Financial crisis: causes, policy responses, future challenges

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Financial crisis: causes, policy responses, future challenges

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The author of the review, Brigitte Young, is Professor Emeritus of International political economy at the Institute of Political Science, University of Münster, Germany. She has been appointed as expert reviewer for providing an independent critical analysis of the results arising from a relevant body of research funded by the FP7 programme under the Social Sciences and Humanities theme.

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This policy review was drafted by Professor Brigitte Young, Professor Emeritus of International political economy at the Institute of Political Science, University of Münster, Germany.

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She is the author of many journal articles and books in English and German on the Global financial crisis of 2008–2009, the US Subprime mortgage crisis, the European sovereign-debt crisis, and the role of Germany and France in resolving the Euro crisis.

In order to complete this work the expert thoroughly reviewed the proceedings of five research projects in socioeconomic sciences funded by the European Union under the seventh Framework Programme.

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Foreword

The recent financial crisis, sparked in mid-2007 by the meltdown of subprime mortgages in the US, has brought about the most severe global recession since the Great Depression of the 1930’s and has shaken the very foundations of the market economies in the developed world. In Europe, the crisis led to very high budget deficits and unsustainable public debt levels, especially in some countries, resulting in staggering economic and social costs as well as unprecedented challenges to the European integration itself.

The crisis has also demonstrated that our knowledge about how the economy really works had not caught up with the rapid changes brought about by globalisation. Exposing important gaps in our knowledge, it has forced a reflection on the role and the impact of the contemporary global financial system and the different actors operating within this system. It has also put into question some of the fundamental assumptions underlying macroeconomic policymaking, exposing decision makers around the world to uncertainties they had not faced for decades.

This publication, which I have the pleasure to place in your hands, reviews this newly acquired knowledge. Firstly, it comprehensively surveys the many factors contributing to the outbreak of the crisis, i.e. the impact of financial markets, the links between banking and the real economy as well as the debates about the role of macroeconomic models in financial forecasting and policy analysis. Secondly, it presents the challenges of monetary and fiscal policy governance in times of crisis and discusses the effectiveness of different measures. It explores the lessons learnt and future challenges for policymaking in achieving a resilient and sustainable economic system in Europe.

I therefore find the report to be an important evidence-based contribution by the European social sciences to several of the top priorities outlined by the Juncker Commission for Europe.

Carlos Moedas
Commissioner for Research and Innovation
European Commission
Executive summary

The purpose of this Review is to gain new insights from research results of five research projects funded by the European Union under the seventh Framework Programme within Socio-economic Sciences and Humanities (FINNOV, POLHIA, FINESS, MONFISPOL, and PEGGED). Key areas addressed in this Review include the causes of the financial crisis, the policy responses taken, and future challenges left to resolve. The Review is structured as follows. The first chapter opens with a discussion on the functions of financial markets, the causes of the financial crisis in 2007-08 and its contagion to other regions of the world, as well as the role of financialization and the economics of risk-shifting which may have undermined productivity enhancing innovation at the expense of social inequity. According to some findings, risk management has shifted to the market creating the potential for boom-bust cycles, which were re-enforced by the development of new financial innovations causing economic and social problems. One effect of these macroeconomic changes has been the increasing financialization of the economy fuelled by the widely held perception that finance in the form of shareholder value is dominating the real economy with negative effects on the wider economy, and thus increasing the inequity of income distribution.

Following the discussion on the changes in financial markets and the pro and cons of complex financial innovations, the topic will shift in the second chapter to analyze the role of forecasting models to predict the Great Recession of 2008 and 2009. The failure of traditional macroeconomic models in forecasting the crisis has led some economists to warn that under certain circumstances models can become ‘self-falsifying’ and thus interact with the technical properties of models themselves. Others agree that traditional models failed to predict the crisis, but suggest that new macroeconomic models may offer better forecasting accuracy. These developments include New Keynesian macro-models with heterogeneous expectations, and also building analytical tools to deal with the solution, simulation and estimation of models under the assumption of partial information. The objective is to identify policy recommendations that may be more robust to model uncertainty. These debates demonstrate that a paradigm shift is well underway to go beyond the traditional rational expectation models.

Excessive risk-taking and the crisis in the banking sector are the focus of the third chapter. Banks were hit hardest and governments had to devote an unprecedented ratio of annual GDP to rescuing banks in the Great Recession. Newer studies are much less optimistic about the positive effects of the interlocking exposure of financial institutions. In fact, there is evidence that as connectivity increases so does the probability of systemic risks for the entire banking system. Since bank credit is still the most important source of credit for firms and households, the discussion proceeds to take up some of the puzzling questions as to how liquidity and credit risks are linked in the interbank system. Shifting to the European level, the bankruptcies of large cross-border banks, such as Fortis and Dexia, signaled how important cross-border banks have become as crisis transmission belts in the European financial crisis. At the same time, the bank failures alerted policy makers to the lack of EU cross-border supervisory structures. Equally challenging was the deepening of the debt crisis in the Eurozone peripheral countries since 2010, which set in motion a vicious circle between banking and sovereign debt crises. This challenge was met when European leaders embarked on an ambitious plan in June 2012 to create a banking union which includes a common framework for banking supervision, crisis resolution, and deposit insurance.

