foreign exchange reserves and were unable to borrow in the markets. As a result a number had to turn to the IMF. Despite being one of the most successful economies in the world in the preceding decades, the IMF forced South Korea to raise interest rates to maintain the exchange rate, and to cut government expenditure. Given that Korean firms used significant amounts of trade credit, the rise in interest rates was very damaging for them and many thousands of firms were driven into bankruptcy. Unemployment went from around 3% to 9% and there was a long recession. It was this experience that impressed upon the Koreans that they must accumulate sufficient reserves going forward. This is arguably what led to the large increase in reserves shown in Figure 2.

During the current crisis the major central banks agreed on foreign exchange swaps and this made a considerable difference in easing the international aspects of the crisis compared to 1997. Allen and Moessner (2010) describe the problems raised by banks lending in a low interest rate foreign currency and funding these loans in various ways.

The foreign currencies that were typically used to make loans were the U.S. dollar, the Japanese yen and the Swiss Franc. These were funded in two ways. The first was the international wholesale deposit market. The second was to take deposits in domestic currency and then use the foreign exchange swap market to exchange these into the required foreign currency. The largest currency specific liquidity shortage was 400 billion U.S. dollars in the Eurozone. The second largest was a \$90 billion worth of yen shortfall in the U.K., the next largest \$70 billion worth of euros in the U.S., and after that \$30 billion worth of Swiss francs in the Eurozone.

As the crisis progressed banks found it more and more difficult to fund these shortfalls. The international wholesale deposit market dried up for many banks and became difficult for many others. This forced funding of foreign denominated loans using domestic currency funding. Since longer maturities of domestic funding were also often unavailable much of this funding was at short maturities so the foreign currency mismatch was exacerbated by a maturity mismatch. The volatility in the foreign exchange markets meant these mismatches created a large amount of systemic risk for many banks.

3. Macroprudential Regulation

The discussion above has highlighted a number of sources of systemic risk in the financial sector. We next discuss macroprudential regulatory measures and policies that could be put in place to deal with the identified sources of systemic risk. What is most important is that the new macroprudential regulation deals with systemic risk and no longer only with the risk of failure of single financial institutions. The current crisis has clearly shown that the microprudential approach to financial regulation does not suffice to prevent systemic crisis.

In this section we consider policies to deal with the six types of systemic risk identified above. The policies listed above are a useful start on trying to eliminate systemic risks. However, a more comprehensive approach is needed. Systemic risk is a complex and pervasive phenomenon that needs to be dealt with in many diverse ways.

1. Dealing with asset price bubbles

As highlighted above asset price bubbles seem to be one of the major causes of financial crises. In order to avoid future crises it is of the utmost importance to try to be able to predict them and prevent their emergence. In an important early paper, Borio and Lowe (2002) argue that while it is difficult to predict asset price bubbles and in particular property bubbles, it is not impossible. They provide evidence that rapid credit growth combined with large increases in real estate prices can lead to financial instability. In low inflation environments they suggest that inflationary pressures can first appear in asset prices rather than in the prices of goods and services. They argue that in such cases it may be appropriate to use monetary policy to prick asset bubbles and to preserve financial and monetary stability.

Bubbles, in particular real estate bubbles, seem to be caused by loose monetary policy and excessive credit supply. One way to prevent them is then through interest rate policy. In particular, very low interest rates at a time when property prices are surging should be avoided. Once they have started, the question is whether interest rates should be raised to prick them. It may be possible and desirable to do this in economies with a high degree of homogeneity as in small countries like Sweden or possibly the U.K. However, doing this may be difficult for political reasons. In particular when such policies are first introduced, it may be difficult to explain why it is worth causing a recession to burst a property bubble.

The problem is more complicated in heterogeneous economies like the U.S., China and the Eurozone. Different regions within these economies differ in terms of economic fundamentals and the rate of property price increases. Using interest rates to prick bubbles will not be so desirable because this will adversely affect the areas that do not have bubbles. The recent events in the Eurozone constitute a clear example. The interest rate policy followed by the European Central Bank was correct for countries like Germany where there was no bubble but it was inappropriate for Spain, where it contributed to the creation of the property bubble. A tighter policy may have been effective for preventing the bubble in Spain but at the cost of a recession or at least slower growth in some of the other countries.

When interest rates cannot be used, it may be better to use other forms of macroprudential regulation to prevent bubbles. One example would be limits on loan-to-value ratios that would be lowered as property prices increase at a faster pace. This can be effective for residential property but may be difficult to enforce for commercial property. The reason is that firms may be able to use pyramids of companies that effectively increase leverage. Another measure is to have property transfer taxes that are greater the higher is the rate of property price increases. Another, perhaps more direct, measure is to impose restrictions on real estate lending in certain regions.

Crowe, Dell'Arriccia, Igan, and Rabanal (2011) consider the effects of these types of macroprudential measures to eliminate real estate booms. They have been tried in several Asian countries including, Hong Kong, Korea, and Singapore. They appear to be effective in the short term but not in the medium and long term.

Saying that monetary policy should not be used to prick bubbles in larger economies or in monetary unions where countries have different economic conditions does not imply that monetary policy should not be constrained. Loose monetary policy is arguably one of the main causes for the emergence of bubble, as the recent crisis has shown. One of the most important macroprudential measures should be constraining monetary policy so that it does not trigger bubbles. Excessively low levels of interest rates should not be implemented, particularly when real estate prices are already rising. A possible way to do this is to set up a check and balance mechanism. The idea behind this is to introduce some form of accountability for central banks. Another, more drastic, way to do it is to give central banks the clear mandate to prevent asset bubbles.

As discussed in the previous section, the second major cause of bubbles is excessive credit. During the recent crisis excessive credit emerged because of large global imbalances. To prevent bubbles in the future, it is important to solve this problem. While it is individually advantageous for countries to self-insure by accumulating reserves, this is an inefficient mechanism from a global perspective.

As argued in the previous chapter, the accumulation of reserves by the Asian countries was at least partly a response to the harsh policies that the IMF imposed on a number of countries during the Asian crisis in the late 1990s. Part of the problem was the fact that East Asian countries were not well represented in the senior staff of the IMF. It is therefore important to reform the governance structure of the IMF and of the other international organizations to ensure that the Asian countries receive equal treatment when they need financial help. This would reduce the need of these countries to accumulate reserves as a self insurance mechanism.

To reduce the large accumulation of reserves by China, other measures are necessary, however. For example, senior Chinese officials have proposed having a global currency to replace the dollar. This has the advantage that reserves can be created initially without large transfers of resources and the attendant risk of a crisis. All countries could be allocated enough reserves in the event of a crisis so that they could survive shocks. The problem is that an international institution like the IMF would need to implement the currency. There would then be again the issue of whether all countries, and in particular the Asian ones, are properly represented in the governance process of this institution.

A more likely medium term scenario is that the Chinese Rmb becomes fully convertible and joins the U.S. dollar and the euro as the third major reserve currency. With three reserve currencies there would be more scope for diversification of risks and China itself would have little need of reserves. This is perhaps one of the most practical solutions to the global imbalances problem. The Chinese have already taken some steps in this direction. They have started to allow the settlement of trade in Rmb. They have also allowed the issue of Rmb bonds by Western companies such as McDonalds in Hong Kong. Of course, the most important aspect of being a reserve currency is full convertibility of the Rmb. That is still some way off and this is the sense in which this solution to the global imbalances problem is a medium term one.