1 Project titles and descriptions can be found in the Appendix to this text.
Finally, two additional proposals for dealing with the banking crisis are discussed: *bad banks* for ailing banks and a crisis resolution mechanism for failing banks.

Related to banking and the credit market is the conduct of monetary policy in integrated financial markets. One important issue is whether monetary policy should respond to asset prices fluctuations, and whether central banks should *lean against the wind* rather than follow a policy of *benign neglect* which was the consensus prior to the financial crisis. A change of perception has also occurred regarding the role of financial regulation and monetary policy. In the older models, the two were seen in isolation whereas the new focus is to analyze them together, since individual bank solvency is no longer seen as sufficient for systemic stability, and secondly there is also the realization that monetary policy should play a role to control systemic risks in the financial sector.

The next section shifts to fiscal policies and analyzes different fiscal policy proposals and their macroeconomic outcomes. This issue goes to the heart of the debate as to whether fiscal policy has macroeconomic stabilizing effects. Yet, there is no consensus as the different research results show. Two additional studies address whether expansionary fiscal policy is able to fight rising unemployment in a recession, and the other inquires whether government discretionary spending has a so-called Keynesian multiplier effect and can boost euro area GDP. The last chapter ends with a discussion on challenges left for policy makers and academics to reform the financial system, foster long-term sustainable and equitable economic growth (Lisbon Agenda 2005), and ensure smart growth, but also inclusive growth (Europe 2020 Strategy).
**Introduction**

The recent financial crisis has demonstrated how little we know about the effects of the nature and practices of the financial system to contribute to long-term sustainable and equitable economic growth through innovation (Lisbon Agenda 2005). Since the financial market meltdown in the United States in the years 2007-09, the world has experienced a global recession, a banking and also a sovereign debt crisis, and finally a Euro Zone crisis triggering staggering declines in global growth rates with potentially major social consequences. Financial crises are nothing new and have occurred with some regularity throughout modern history. The latest examples were the Mexican (1994), Asian (1997-98), Russian (1998), Brazil/Argentinian (2000-01), and the Turkish crisis (2001) wherein a sudden reversal of capital flows was followed by financial instabilities. When these crises occurred in the periphery during the 1980s and 1990s, analysts could safely argue that the financial instabilities were not systemic, but were the result of shortcomings in the affected countries. The situation has changed drastically. The emergence of the financial crisis starting first as a subprime crisis in mid-2007 is no longer a crisis of the periphery rather it has hit the heartland of financial capital, i.e., Wall Street, the nerve center of finance (Wade 2008).

Until the financial crisis, the literature on finance concentrated on the benefits of financial innovations and capital market liberalization. Changes in macroeconomic conditions were seen largely as beneficial in establishing global markets for products and financial services (Greenspan 2008). Today, however, the changes in markets and the development of new financial intermediations through new complex securities are seen by many economists as producing negative externalities (Stiglitz et al. 2006; Brock et al. 2009; Citanna/Schmedders 2005). Instead of steady development, financial instabilities and credit crises (boom and bust cycles) with strong contagion effects of financial busts have altered the social distribution of risks and rewards (Lazonick and Mazzucato 2012). Equally destabilizing are cycles of ‘irrational exuberance’ (Greenspan 2008; Shiller 2001) which trigger overconfidence, overvaluation of assets, overleveraging and underestimation of risks at tremendous costs of bailing out the financial system (Semmler 2011). In fact, estimates for the US-financial bail-outs of the 2007-08 crisis range between $3 and $13 trillion (cited in Blyth 2013: 5). Other estimates for the US suggest $4.6 trillion which is larger than the entire cost of NASA (including the moon landings), the Marshall Plan, the wars in Korea, Vietnam, Iraq, the New Deal, the 1980s Savings and Loan crisis and the Louisiana Purchase combined (Lanchester 2010). As a result, the crisis has become a great challenge for economists, politicians, policy makers, and civil society to understand and prevent such huge value destruction in financial assets with negative consequences for the wider economy, for the distribution of income, and social stability.
Chapter 1 - The role of financial markets in the crisis
1.1. How to define financial markets?

Financial markets are all those activities, institutions, agents and strategies that play a role in the markets for bonds, equity, credit, and currencies. They are supposed to mediate the flows of financial funds. Traditionally, financial intermediaries such as banks, perform the essential role of channeling funds to firms that have potentially productive investment opportunities. Moreover, they also permit households to borrow against future income and allow countries to access foreign funds and, thus, accelerate economic growth. As financial markets expand across borders, they have a significant influence on the performance, volatility, and (in)stability of economic activities (Semmler 2011: v).

1.2. The context of the global financial crisis

The crisis started in the subprime mortgage market in the 2007. While the amount of actual loans to subprime borrowers was relatively modest in comparison to the prime mortgage market (Haldane 2009), the subprime market nevertheless was key in bringing the financial markets close to a meltdown first in the United States, spreading to Europe, and then to other regions of the world. The story is well known. Less clear are the linkages between the changes in the financial markets such as the capital market liberalization (CML), the financialization dynamics, and the outsourcing and diffusion of risks through financial innovations such as complex securities leading to an asset bubble in the US housing market. However, there was also an international component, since mostly Asian trade surpluses during the 1990s and early 2000s were recycled to purchase securitized mortgage debt and this in turn helped to drive down interest rates on US mortgages benefiting homeowners wishing to refinance their mortgages or buy new homes (Schwartz 2008). The demand for higher than average returns in the subprime asset class were supported by forecasting techniques of macroeconomic models with their intellectual roots in the efficiency proposition of neoclassical economics (Lazonick and Mazzucato 2012). The house of cards finally collapsed when the Bear Stearn’s hedge fund failed and Lehman Brothers went bankrupt in September 2008. These events triggered a severe ‘credit crunch’ in interbank lending as financial intermediaries lost confidence in the ratings of risks and values of securitized loans (Semmler/Bernard 2009).

Prior to the crisis, in the UK, but also in the United States, the financial system grew disproportionately as a percentage of aggregate gross value added (defined as the entire economy minus agriculture and finance), since the incentives and opportunities for profits were so much greater in finance than in the non-financial sector (Figure 1).
As banks started to make loans to hedge funds, private equities, and loans to subprime mortgages (as well as the derivatives built on them), their assets and profits grew exponentially, but at the cost of undervaluing the risks associated with this fictitious value creation. The dominance of the finance industry was re-enforced by new financial innovations, that led to the development of new financial intermediations through complex securities, such as mortgage-backed securities (MBS), collateralized debt obligations (CDOs) and credit default swaps (CDS).

The ascendancy of finance and the introduction of new financial techniques has according to some authors shifted the economy from *managerial capitalism to shareholder capitalism* (Dore 2008), a phenomenon that has since become known as financialization.
1.3. Financialization and the role of shareholder value: impatient capital

There is no common agreement on the definition of financialization in the literature, but most broadly financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies (Epstein 2005: 3). Yet, there is widely shared agreement on the effects of financialization on the incentives for impatient investors to seek short-term profits. This process is closely tied to the shareholder value orientation, in which a firm’s principal goal is the rate of return on equity. Shareholder value is most closely identified with the United States, less so with Germany and Japan, in which profitable companies are restructured to maximize shareholder value by putting pressures on wages and down-sizing the workforce of well-paid, mostly unionized, manufacturing jobs, but also cutting well-paid middle manager positions. Lazonick and O’Sullivan (2000) identified the shift of company’s incentive structure to make profits from retain and invest in a stakeholder system to downsize and distribute in a shareholder oriented system. This sort of risk-shifting is not entirely new as a corporate strategy, but the misalignment between finance and productivity enhancing innovation can undermine the entire economy. Research results show that the focus on value extraction instead of value creation, manifested by rising corporate profitability at the expense of stagnant or falling wages, has contributed to increasing social inequity. According to this argument, the financial system has created incentives which have allowed parts of the financial services sector to extract and privatize value, while socializing the risks it generates (FINNOV: Lazonick and Mazzucato, Lazonick and Tulum, DP 5.5. and 5.7.).

1.3.1. Stock buybacks as a form of value extraction at the expense of innovation

One way for shareholders and corporate managers to extract value is done via share buybacks. The aim is to repurchase the stocks of their own companies which drive up earnings per share. According to Lazonick (2009) stock buybacks have become a prime mode of corporate resource allocation in the US economy, and argues that this should be viewed as stock market manipulation. However, it is quite legal under the US Securities and Exchange Commission since 1982 when the SEC gave corporations a safe harbor to do large-scale repurchases for fear of manipulation charges being lodged against them. For example, in the last decade Fortune 500 companies have spent 3 trillion dollars in buybacks. The combined repurchases of the S&P companies rose from $120 billion in 2003 to $597 billion in 2007. As Figure 2 shows (FINNOV Policy Brief, May 2011, p. 2) the mean repurchases of S&P 500 companies helped push stock prices up to a peak just before the financial crisis started in 2007 benefiting mostly corporate executives. Repurchases alone for 2007 represented 90 % of the net income of these companies while dividends were another 39 %.
Figure 2. Insiders manipulate the stock market

But these buyback schemes have come at the expense of lower rates of investment in these firms with higher debt ratios. Namely, the company is actually depleting its savings and needs to borrow money for new R&D. As a result, the equity of the company is depleted and replaced by debt, which has been detrimental to corporations’ willingness to invest in R&D. This negative relationship between the ratio of stock repurchases and investment in R&D can be seen in Figure 3 (FINNOV) which presents data from 293 corporations in the S&P500 from 1980 to October 2007.
To make up for the depletion of capital, many companies increasingly rely on R&D investments made by public funds. Analyzing Pfizer’s move of one of its R&D labs from the UK to Boston, Mazzucato (2011) raised the questions whether it was for reasons of less regulation and lower tax rates, or because Boston had the advantage of having access to much higher public sector investment funds through the US National Institute of Health.