2. Policies with regard to mispricing of assets

As discussed above, one of the major problems in the current crisis is that many securitized securities appear to have been mispriced. One explanation is that this is due to cash-in-the-market-pricing and limits to arbitrage. Another is that it is due to asymmetric information and in particular to adverse selection. The problem is to design policies that allow this problem to be corrected. This was the origin of the TARP program in the U.S. The idea was that by buying large amounts of the toxic assets the Treasury could restore the functioning of the market. In practice they were unable to actually implement the program. This type of direct intervention seems problematic to say the least. Clearly there are significant political economy issues. There are also issues of whether such a scheme could actually restore the market to proper functioning. This is one of the most important areas of macroprudential policies. As yet no convincing solutions have been suggested.

Given the lack of an immediate solution to this problem, what should governments do? One of the major problems is that recent reforms have ensured that financial institutions mark their assets to market. In normal times this is undoubtedly the best system. Financial institutions have traditionally used historic cost accounting for many of their assets. This system has the disadvantage that it allows institutions to hide falls in asset values for significant periods of time. A good example is the S&L crisis in the U.S. in the 1980's. This kind of episode encouraged the move to mark-to-market accounting by the IASB and U.S. FASB (see, e.g., Allen and Carletti (2008a) and Plantin, Sapra, and Shin (2008)). The divergence between asset prices, particularly those of securitized products, and apparent fundamentals in the current crisis meant that mark-to-market accounting came under severe

criticism by financial institutions and was relaxed by the FASB under political pressure from Congress.

How should the advantages and disadvantages of mark-to-market accounting be balanced? As long as markets are efficient, mark-to-market accounting dominates. However, if as during times of crisis they cease to be efficient, market prices do not provide a good guide for regulators and investors. The key issue then becomes how to identify whether financial markets are working properly or not. Allen and Carletti (2008b) suggest that when market prices and model based prices diverge significantly (more than 2% say), financial institutions should publish both. If regulators and investors see many financial institutions independently publishing different valuations they can deduce that financial markets may no longer be efficient and can act accordingly.

3. Panics

As argued previously, it is unclear whether panics have played an important role in the current crisis. In contrast panics were thought to be the main cause for the occurrence of crises in the past. Starting with the influential work of Friedman and Schwarz (1963) it was widely believed that the crises that occurred in the U.S. in the latter part of the nineteenth century up until the early 1930s were mostly caused by panics. The introduction of deposit insurance for retail depositors represented one simple way to stop them. The idea is that if people know that the government will cover any losses, it becomes rational for everybody to leave their money in the banking system. This eliminates runs stemming from panics.

This system has been effective in eliminating runs till recently. However, deposit insurance is only for small depositors. It does not cover large deposits or wholesale funding that, as shown in the recent crisis, constitute the majority of funding for many financial institutions. As a result, deposit insurance alone is no longer adequate to solve the problem of panics.

A simple possibility is to extend deposit insurance and guarantee all forms of short term debt. While this solution can be effective in preventing panics, it has the clear drawback of generating moral hazard. If banks have access to low cost funds guaranteed by the government, they have an incentive to take significant risks. A better solution to prevent risk taking may be to remove deposit insurance and deal with the problem of panic runs through lender of last resort policies. If depositors know that the central bank will provide the needed liquidity if they attempt to withdraw early, they won't withdraw and there won't be a run.

The other significant problem with deposit insurance and short term guarantees is that if there are other types of systemic risk in addition to panics, then they can be extremely costly to implement. An example is Ireland where the blanket bank debt guarantees effectively bankrupted the country and drove the government to seek funds from the European Financial Stability Fund.

4. Contagion

As argued in the previous chapter, contagion is arguably one of the most important problems of systemic risk. Despite its importance, it is not yet fully understood how contagion can occur and there is very little work done so far on how to stop it. The channels for contagion are multiple, ranging from direct linkages among banks on the interbank market or the payment system to common asset exposure.

There may be the need of several policies and regulations that address the different channels and types of contagion. Capital regulation has been the main tool for regulating banks in recent years. This has been coordinated internationally through the Basel agreements. It is the main tool for ensuring stability in the international financial system. The traditional justification in the academic literature for capital regulation has been that it is needed to offset moral hazard from deposit insurance (for

examples of exceptions, see Hellman, Murdock and Stiglitz (2000)). Because banks have access to low cost funds guaranteed by the government, they have an incentive to take significant risks. If the risks pay off they receive the upside, while if they do not the losses are borne by the government. Capital regulation is needed to offset the incentives for banks to take risks as it ensures that shareholders will lose significantly. Moreover, capital acts as buffer to absorb losses thus making banks more resilient to shocks and losses and perhaps most importantly reducing the risk of contagion.

There is a long standing debate on how much capital banks should hold. The recent crisis and the current discussions behind the proposal for a new regulatory framework have highlighted the difficulties embodied in these proposals. The starting point of the discussion is that capital is a more costly form of funding than debt so that, if unregulated, banks minimize the use of capital. Thus there is the need for a regulation that forces banks to hold minimum levels. The same argument is typically assumed in the academic literature (see, for example, Gorton and Winton (2003)).

Modeling the cost of equity finance for financial institutions is one of the major problems in designing capital regulation. The first issue is whether equity is in fact more costly than debt. If that is so, the second issue is whether equity is more costly only in the financial industry or also in all other industries. It is the case that financial institutions hold approximately 10% of capital while industrial companies operate with 30-40% equity. Understanding the reasons for this large difference in capital structures is of crucial importance to design capital regulation appropriately.

One simple answer as to why capital is privately more costly is that in many countries debt interest is tax deductible at the corporate level but dividends are not. It is not clear why this is and whether this should be the case. There does not seem to be any good public policy rationale for having this deductibility. It seems to have arisen as an historical accident. When the corporate income tax was introduced interest was regarded as a cost of doing business in the same way that paying wages to workers was a cost. However, from a modern corporate finance perspective, this is not the correct way to think about it. Equity and debt are just alternative ways of financing the firm. If tax deductibility is why there is a desire to use debt rather than equity, then the simple solution is to remove it. If without deductibility financial institutions are willing or can be induced through regulation to use more equity, then financial stability would be considerably enhanced.

Other possible rationales for the high cost of equity are agency problems within the firm. According to this rationale the cost of equity is that it does not provide the correct incentives to shareholders or managers to provide the right monitoring. High leverage is needed to ensure this. There is little empirical evidence that this is in fact a severe problem in the banking sector. For example, leverage in private equity and venture capital firms where the agency problem seems much greater is typically less than in banks.

A final point concerns the reason why financial institutions hold so little capital relative to other industries. The tax deductibility argument cannot explain this difference, as it holds for all industries. A more plausible explanation is that debt in the financial industry is implicitly subsidized through government guarantees and bailouts. If this is why financial institutions rely so much on debt, then it is necessary to remove guarantees and create credible enforcement mechanisms, that is proper resolution procedures. Without this, banks will continue minimizing the amount of capital they hold and the society will bear the costs of this through increased financial instability.

In the current debates on capital regulation two main proposals have been put forth. The first one concerns countercyclical capital regulation. The second concerns the use of hybrid instruments in the form of contingent convertible debt (CoCos).

One of the most widely suggested macroprudential policies is countercyclical capital regulation. The idea is that during normal times banks and other financial institutions can accumulate capital reserves and buffers that will allow them to survive serious shocks to the financial system. These measures are related to countercyclical loan reserves that have been implemented by the Bank of

Spain for some time. Spanish banks did accumulate loan reserves in the period before the crisis and this helped them to weather the crisis better than they otherwise would. This experience suggests that countercyclical capital ratios may be helpful. However, they did not prevent the credit boom in Spain and the bubble in property prices so not too much reliance should be placed on them.

It has been widely suggested that banks should issue convertible debt that could be converted into equity in the event of a crisis. The issue of this kind of security by Royal Bank of Scotland and Lloyds in the U.K. and Unicredit in Italy is an example. The idea is that CoCos have two main advantages. First, it is not necessary for banks to raise capital in difficult times as it would already be available. Second, contingent capital allows the sharing of losses with debtholders. This would also have a disciplinary role and would induce bank managers to behave more prudently.

Another way to stabilize markets and avoid contagion is to have a combination of public and private financial institutions. This is the case for example in Chile, where Banco Estado is a publicly owned commercial bank that competes with private sector banks. In times of crisis, such a bank can expand and help stabilize the market as all market participants know that it is backed by the state and will not fail. That's what many central banks have effectively been doing by buying large quantities of commercial paper. These central banks have become like large commercial banks. But the officials in charge of central banks do not usually have much expertise in running a commercial bank or know much about credit risk. It would be better to have expertise in the public sector which allows the state to perform commercial banking functions during times of crisis. These state institutions would act as firebreaks and limit the damage that can be done by contagion.

5. Sovereign default

The Greek sovereign debt crisis in 2010 underlined the problems with the design of the Eurozone. The Stability Pact contained rules on the amount of current public deficits. The possibility that a country would go into default was not even contemplated in the architecture of the Eurozone. When the Greek crisis emerged, there were no guidelines or regulation that could be used. In the end the way the EU and the Eurozone dealt with the problem of sovereign default was to set up a bail-out fund. This obviously creates moral hazard in that it changes the incentives of governments to deal with fiscal excesses. In addition there is the question of how sustainable the bailout mechanism is in terms of political economy. If Greece and any other countries do default or restructure their debt, Germany will pay a large share of the cost. This opens the question how much German voters are willing to subsidize defaulting countries. Similarly in other countries that end up making large contributions. In such a scenario there may be strong demands to pull out of the Eurozone to avoid having to make large transfers. This political economy problem is a very serious one. As the perception that a country might default increases, investors will have to make a judgment as to how this political process will play out. This makes the effect of the guarantees quite uncertain.

The Greek crisis has led to calls for the reform of the Growth and Stability Pact As discussed above, this is designed to prevent governments from running up large debts and then not fulfilling their obligations. One issue is how meaningful the pact is anyway because of the fact that once France and Germany flouted the Pact and were not penalized, it became clear the rules were unenforceable except on the small countries. However, perhaps a more serious problem with the Pact is that two countries that are among those under the highest pressure at the moment, namely Ireland and Spain, were actually doing extremely well in terms of the Pact criteria as they were running surpluses and had low levels of public debt. The reason they had a problem is because they ran a large current account deficit and imported large amounts of capital that fuelled the property bubble. This raises the question of whether the Pact needs to be reformed to include restrictions on capital inflows that are invested in real estate.

The real problem with sovereign default is the contagion that will follow such an event. For example if Greece does default then there is likely to be a severe problem of instability among Greek

banks and among many other countries' banks. Under the current arrangements there would be great uncertainty as to how any workout would proceed and this in itself would considerably exacerbate the problems in the markets. After Argentina's default in 2001 it took a great deal of time to determine how much creditors would receive.

A better solution to the problem of sovereign default is perhaps a bankruptcy mechanism of some kind that would avoid the need for a bailout. This would remove a great deal of the uncertainty and could be expedited. Also there could be the equivalent of corporate debtor-in-possession finance for governments. If Greece does default then the first thing the Greek government could then do is to issue senior bonds to save its banking system. One way that such a mechanism could work is for the country to declare default. A team from the ECB and Commission would do an assessment of what the best repayment structure would be. If the country did not agree with the team's assessment then its alternative would be to withdraw from the Eurozone.

Another issue raised by the question of sovereign default is what risk weights should be attached to sovereign debt. Banking regulation should recognize that the market apparently views the debt of many countries as a worse credit risk than the debt of many corporations. One way to do this is to assign risk weightings and diversification requirements on sovereign debt. This should indeed be done in conjunction with the introduction of a bankruptcy mechanism.

One of the major problems in the Eurozone that has been highlighted by the problems of Greece, Ireland and Portugal is that it very difficult for countries to adjust their economies after a severe shock. For example, in Greece wage levels seem to be at too high a level. Should there be some mechanism within the Eurozone to deal with this wage rigidity. One possibility would be to allow temporary exit from the Eurozone and then reentry. Such exit and reentry might considerably help the the adjustment process in such countries. However, it may mean very different interest rates

6. Currency mismatches

As discussed in Chapter 2, one of the major problems in the 1997 Asian Crisis was that the banks couldn't obtain foreign currencies. One of the reasons that currency mismatches were not such a problem in the current crisis was the introduction of central bank currency swaps. Allen and Moessner (2010) document how the swap system worked. There were four overlapping networks:

- The Fed network to supply U.S. dollars
- The ECB network to supply Euros
- The Swiss Franc network
- The Latin American and Asian networks

These swap networks involved considerable overlap (as shown in Graph 7.1 in Allen and Moessner (2010)). As they were organized between central banks the credit risk borne was sovereign rather than commercial. The receiving central bank would then pass on the foreign currency to firms and financial institutions so that they bore the commercial credit risk. Some of the swaps between central banks were collateralized with the currency of the counterparty central bank. These swaps considerably eased foreign exchange problems during the crisis and are widely regarded as having been successful.

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Figure 1
Housing Prices in Ireland, Spain and the U.S.

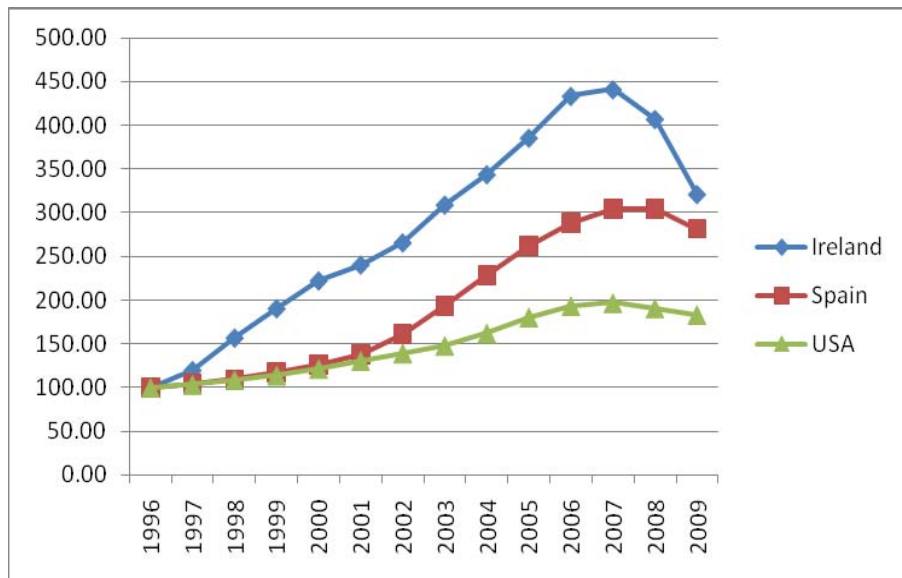
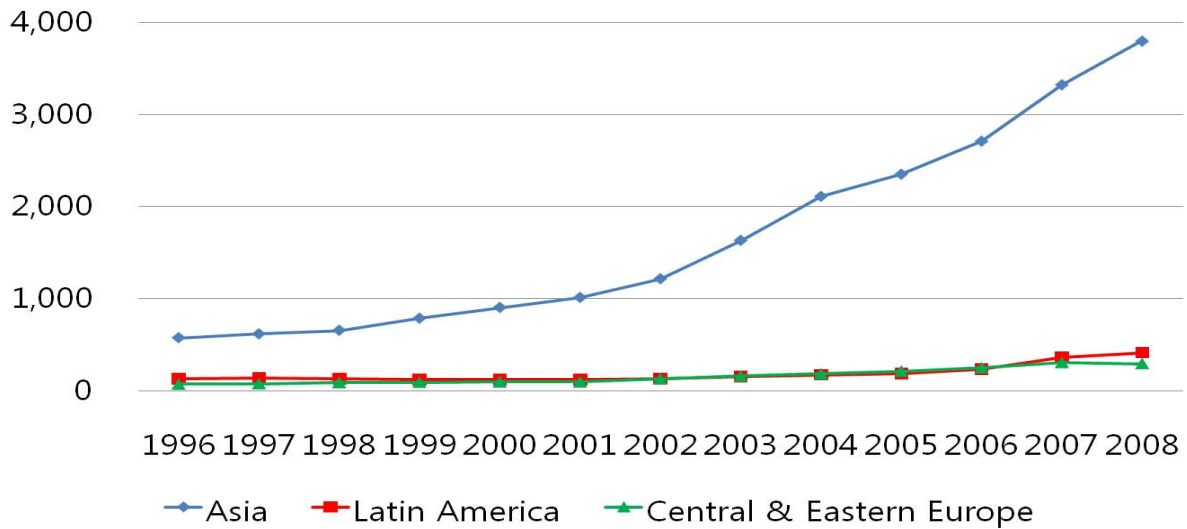