1.4. Financial innovations: harmful or beneficial?

Complex financial securities, created to outsource idiosyncratic risks, are at the center of recent research in terms of their contributing role to the financial crisis. Futures markets and options are not new. Already in the 19th century, the Chicago Board of Trade used futures as a normal instrument to insure different stages of the harvest cycle against risks. The Chicago Board Options Exchange (CBOE) opened its door to trading call options on stocks in 1973, which was the same year as the Black-Scholes option pricing formula was developed (Brock et al. 2009). Soon after, Fannie Mae, the US Federal National Mortgage Agency, in fact invented the mortgage backed securities in 1981. In turn, Freddie Mac, the Federal Home Loan Corporation, invented the collateralized mortgage obligations, a derivative that slices up risky assets (for example principal and interest payments) so that tranches are re-assigned into different risk classes. A trader can use the different risk classes and take different positions. Yet, the different assets might not be independent of each other. In other words, the likelihood exists that one asset defaulting makes the chances of others defaulting more or less likely.
This phenomenon is called default correlation, and with default risk, is an important driver of the overall securitization structure. The incentive to form such a structure is motivated primarily by the surplus cash generated. Computers and complex algorithms are used to simulate and keep track of the details (Semmler/Bernard 2009).

The rise of this collateralized debt obligation in which the defaultable assets are mortgages exactly mirrored the housing boom in the United States prior to the crisis in 2007. These collateralized debt options have the advantage for banks to move mortgages off their books by selling these mortgages (these can also be car loans, student loans, credit cards) on the open capital markets to institutional investors. In other words, securitization moves the interest rate risks from the banks onto the buyer of the collateralized debt obligations (Schwartz 2008). These innovations are thus seen as having provided the micro-mechanism through which the asset price boom and bust were channeled.

Before the financial crisis, financial innovations (such as securitization, derivatives, futures market) were seen as beneficial since it was reasoned that the heterogeneity of actors in an economy with different risk attitudes increase the social welfare. Another argument was that new financial techniques would contribute to discovering the underlying prices of assets and thus increase market efficiency (Brock et al. 2009). Ben Bernanke, in a famous speech in 2004 even pointed to a new era of Great Moderation referring to the decline of volatility in the aggregate economic activities since the 1980s. However, these beneficial assumptions about financial techniques have been challenged by newer studies. The major disagreement in these studies is about the rationality assumptions of agents in the economy, and whether one can speak about perfect (or complete) markets in the sense that insurance can be obtained for every possible uncertainty. Assuming a world of bounded rational agents with heterogeneous expectations, Brock et al. (2009) have shown that financial innovation may be harmful in the sense that it may destabilize the financial system, increase price volatility and as a result decrease average welfare (Hart 1975; Citanna and Schmedders 2005). The reason for this is that prices and values affect beliefs and behavior in financial markets through synchronization, herding, collective acceptance or reinforcement learning. Forecasting strategies that have performed relatively well in the recent past (such as the internet technology leading to the dot com bubble or the subprime mortgage market) seem to attract more traders and investment funds.

This in turn allows decisions on asset allocation to become coordinated through collective acceptance. But this dependence on collective acceptance can also send out false signals to other investors and thus enhance financial bubbles. In other words, during periods of crisis and change, prices are likely to lose their connection to fundamental values and are unlikely to incorporate true information making the idea of the standard Walrasian general equilibrium model quite implausible. Hence in times of large fluctuation of market prices, scholars endorsing the imperfect market hypotheses suggest that the assumption of efficient markets can actually add to financial instability (Brock, Hommes, Wagener 2009; Citanna and Schmedders 2005; Nightingale and Taylor FINNOV, DP8.1.).
1.5. Structural causes of the crisis

A different interpretation, which has gained wide academic as well as media attention, cites structural factors as the culprit behind the financial crisis. In his 2010 book, *Fault Lines* (2010) Raghuram Rajan argues that it was inequality caused by the problem of stagnating incomes in the United States to which successive American governments responded by opening the flood gates of mortgage credit, which led to the housing bubble and finally to the financial crisis. James Galbraith (2012) who has analyzed the movement of inequality in the world economy over 40 years singles out the movement of the stock market, especially the NASDAQ as the driving force behind the income inequality. Money made from capital gains, stock options, and the payout from venture capital investments accrue mostly to the top strata. This phenomenon is not just restricted to the United States, but is also found in countries from Brazil to China. He rejects the hypothesis that inequality is driven by skill-biased technological change suggesting that rising inequality is closely associated with the relative gains by the financial sector. Similarly, Jean Paul Fitoussi (2009) argued that the root of the financial crisis is the unprecedented rise of income and wealth disparities in the last three decades, what he calls the *reverse redistribution of income* in advanced industrial countries. Accordingly, an increase in inequalities depressed aggregate demand, in turn monetary policy reacted by maintaining a low interest rate which allowed private debt to increase beyond sustainable levels. It was the search for high-return investment by those who benefited from the increase in inequalities which led to the bubble. As such, the net asset wealth prior to the bubble was overvalued. The new insight according to this argument is that while the crisis emerged in the financial sector when the bubble burst, its root is to be found in the structural changes due to the skewed income distribution since the 1980s.

1.5.1. Global inequalities and wealth disparities

Starting in the 1980s, the median wage in most advanced countries has stagnated and in some countries even declined. Thus inequalities have surged in favor of high incomes, which translated into weak global demand. Those with little income have less and less to spend and those with high incomes invest their income in high-return assets. In order to counter the general aggregate demand deficiency, monetary policy was expansionary making it possible for households to go into debt to finance their consumption needs. The recycling of the current account surpluses of Asian countries has exacerbated the global imbalances since these countries invested their excess capital in the US, in the process reducing the demand in their own economies even further. Once the bubble burst, it had an immediate impact on the real economy, affecting employment and poverty in both industrial and some developing economies. The latter were hit by reductions in Foreign Direct Investments (FDI) and the cut-back in remittances of migrants to their home countries due to the job losses in developed countries.
1.5.2. Global macroeconomic imbalances

Another argument citing structural factors locates the global macro-economic imbalances (current account deficits and the equivalent surpluses) as the ultimate cause of the financial crisis (Portes, PEGGED Policy Brief 3, 2009). These imbalances are held responsible for the rapid expansion of banks and financial institutions to facilitate the funding of huge current account deficits, low interest rates that led to riskier, higher-yielding assets, and financial innovations that gave rise to CDO-squared excesses. According to this argument, the global imbalances are seen as the primary cause for the crisis in combination with loose monetary policy in the US which in turn caused the low real interest rates, and the subsequent search for high yields. The banks, according to this argument, could not have expanded their balance sheets in recent years without borrowing from abroad, which kept interest rates low, and allowed them to engage in riskier, higher-yielding assets which was facilitated by the financial innovations in advanced countries. These imbalances are not just due to US deficits financed by Chinese surpluses. While Europe has an overall current account balance, there are sharp differences within the region: the UK and Spain being large borrowers while Germany’s large current account surpluses fund the consumption of Southern Eurozone countries.

The problems with global macroeconomic imbalances are two-fold: the absolute size of current account surpluses (and also deficits elsewhere) has expanded very rapidly, placing a severe burden on the financial systems which has to intermediate the capital flows. The surge of these imbalances is seen as the result of financial deregulation, since the removal of capital controls and advances in financial innovation allowed current account deficits to be financed. In fact, there were no current account imbalances in 1996. This changed in 2008 when the US current account deficit increased to $600 billion and the emerging markets plus developing countries’ current account surplus rose to $900 billion. Secondly, according to Porter, the US flow of capital has been the wrong way: from poor countries to rich. Advanced countries have invested their surplus capital mainly in each other’s economies, instead of looking for profitable opportunities in emerging markets; while developing countries, too, have tended to invest in the developed world.

Since the crisis, the savings glut has somewhat declined. But it is doubtful whether it is dead (Corsetti, PEGGED, Policy Paper 1, August 2009). Namely, while private savings are increasing in debtor countries through deleveraging, this increase is matched by massive dissaving by the public sector. Thus the financial crisis has affected structural factors but in contradictory directions to the policies which have given rise to the global imbalances. As Corsetti concludes, any prediction of the demise of the world saving glut are vastly exaggerated: global saving may be falling, but imbalances in relative gross saving rates across world regions are likely to persist in the medium term.
Chapter 2 -
The role of macroeconomic models in financial forecasting
That macroeconomic models failed to predict the recent financial crisis of 2007-09 is acknowledged not only by its critics, such as the economic Nobel Prize winner Paul Krugman, but also by many key policy makers and distinguished econometrician themselves (Wieland et al. 2009; Taylor and Wieland 2011). Krugman speaking for many other Keynesian economists blames the reliance over the last three decades on forecasting models such as the dynamic stochastic general equilibrium models (DSGE) for this failure. Others cite flaws in the assumptions used in the macroeconomic models such as that markets are automatically self-correcting, unregulated markets encourage economic efficiency or that financial technologies generate optimal risk dispersion (Haldane 2009; Shiller 2008).

However, as the former ECB President Jean-Claude Trichet pointed out, policy makers have no alternative but rely on simplified models, but at the same time he calls for the improvement of the robustness of such models:

> We need macroeconomic and financial models to discipline and structure our judgmental analysis. How should such models evolve? The key lesson I would draw from our experience is the danger of relying on a single tool, methodology or paradigm. Policymakers need to have input from various theoretical perspectives and from a range of empirical approaches. Open debate and a diversity of views must be cultivated – admittedly not always an easy task in an institution such as a central bank. We do not need to throw out our DSGE and asset-pricing models: rather we need to develop complementary tools to improve the robustness of our overall framework (cited in MONFISPOL Policy Brief, September 2011, p. 2)

### 2.1. A paradigm shift: from rational expectations to heterogeneity of expectations

The financial crisis and the academic failure in predicting the Great Recession has not only changed the terms of the policy debate, it has also challenged the economic profession to rethink many of the assumptions and beliefs of the efficient market hypotheses that was the canon since the late 1970s. Recent research has shown rational expectations to be the exception rather than the rule when assessing future macroeconomic development. Thus economists started to use New Keynesian models inspired by the idea that heterogeneity of expectations together with mechanisms of evolutionary switching between different prediction rules are key to understanding market outcomes and macroeconomic performance. Empirical experiments have shown that only few rules are adopted by bounded rational agents to form expectations. Instead they follow many different competing rules. Thus empirical regularities that are considered puzzles if one adopts the efficient market hypotheses (rational expectation approach) seem quite straightforward market outcomes under heterogeneous expectations.