Figure 2
A Comparison of Foreign Exchange Reserves in Different Regions



Source: IMF website. Asia is the six East Asian countries China, Hong Kong, Japan, Singapore, South Korea, Taiwan – province of China.

Trust and risk Aversion in the Aftermath of the Great Recession

Luigi Guiso*

Introduction

This paper documents the unprecedented drop in people's trust in financial markets and financial intermediaries and the massive increase in investor's risk aversion that has taken place during the crisis. Both I argue, have played a crucial role in the crisis as it led those who distrusted to run on their banks. The role of distrust inct from that played by the drop in confidence about the solvency of financial institutions and their ability to repay their obligations – the other factor that froze up financial markets and led investors to run on banks. The collapse in trust was in fact provoked by the revelation of the opportunistic behaviours that the unfolding of the crisis brought to light, of which the Bernard Madoff fraud is emblematic, and has contributed to shed a dark light on the whole financial industry.

The destruction of trust inherited from the crisis has important implications for the future of financial markets, including the demand for financial products and investors' portfolio choices, their reliance on financial intermediaries when making financial decisions and the demand for regulation. It will be argued that unless remedies are adopted to rebuild trust, these consequences will most likely be long lasting as self-construction of trust evolves slowly. Accordingly, the chapter discusses possible policies to rebuild trust some involving non-imposed changes in behaviour in the financial industry, others involving specific regulatory interventions.

The dramatic drop in trust

To document the fall in trust during this financial crisis I will be using data from the US Financial Trust Index Survey (FTIS) – a phone survey conducted since the emergence of the crisis on a representative sample of about 1,000 American households. The first survey was launched in December 2008, three months after the collapse of Lehman Brothers; nine other surveys were fielded subsequently at a quarterly frequency. In the FTIS one adult respondent in each household was randomly contacted and asked whether they were in charge of household finances, either alone or together with a spouse. Only individuals who claimed such responsibility are included in the survey. A first set of questions asked how much the respondent trusts certain types of people or institutions with a focus on financial institutions such as the stock market, banks and bankers, brokers, pensions funds. Answers were provided on a scale ranging from 1 to 5, where 1 means “I do not trust at all” and 5 means “I trust completely”. Since the survey was started after the crisis we lack a level of trust in financial intermediaries and markets before the crisis to compare with and to document how trust in these different institutions has evolved as a consequence of the crisis. To deal with this issue we combine the trust responses from the FTIS with comparable data from the General Social Survey (GSS), which for many years has been asking people whether they have a great deal of confidence in banks and financial institutions.¹ Since the GSS question embraces both banks and financial institutions, to make the FTIS answers as comparable as possible to the GSS we pool together the answers people provide to trust in banks, in brokers, in mutual funds and the stock market and compute the fraction of people that trust these institutions completely. We then append these figures to

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¹ The wording of the question asked is “I am going to name some institutions in this country. As far the people running these institutions (banks and financial institution in this case) are concerned, would you say you have a great deal of confidence, only some confidence or hardly any confidence in them?”

the GSS series that refer to the pre-crisis years. Figure 1 documents the dramatic drop in trust vis-à-vis banks and financial markets in the latest part of 2008 and the beginning of 2009. Though the index shows swings that reflect the business cycles, since 1975 the fraction of people that trust banks and financial markets has never been as low as during the 2008–2009 crisis. Only 5 percent report having full trust in banks, brokers, mutual funds or the stock market while the figure had been as high as 40 percent in the late 1970s and was around 30 percent just before the crisis.²

As an alternative way to highlight the drop in trust towards financial markets and intermediaries, we compute from the GSS the average trust that people have in banks and financial markets relative to the trust they have in other people in general (what is known as generalized trust) over the years prior to the crisis covered by the GSS (1977–2007). This figure is around 1.5 meaning that Americans used to trust banks and financial markets 50 percent more than they trust a generic member of the US population. This conforms with intuition and common sense: after all we rely on banks and other financial institutions as custodians of our savings and not on a random member of the population.

Since the FTIS also asks people how much they trust a generic American (that is it measures generalised trust in unknown people), we compute relative trust in banks, bankers, brokers, mutual funds and the stock market respectively for the three waves of the FTIS and report it in Table 1. Interestingly, after the crisis people trust banks as much as they trust a random citizen, and trust mutual funds and the stock market much less than they trust a random individual. This is in sharp contrast with the higher trust they had in banks and financial markets relatively to unknown people before the crisis, suggesting that even if trust fell in general, it is trust in finance that has collapsed. Furthermore, the table shows that investors distinguish between trust in financial institutions and trust in the people that manage those institutions. In fact trust in bankers is much lower, relatively to trust in people in general, than is trust in banks.

Why is trust in bankers much lower than trust in banks? One reason is that bankers are considered to be worse and less reliable than the average person compared to the institution they work for, as they may damage people more than the institution. Alternatively, the incentive structure within banks is believed to lessen the trustworthiness of bankers making the banks more reliable than the bankers. At any rate, what this suggests is that the fall in trust during the crisis does not simply reflect the fear that aroused in autumn 2008 that banks could become insolvent: if that was all the measure of trust were picking, we would see the opposite pattern with trust in banks falling more than trust in bankers, which does not seem to be the case from Table 1.

Guiso, Sapienza and Zingales (2009) conducted a phone survey similar to the FTIS on a sample of customers of a large Italian bank (UniCredit) which was launched in June 2009. As in the US, also in this survey trust in financial markets has decreased substantially. When asked how their trust changed since the emergence of the crisis, 46 percent report they have lowered their trust towards banks in general either by a lot or substantially, 47 percent have lowered their trust in bankers and 52 percent that their trust in the stock. These patterns are qualitatively very similar to the ones in the US, confirming that the drop in trust is very likely universal. Similar in sign but more contained in magnitude are the changes in trust towards banks reported in a survey of Austrian investors available before and after the crisis (Knell and Stix, 2009).

One interesting feature of the UniCredit survey on Italian investors is that it has a panel component, since people in the sample were interviewed also in 2007 when the financial crisis was not yet in sight. Since some questions were asked in both surveys it is possible to compare how they evolved over the crisis. In particular, participants in the survey were asked how much trust they have towards their own bank or financial advisor and answers, as before, are provided on a 1 (no trust) to 5 (full trust) scale.