These findings have important policy implications for macro-dynamics and monetary policy decisions and provide challenges to the traditional rational expectations framework. For
example, if policy makers want to control the inflation at their favored rate, they should take into account the effects of evolutionary selection between heterogeneous forecasting rules on the inflation persistence. Second, not only are individual expectations heterogeneous, but also agents may switch from one mechanism to another depending on the forecasting performance of the rules. Hence policy makers should consider the effects of heterogeneity of agents’ expectations and their sensitivity to differences in forecasting performance when they choose a policy rule to try to stabilize the economy. Third, this type of heterogeneous models has the advantage over mainstream models in that it allows for the presence of multiple equilibria. In other words, the emergence of asset price bubbles in this model is natural whereas in mainstream models price bubbles are simply not possible. As we know from the subprime mortgage crisis, the mainstream finance models failed miserably in spotting asset bubbles. Understanding why asset price bubbles emerge is absolutely necessary in order to create a more stable economic system.

The New Keynesian macro-models with heterogeneous expectations instead of rational expectations provide important policy implications on macro-dynamics and monetary policy.

2.2. A comparative approach to macroeconomic modeling and policy analysis

Equally important is the development of a new comparative approach to model-based research and policy analysis that may enable individual researchers to conduct systematic model comparisons and policy evaluations easily and at low cost. According to Wieland et al. (2011) the advantage of such an approach is that it is straightforward to include new models and compare their empirical and policy implications to a large number of established benchmarks. This approach contains several systematic steps in order to make models exhibiting distinct structural assumptions, different variables and different notations comparable to each other. A model archive based on a common computational platform, called DYNARE, includes by now 50 macroeconomic models, ranging from small-, medium, and large-scale DSGE models to earlier generation New Keynesian models with rational expectations and more traditional Keynesian style models with adaptive expectations. It includes models of the United States, the Euro Area, Canada and several small open emerging economies. The software package, DYNARE, was originally designed by CEPREMAP to offer a generic approach to model solving and estimation and with a user-friendly interface that reduces the time and complexity of modeling new policy initiatives and simulating the impact of the policy measures. In the meantime, the software package has become a widely used platform among policy makers and academics.
The comparative approach was used for example to analyze the forecasting performance of models around five of the most recent NBER defined recessions. Of particular importance for policy makers and most difficult to model are economic turning points, but they can also help in understanding current limitations of economic forecasting especially with respect to the recent financial crisis. For this particular historical comparative analysis, two small micro-founded New Keynesian models, two medium-size state-of-the-art New Keynesian business cycle models (DSGE model) and for comparison purposes an earlier generation New Keynesian model and a Bayesian model were used to predict which model was able to better forecast the crisis. The key message from this comparative exercise was that at the current state of knowledge about macroeconomics and the limitations to use all this knowledge in simplified models may mean that large recessions may simply be too difficult to forecast at all. Whether the newer DSGE models which include financial sectors are better to predict the crisis has to be seen. At the same time, other recent modeling approaches such as agent-based models or behavioral models apparently have not yet reached a state of development that allows the conduct of the type of model competition as suggested in Wieland and Wolters (2011). While the comparative results show the limitations of forecasting models, nevertheless this approach provides the tools for making comparison with established benchmarks and current forecasting practice. Thus it facilitates a discussion about competing models and their performance in forecasting large crisis.
Chapter 3 - The crisis in the banking sector and new regulatory proposals
In the latest financial crisis 2007-09 the banking sector was hit hardest and governments had to devote an unprecedented ratio of annual GDP to rescuing the banks. By the end of February 2009, the financial rescue schemes which involved capital injections, guarantees and the issuance of banking securities, bank asset purchases, swaps and other guarantees amounted to a total government commitment of 22% of GDP for the European Union and 29% of GDP for the United States. The US banking industry had to write down more than $600 billion in assets and lost more than $1 trillion in market capitalization after 2007-2008. The situation in British banking was equally problematic. Haldane (2010) estimated that the ‘social wealth transfer’ in saving ‘too big to fail’ banks in the UK amounted to approximately £50 bn in 2009, on top of approximately £140 bn of lost GDP generated by the crisis. While banking rescue packages stabilized temporarily the banking sector and also the financial markets, they failed to address issues such as ‘bail-ins’ of shareholders and unsecured creditors, dividend payments, as well as corporate compensation practices and their link to risk-taking during the crisis.

3.1. Banks differ from non-banking institutions

Banks are different from other non-banking institutions for the following reasons. First, the bankruptcy of a bank has immediate social costs on depositors as well as an impact on other banks, on the payment system, and can destabilize the entire banking sector. Unlike non-banking firms, banks have to have access to capital markets in order to provide payment to their clients. This implies that banks are interconnected in credit networks and the larger financial system with the likelihood of contagion if a bank fails. Banks consist of more than 90% debt as opposed to 40% in other non-financial institutions. Since most of the debt is held by depositors, the state has an interest in regulating banks to provide a safety net to protect small depositors and also preserve financial stability. Namely, if a bank goes bankrupt and needs to be bailed out, it is mostly taxpayers which have to pay for these negative externalities. As such, the state is also a stakeholder in banks. The basic interrelated functions of banks according to Beck et al. (2012: 9) can be summarized as follows:

- Banks provide economic agents with the means of payment, a more efficient way to transfer property rights, and decrease transaction costs
- They transform assets to match the short-term supply of funds in small amounts (from their depositors) and the long-term demand in large amounts from their borrowers; and
- They screen potential borrowers, monitor their activity and enforce payments.

Banks can do what individual depositors cannot do to belong to a network which connects economic agents, as depositors and as clients of banks, to a larger payment system. As such, banks act as financial intermediaries to reduce the transaction costs in a market of imperfect information. Small depositors are mostly uninformed of the riskiness of their banks, thus it is the role of the banks to provide a safe payment service to their clients. But this traditional banking rationality for reducing transaction costs has shifted since the deregulation of the financial sector to a new emphasis on risk management as banks can shift the risk to the financial markets through the sale of complex securities and derivatives. This has also changed how banks earn their profits. No longer do they rely on the interest spread between deposits and loans. Today banks’ income derives mostly from fee-earning activities through trading complex securities on financial markets (Erturk and Solari 2007).
3.2. From traditional banking to risk management

Traditional banking was characterized by banks holding loans to maturity and they earned their profits through the interest spread between deposits and loans. With the innovations of complex securitization, banks no longer had to hold loans on their books. Instead they sold those loans, whether mortgage, credit cards, or student loans, in the open market and thus acquired new capital, thus turning households’ and companies’ loans into tradable securities. As a result, banks were able to originate even more loans and their earnings increased through each new transaction. Interest rate risks were thus shifted from the banks to the buyers of the securitized products such as CDOs, MBS and credit default swaps (Schwartz 2008). As long as it was profitable to construct these instruments, liquidity in the market was only limited by the default probabilities, recovery values and the rates obtainable elsewhere. However, since most homes are purchased through debt financing, the housing market is highly dependent on the banking system. Once the delinquency rates of subprime mortgages started to rise, the default correlation became a critical component in the burst of the bubble, triggering a credit crunch in the entire banking sector, with contagion effects through the interbank lending to Europe and many other countries around the globe. Thus the micro-mechanism arising from the pricing of new complex securities and excessive risk-taking in the banking sector was crucial in triggering the financial crisis (Semmler/Bernard 2009).

3.3. Connectivity in interbank linkages and the danger of systemic risks

The collapse of Lehman Brothers demonstrated that interbank linkages have a strong impact on systemic risks through domino effects (Battiston et al. 2009). If banks were isolated units, the bankruptcy of one entity would not affect the entire credit system. However, credit market liberalization facilitated a strong interdependence in credit and interbank markets, and thus the default of one large agent may produce financial contagion throughout the system. Financial contagion can be spread either through bank runs where a panic may result in herding and influence collective agent’s choices to storm a bank, as was the case with Northern Rock in 2008. It can also happen through asset price contagion in which synchronization takes place among investors to drive up the asset’s value or conversely when agents believe that assets are overprized and try to collectively get out. Traders’ lack of knowledge of mispricing may drive the incentive to buy/sell into a rising/falling market with the expectation that the value may even rise/fall further.

Another financial contagion mechanism is the inter-locking exposures among financial institutions which may lead to liquidity crisis and facilitate bankruptcies. Many markets for credit can be conceived of as credit networks in which nodes represent agents and links represent credit relationships. Because of the risk of insolvency, the extension of credit is conditioned upon assessment of credit worthiness. In view of the recent crisis, researchers warn that the linear relationship between connectivity and systemic risk should be reassessed. In good times, risk sharing around the globe may indeed improve stability. However, in times of crisis, the effects of critical perturbations can spread across the whole system exposing the credit markets to the risk of joint failures, which may create a domino effect
such as bankruptcies on a large scale. Indeed newer studies show that by increasing linkage, the systemic risk rises in the sense that more banks fail. Indeed, with 100% linkage the system collapses completely. This is due to the fact that agents are subject to a financial **accelerator mechanism**, which means that individual financial fragility feeding back on itself may amplify the effect of an initial shock and lead to a full-fledged systemic crisis.

Earlier studies on sharing of systemic risks were seen as leading to more stable financial systems with few global effects (Allen and Gale 2000). These studies argued that as the number of agent increases, the risk of a collapse of the agent hit by the shock goes to zero due to risk-sharing. The larger the pool of connected neighbors whom the agent can share the shock with, the smaller the risk of a collapse of the agent and therefore of the network. Systemic risk is at a minimum when the agents fully diversify individual risks. The authors described two opposite effects which interacted in credit systems. On the one hand, increasing the network connectivity decreases the banks’ risk, due to risk sharing. On the other hand, increasing the connectivity increases the systemic risk, due to higher numbers of connected agents which, in case of default, may be compromised. According to these studies, the impact of risk sharing plays a leading role, and creating links between agents is beneficial, because they allow to diversify risks (Allen and Gale 2000).

Adopting the same methodology as Allen and Gale, Battiston et al. (2009) focused on inter-linkage of credit exposures in credit networks. Their results are less optimistic in that they demonstrate that as connectivity increases so does the probability under certain circumstances for the emergence of a trade-off between decreasing individual risk due to risk sharing and at the same time increasing systemic risk due to the propagation of financial distress. In other words, the larger the number of connected agents, the smaller the risk of an individual collapse the higher the systemic risk and therefore the lower the network resilience. Unlike Allen and Gale’s results, the relationship between connectivity and systemic risk may not monotonically decrease, but represent a **hump-shape**, meaning that there is a decrease for relatively low degree of connectivity and an increase afterwards. As the degree of connectivity increases above a certain threshold crises tend to be not only more severe, but also more frequent.