² Notice that the GSS question refers to how much trust people have in those running financial institutions rather than to the institution itself. Thus it perhaps matches better with trust in bankers and brokers in the FTIS. If we replace trust in bankers and brokers in Figure 1, the drop in trust would be even more pronounced.

Not surprisingly, the level of trust towards one's own bank is higher than trust towards banks in general – a feature consistent with the idea that trust is a key feature in selecting the bank or financial advisor and that, as these people report, not all banks are equally reliable. Yet, compared to the year 2007, 34 percent of these investors have revised their trust levels towards their banks/advisor downwards. This clearly provides a lower bound of the actual fraction of those who lost trust in their banks/advisor since it was only possible to re-interview customers that stayed with the bank/advisor, not those who left because they lost confidence.

In sum, data from both sides of the Atlantic show that during the financial crisis there has been a dramatic drop in trust towards all segments of the financial system though the fall was stronger for some of them, particularly those segments involved in trading less familiar and ambiguous instruments such as mutual funds and stocks. The drop is considerable but more contained for banks. Besides the level of trust in financial markets and institutions, trust towards people in general has also fallen, implying that mistrust in finance has spilled over and generated mistrust in general. This feature can help explain the sudden drop in economic activity following the Lehman collapse: the fall in trust froze up not only financial exchanges but, due to the cited spill over, stopped also any other types of exchange that require trust. Remarkably, the fall in trust was so strong that after the crisis people show more trust towards a generic unknown individual than towards a bank or a banker, that is towards those institutions and people that should deserve to be trusted the most in light of the role they play as the custodians of our savings.

Why did trust fall?

Trust is the belief that an opponent in a relationship behaves accordingly to what he promised and does not take advantage of the person he is trading with. In other words it is the probability that person A trading with B attaches to the possibility that B will behave opportunistically and take advantage of him. Trust is thus A's probability that B will not "cheat". Obviously, when the business partner deviates from the promised behaviour, trust attitudes are revised downwards. The financial crisis, among other things, brought to light diffused opportunistic behaviour and some serious frauds. Following the collapse of

Lehman Brothers many felt "cheated". People had been advised to invest in Lehman securities because they were remarkably safe; in fact up until a few months before the collapse, Lehman securities were highly rated by S&P.

Guiso (2010) argues that what was causing the dramatic drop in trust was the revelation of opportunistic behaviour that was taking place in the financial industry and that was brought to light by the crisis. One of the effects of the financial crisis, the argument goes, has been that of revealing the existence of pervasive opportunistic behaviour in the financial industry and to have uncovered several cases of outright financial frauds that without the crisis investors would probably have discovered much later if at all. The Madoff fraud is the one that has received the greatest attention from the media and that will likely remain lodged in the minds of investors for many years to come. Many have focused on the unprecedented size of this fraud – half of a percentage point of GDP – often ignoring a much more important feature of this fraud for the effect that it may have had on investors' trust towards financial markets and intermediaries: the fact that Bernard Madoff was an insider to the industry! An important professional market player and former Chairman of the NASDAQ Stock Exchange that had been running his Ponzi scheme for almost 20 years! It should not then be surprising that if such an insider and professional player can trick even quite expert investors (not only individuals but also institutions invested in Madoff's fund), non-professional investors will legitimately tend to think that other players in the financial industry play similar games, perhaps not as extreme as a Ponzi scheme and perhaps on a smaller scale.

But the crisis has uncovered many other cases where the intermediary failed to act in the investor's best interest: for instance, the holding by many investors in many countries of poorly diversified portfolios often recommended by their financial advisor, has exposed them to excessive risks that have resulted in effective losses during the crisis. The latter has made those risks manifest, leading investors to hold those who recommended the investments responsible for the losses. In all these cases it is very likely that investors have revised downwards their trust towards intermediaries and financial markets.

A sharp increase in risk aversion

Though measuring preferences is a daunting task, substantial progress has been made in obtaining informative measures of people risk attitudes at the individual level. Following a strand of literature that has developed in over the past decade, we obtain measures of people willingness to bear risk from questions asked in a general survey. In particular we use the two waves of the Unicredit survey which was run before and after the crisis and thus allows to focus on the possible variation in risk aversion around the 2008 financial crisis.

To measure risk aversion we rely on the answers to two questions. One, which we will label the quantitative question, tries to elicit the certainty equivalent for a gamble that delivers either 10,000 euros or zero with equal probability. It has been designed to resemble a game popular in Italy, which has been analyzed by Bombardini and Trebbi (2010). When they look at the actual responses in the game they find that people exhibit a Von Neumann and Morgenstern utility function with a constant relative risk aversion close to 1. Thus, the framing of the question does not seem to create any distortion.

Specifically, respondents were asked: "Imagine being in a room. To get out you have two doors. If you choose one door you win 10,000 euros. If you choose the other you get zero. Alternatively, you can get out from the service door and win a known amount. If you were offered 100 euros, would you choose the service door? "

If he accepted 100 euros the interviewer moved on to the next question, otherwise he asked whether the investor would accept 500 euros to exit the service door and if not 1500 and if not..., 3000, 4000, 5000, 5500, 7000, 9000, more than 9000 euros.

We code answers to this question both as the certainty equivalent value required by the investor to give up the risky prospect as well as integers from 1 to 10 where 1 corresponds to a certainty equivalent of 100 euros and 10 to a certainty equivalent larger than 9000 euros: the first is decreasing in risk aversion the second increasing.

We will refer to the measure based on preferences for risk-return combinations as the qualitative indicator and to the one based on the lottery as the quantitative indicator.

The second question, which we label the qualitative one, tries to elicit the investment objective of the respondent, offering them the choice among "Very high returns, even at the risk of a high probability of losing part of the principal," "A good return, but with an OK degree of safety on the principal," "An OK return, with a good degree of safety on the principal," "Low returns, but no chance of losing the principal." This question follows the approach patterned by the Survey of Consumer Finances and is inspired by a standard portfolio model based on the risk and return trade-off: under the assumptions of the standard two asset mertonian portfolio model of portfolio choice, the portfolio return and risk combination chosen by an investor fully reveals his (relative risk aversion): more risk averse investors opt for safer/low return portfolios and vice versa. Notice that while the quantitative measure is asked in a domain unrelated to financial investments, the second one is not.

The same questions were asked to the same set of people in January 2007 and June 2009. The first survey, on a sample of 1,686 random clients of Unicredit, was conducted for internal purposes. We financed a follow-up in June 2009 and were able to obtain one third of the responses. Fortunately,

since almost all depositors remained with the bank, we have administrative data for both dates and thus we can check that the attrition is random.

To gain some confidence on these measures, we validate them across measures, over time, and with actual behavior. We find that the two measures are correlated both in 2007 and 2009. We also find that both the qualitative and the quantitative measures in 2007 are positively and statistically significantly correlated with the same measures in 2009. The same is true when we correlate the changes in the two measures. Most importantly, both these measures are correlated with actual portfolio decisions, both in the cross section and in the time series.

Having gained some confidence on the reliability of these measures, we look at their changes from before to after the crisis. Figure 2A compares the distribution of the qualitative measure of risk aversion before and after the crisis. While before the crisis the average response was 2.85, after the crisis it has jumped to 3.28 (recall, a higher number indicates higher risk aversion). This change is statistically different from zero at the 1% level. In 2007 only 16% of the respondents chose the most conservative option “low return and no risk,” in 2009 46% did. In the data there is a homogenous shift toward more conservative combinations of risk and return. Albeit the numbers are low, 83% of the people who chose the most aggressive “Very high returns, even at the risk of a high probability of losing part of the principal” change toward a more conservative one. 74% of those who had chosen the second more risky combination (“high return and high risk”) move to more conservative options, while only 2% move to the more aggressive one. Forty-four percent of those who chose “moderate return and moderate risk” move to “low return and no risk,” while only 9.5% move to more aggressive options. Looking at sample distribution of changes in the qualitative measure of risk aversion reveals that forty-six percent exhibit an increase in risk aversion, while only 10% a decrease. This distribution underestimates the actual change due to a truncation: people who were already in category 4 (“low return and no risk”) cannot go any higher. When we drop these people, 63% of the sample exhibits an increase in risk aversion.

Figure 2B compares the distribution of the quantitative measure of risk aversion before and after the crisis. A closer look at the values of the certainty equivalent of this lottery reveals that before the crisis the average certainty equivalent to avoid a gamble offering 10,000 euros and zero with equal probability was 4,164 euros. In 2009, the same certainty equivalent for the same group of people dropped to 2,785 euros. The median dropped from 4,000 to 1,500. Given that the expected value of the lottery is 5000 euros this implies an increase in the average risk premium from 1,000 to around 2,200 euros and in median from 1000 to 3500 euros. Since the risk premium is proportional to the investor risk aversion these estimates imply that the average risk aversion has increased by a factor of 2 and that of the median investor by a factor of 3.5! Needless to say, all these changes are statistically different from zero.

If we look at the distribution of changes in the quantitative measure of risk aversion, 55% of the investors exhibit an increase in risk aversion, while only 27% a decrease. When we drop the 16.8% of the sample that was in the category 10 in 2007 (and thus cannot increase its measure of risk aversion) 64.4% of the sample exhibits an increase in risk aversion.

Overall, there is a clear sharp increase in individual risk aversion. This increase cannot be attributed solely to a worsening of expectations about the distribution of future investments, since it manifests itself also in the quantitative measure, which is unrelated to the stock market. In fact, the probability distribution underlying the gamble in the qualitative measure is objective, not subjective. These results beg the question of why aversion to risk has changed.

Why has risk aversion increased?

Guiso, Sapienza and Zingales (2011) try to offer a comprehensive explanation of what has caused this marked increase in risk aversion. For this they look at classical factors that may shift people

willingness to bear risk. In the standard models (e.g., Constantinides (1990), Campbell and Cochrane (1999)) risk aversion varies because of changes in wealth, changes in habits, and changes in background risk – that is risks that an investor cannot insure against or cannot diversify and that he has to bear – such as the risk from human capital. What is interesting is that neither changes in measured wealth, available from the administrative records at Unicredit, nor changes in total habit seem to have any effect on changes in risk aversion, whether using the qualitative or the quantitative measure.

But also changes in background risk do not seem enough to justify the increase in risk aversion; in fact retirees (who in Italy enjoy a public pension) and public employees (who face little or no firing risk) do not exhibit different changes in risk aversion, which also for this free-of-background risk group varies as much as for the rest of the sample which is more exposed to background risk.

What is then driving the massive increase in risk aversion? There is some evidence that a measure of knighting uncertainty – that is uncertainty over the probability distributions of the stock market - has some explanatory power: people who have become during the crisis less able to form an opinion about the future of stock prices have become more risk averse. Similarly, changes in trust towards the stock market are positively correlated with changes in risk aversion. Even these factors, however, explain very little of the changes in risk aversion.

Overall, existing models seem unable to account for the large changes in risk aversion that occurred around the crisis. One possible explanation is that the proxies used to measure classical determinants are too noisy. Another is that these changes are due to other considerations, which have nothing to do with the standard models. For example, we know from Kuhnen and Knutson (2011) that visual cues inducing anxiety (meant to increase activation in the anterior insula of the brain) make subjects less likely to invest in risky assets.

Can these neurological dimensions explain the large increase in risk aversion found in the data? To address this question, Guiso, Sapienza and Zingales (2011) conduct a laboratory experiment to test whether a scary experience (like the 2008 financial crisis was) can induce an increase in risk aversion. They “treat” a sample of students with a five-minute excerpt from the movie, “The Hostel” (2005, directed by Eli Roth), which is characterized by stark and graphic images and that show a young man inhumanly tortured in a dark basement. We find that treated students exhibit a 27% lower certainty equivalent than untreated ones. While this does not prove that fear caused the increase in risk aversion after the crisis, it shows that fear can lead to an increase in risk aversion as large as the one observed in the data. This is the only explanation not inconsistent with the data.

Will trust recover soon and risk aversion get back to normal?

Limited trust and higher than average risk aversion have strong consequences for the operation of financial markets. Lack of trust risk is likely to affect investors’ decisions on various margins that may have a strong impact on the working of financial markets in the coming years. One channel that played an important role in amplifying the financial crisis is illustrated in ongoing research, Guiso, Sapienza and Zingales (2009) who argue that differences in levels of trust across individuals can explain who starts a run on the bank in a period of financial distress. More generally, the drop in trust is likely to have pervasive effects on investors’ reliance on financial markets across various dimensions – one of the most important legacies of the financial crisis. In particular the fall in trust is likely to affect people’s willingness to enter into any type of financial contract. This should not be surprising since any financial transaction involves an exchange of money today against a promise of returning (more) money tomorrow. But the willingness to believe the promise and thus enter the transaction crucially hinges on how much trust one has in the person that issues the promise. Below we examine some of the effects in greater detail.

There is evidence that the level of trust affects investors' willingness to invest in stocks and, more generally, in risky assets. Stocks and risky assets lend themselves more easily to opportunistic behaviour than simpler securities. For instance Guiso et al. (2008) find that high-trust people are less likely to hold stocks in their portfolio and conditional on holding, they invest lower shares in stocks. This finding is consistent with the results of a recent Financial Times/Harris Poll that interviewed a sample of investors in the US and various European countries. It shows that in most countries people today have a lower propensity to invest in stocks. For instance, in Germany 41 percent report that today they are less ready to invest in stocks than before the crisis, and the percentages are similar in other countries.

Limited trust also affects investors willingness to invest in ambiguous securities – i.e. securities that are so either because of the complex nature of the contract or because the probabilities of the returns are intrinsically uncertain (e.g. because they have a short history on which to estimate these probabilities), and are thus more exposed to the risk of frauds. Consequently they are more easily placed among high-trust investors. When trust falls and becomes scarce one should see a decline in the demand for these instruments and an increase in the demand for simpler and more familiar securities.

A third implication of the diminished trust is that investors will form less diversified portfolios because they will focus more on domestic assets. Guiso et al. (2008) show that this property is more general and that investors that invest in stocks tend to hold a more diversified stock portfolio when they trust more. On the other hand, diminished trust towards intermediaries leads an investor to entertain multiple relations to diversify the risk of opportunistic behaviours by reducing exposure to each one of them. Both effects are costly: the first because one loses the benefits of diversification, the second because of the cost of setting and maintaining multiple relations.

Fourth, diminished trust leads to less reliance on outside information and advice. Besides selling financial products, financial intermediaries offer investors advice and information on how to allocate their financial wealth. Investors' willingness to heed this advice depends on the trust they have in the intermediary as much as their decision to lend their savings to the intermediary. One of the consequences of the fall in trust is a lower investors' propensity to delegate financial decisions to the intermediary and to use his advice. Thus, the fall in trust should result in a marked decrease in delegated investment. Since delegation is all the more necessary the more one invests in sophisticated securities, also through this channel there should be a move towards simpler portfolios. These portfolios, however, need not be necessarily better ones in the sense of providing a higher return per unit of risk. Guiso and Jappelli (2006) in fact find that investors who trust more and delegate more are better diversified and are able to attain more efficient portfolios.

Finally, though most of the literature has focused on the effects of trust on investors portfolios, the fall in trust involves all operators in the financial industry, including insurance companies. In fact, since an insurance contract is itself a financial contract and as such is prone to the opportunistic behaviour of the insurance company, the fall in trust should also affect the demand for insurance. Guiso et al. (2010) discusses how trust affects people demand for insurance.

To sum up, given the importance of trust in all financial contracts, the fall in trust towards all segments of the financial industry will give rise to a generalised flight from financial trades and particularly deals from those trades that are severely exposed to opportunistic behaviour.

Similar effects are to be expected as a consequence of the increased risk aversion of the investors. Dislike for risk results in a choice of safer portfolio away from stocks and thus increased cost of equity finance. In so far as this form of finance is particularly important for high-growth innovative firms, this channel may limit innovation and perpetuate the consequence of the crisis for the time being. There is evidence that financial crisis have long lasting effects: one channel for this persistence is because the lower trust and higher risk aversion produced by the crisis are long lasting. But how long do they last?

We do not have a sufficiently long time series of our data to be able to answer this important question. However we can draw some suggestive conclusion concerning persistence of mistrust by inspecting Figure 1 and noticing that there is a prior episode where trust in finance dropped markedly: during the 1991 and 1992 crisis. This drop in trust is connected to the Savings and loans crisis in the US and the scandals and frauds that came together with it (Akerlof and Romer, 1994). Trust collapsed quickly as the crisis erupted from around 30 to around 10 percent. It has since recovered but it took around 10 years to revert back to the pre-crisis level. Though it is difficult to extrapolate from the Savings and Loans episode into the current crisis, this evidence suggests that the process of trust recovery can be extremely slow. Furthermore, in so far the speed of recovery depends on the size of the shock, it may take much longer to rebuild trust after this crisis than it took for it to recover after the S&L crisis. The pattern of trust from the 10 waves of the FTI shown in Figure 3 that so far – that is almost three years after the collapse of Lehman Brothers – shows no sign of recovery and actually in the last wave it has reverted to the levels prevailing at the peak of the crisis.

Concerning patterns of recovery of risk aversion a similar problem arises: we do not have long enough data to be able to make reliable inference on how persistent will the increase in risk aversion be. There is some evidence that big adverse financial episodes erode people willingness to bear risk. For example Malmendier and Nagel (2008) find that Great depression generation has been permanently less willing to invest in stocks that generations born (and grown up) in less troubles times. To shed some light on this issue we use data for the US survey of consumer finances for sever waves beginning in 1989. This survey has a measure of risk aversion analogous to the one that was discussed earlier in connection to the Unicredit survey and called the qualitative indicator of risk aversion. Table 2 shows the distribution of this measure. It shows clearly that over time there is drift in people willingness to bear risk. Since 1989 the fraction of people that are “Not willing to take any financial risk and look for a small safe return” has decreased continuously by about 10 percentage points. The data available to us stop in 2007, before the financial crisis. One interesting question is why risk aversion has decreased over time. One possible interpretation is that it was abnormally high in 1989 because people became more risk averse following the stock market collapse of the black Friday in 1987; the dynamics that we see after is then a slow recovery of risk tolerance.

Conclusion

The financial crisis has impacted enormously two features that are critical for investors decisions: there beliefs and there preferences. It has brought to light diffuse opportunistic behaviour and some serious frauds. Because of this trust towards banks, bankers, brokers and the stock market has collapsed to unprecedented levels. The fear following the crisis (and the symptoms of panic that went with it) have led investors to become much more risk averse than they used to be in the past. We argue that both have a large effect on the working of financial markets and the economy. We show evidence that suggests that the drop in trust and the increase in risk aversion are likely to be enduring and very slow to recover. This is one reason, perhaps among others, why the consequences of the financial crisis are likely to be enduring.

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Figure 1. The collapse of trust

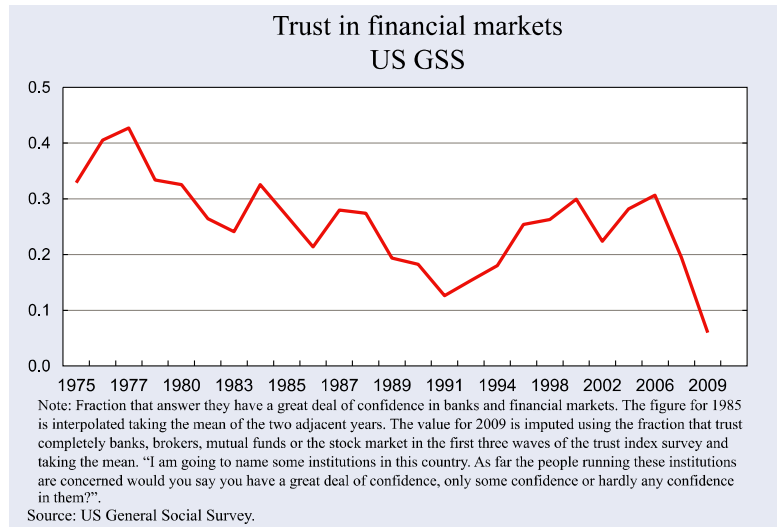
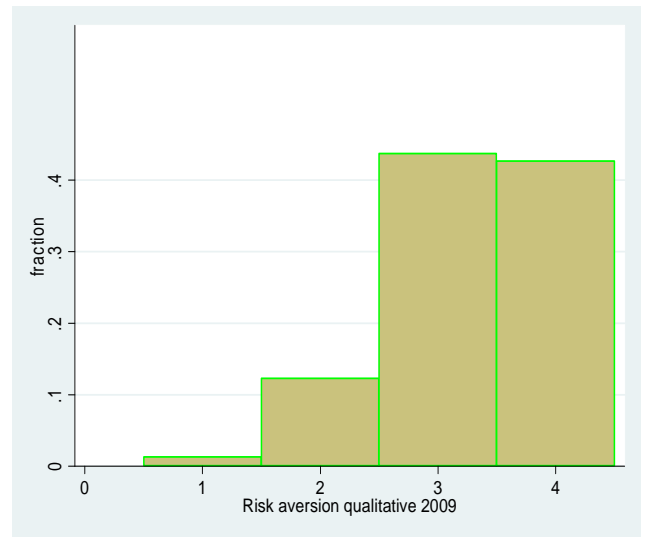
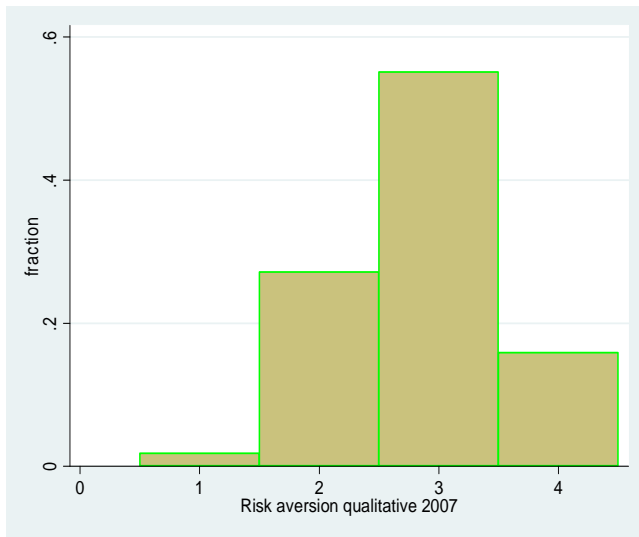


Figure 2: Frequency distribution of the level of risk aversion indicators in 2007 and 2009

Panel A, reports the frequency distribution of the qualitative measure of risk aversion in 2007 and 2009. The qualitative indicator tries to elicit the investment objective of the respondent, offering them the choice among “Very high returns, even at the risk of a high probability of losing part of my principal;” “A good return, but with an OK degree of safety of my principal;” “A OK return, with good degree of safety of my principal;” “Low returns, but no chance of losing my principal.” Responses are coded with integers from 1 and 4, with a higher score indicating a higher aversion to risk. Panel B reports the frequency distribution of the quantitative measure of risk aversion in 2007 and 2009. This measure tries to elicit the certainty equivalent for a gamble that delivers either 10,000 euro or zero with equal probability.

A. Qualitative measure of risk aversion



B. Quantitative measure of risk aversion

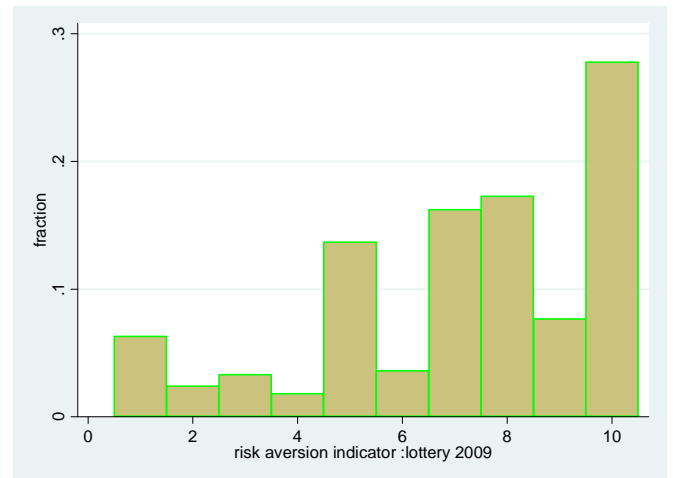
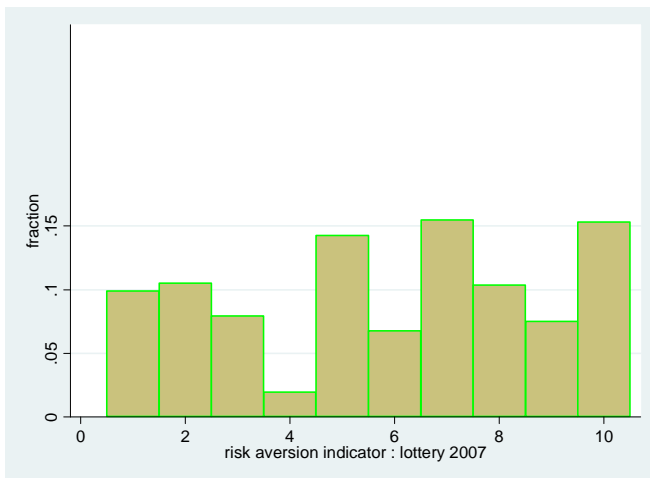
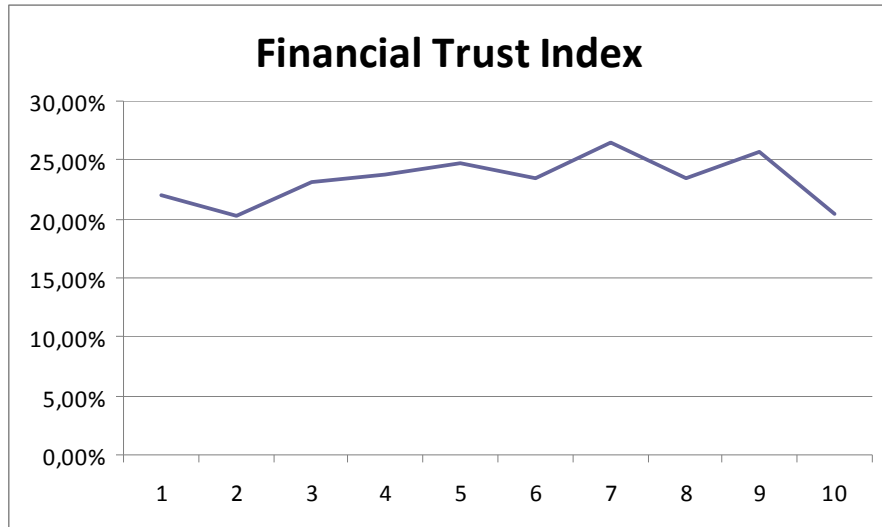


Figure 3. Evolution of the Financial trust index

The figure plots the evolution of the Financial Trust Index, panel A and trust in bank (panel B) over the 10 waves of the survey Financial Trust Survey; the first survey denoted as 1, was run in December 2008, the last in March 2011

A. General trust index



B. Trust in banks

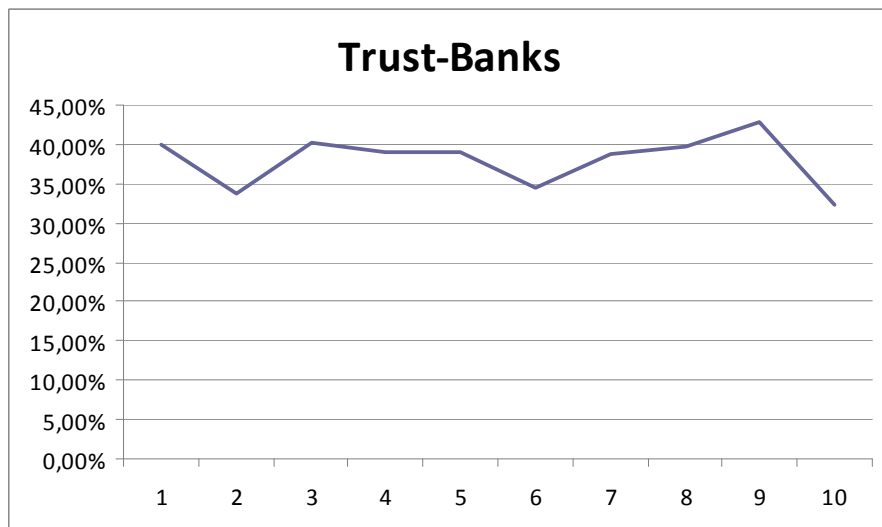


Table 1. Relative trust levels over time

	Wave I	Wave II	Wave III
Banks	0.99	0.94	1.00
Bankers	0.88	0.84	0.92
Brokers	0.71	0.69	0.72
Mutual funds	0.86	0.87	0.88
Stock market	0.70	0.71	0.71
Government	0.77	0.78	0.83
Large corporations	0.71	0.67	0.73
The Fed	0.77	0.78	0.84

The table shows the level of trust towards the specified entity relatively to the level of trust towards people on general. *Source* : elaborations on the FTIS

Table 2.
The evolutions of the distribution of risk aversion in the US Survey of Consumer Finances

How much financial risk willing to take?	1989	1992	1995	1998	2001	2004	2007
Percent							
1	4,91	5,08	5,15	6,09	5,8	5,12	5,17
2	12,24	16,09	18,64	23,34	23,17	20,25	21,42
3	42,27	39,69	41,88	40,26	40,1	41,5	42,2
4	40,58	39,14	34,33	30,31	30,93	33,13	31,2
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>

- 1 Take substantial financial risks expecting to earn substantial returns.
Take above average financial risks expecting to earn above average financial returns.
- 2 Take average financial risks expecting to earn average financial returns.
- 3 Not willing to take any financial risks.
- 4