A key recommendation for regulators is that they should consider introducing **barriers** among agents to reduce connectivity when it goes beyond a certain threshold. For instance, such a barrier may mean the reintroduction of a new **Glass-Steagall** framework, which was subsequently done with the **Volcker Rule** as part of the Dodd-Frank law to separate, once again, retail and investment banking. The Glass-Steagall Act was introduced in 1933 in response to the 1929 stock market crash and the commercial bank failures, since it was believed that commercial banks took on huge risks in their involvement in stock market investments. Glass-Steagall was to create a regulatory firewall between commercial and investment bank activities and banned proprietary trading by retail banks. In 1999, the US-Congress repealed the Glass-Steagall Act with the introduction of the Gramm-Leach-Bliley Act, which eliminated these restrictions, since it was believed that banks should be permitted to diversify their activities. However, the 2007-08 financial crisis demonstrated that the interconnectivity between retail and investment banking was counterproductive since banks engaged in very risky proprietary trading, which destabilized the entire financial system. In response, the US-Congress introduced the **Volcker rule**, named after the former Federal Reserve Chairman, Paul Volcker, which separates investment banking (private equity and proprietary trading) once again from consumer lending, with a number of exceptions to this ban.
But in addition to the interconnectivity of financial institutions, there is also the larger issue of global credit relations, in which national credit networks are connected in a worldwide web of credit relationships. While the increasing inter-linkage of credit networks globally allows for international risk sharing, it may also increase the likelihood of generating systemic risk and financial crisis worldwide.

### 3.4. The liquidity crunch in interbank markets

Contagion through these credit networks is not restricted to the banking system. As the systemic effect of the Lehman Brothers bankruptcy in September 2008 showed, the financial innovations were also sold to non-banking institutions, giving rise to a shadow banking system, which was outside the regulatory domain of banking regulation, but the interlocking exposure among financial and the opaque non-banking institutions led to a catastrophic failure and initiated a liquidity crunch, which has destabilized the interbank market since the crisis started in the fall 2007.

Baglioni and his team (POLHIA) trying to understand the relationship between liquidity and credit risks in the interbank system were faced with some puzzling questions about the financial turmoil in 2007:

- Why did the spread between the medium term and the short term interest rates jump to unprecedented levels?
- Why did trading activity dry up in market segments with maturities longer than the very short term (so called ‘flight to overnight’)?
- Why did these phenomena occur and persist for a long time despite the massive injections of liquidity by the central banks of several countries (often coordinated through swap agreements)?

In answering these puzzles, Baglioni et al., argued that focusing just on one risk, either liquidity or credit risk, is insufficient. They start with the assumption that banks face liquidity risks and credit risks at the same time. Liquidity risk arises when a bank is uncertain whether a shock is going to be permanent or transitory. It exists when a bank has lent long and risks a short-term liquidity squeeze, forcing it to borrow funds in the interbank market to meet any short-term obligations. Credit risk, on the other hand, arises when some participants in the interbank market (or, indeed, firms or households) may suffer losses so large they would become insolvent and other participants are unsure which banks may become insolvent and what the broader repercussions for interbank lending might be. As long as this adverse selection is not too severe, the interplay between liquidity and credit risk does not pose much of a problem. The situation is different if the repercussions are so severe as to make the interbank markets dry up. The subsequent gridlock is due to a lack of information about the quality of bank assets, which can lead to a collapse of trade. This happens if agents take into account the possibility that the interbank market may no longer be functioning in the near future. As a result, banks short of liquidity are forced to liquidate illiquid assets and suffer significant losses. The next likely step is that banks currently long on liquidity will ask a liquidity premium on a long-term interbank loan as a compensation for the expected losses. Banks have thus two alternatives. They either can pay such liquidity premium if they are short of liquidity, or if the premium is too high, they may have to borrow on shorter maturities.
One of the big challenges for regulators to counter the liquidity crunch in the inter-bank markets is to improve the transparency of financial institutions and markets through regulatory and supervisory intervention. Particularly, the over the counter markets (OTC) are highly opaque and prevent market agents from having a clear picture of the distribution of losses arising from the crisis of specific market segments. At the same time, Baglioni et al., caution that in this conundrum between credit and liquidity risk, the management of aggregate liquidity through open market operations of central banks does not provide a solution. Their models demonstrate that when banks face a gridlock in the interbank market it is less likely due to an aggregate shortage of liquidity, but more likely the result of the credit-worthiness of counterparties. However, there is a role for central banks within the context of the model in providing money for solvent banks which might not be able to raise liquidity in the money market due to the gridlock and thus are forced to pay a credit risk premium. This situation can be avoided if central banks had access to information on the creditworthiness of banks due to its supervisory role. But this scenario may not be realistic, since the recent financial crisis has demonstrated that apparently the supervisory authorities did not have accurate information about the quality of bank assets.

3.5. Cross-border banking in Europe

While the former German finance minister, Peer Steinbrück, was initially confident that the US subprime crisis would not affect the European financial markets, it happened otherwise. Cross-border banks functioned as the transmission belt. The entry of foreign banks across European member states took off with the introduction of the Euro in 1999. Only when the currency risks were eliminated, it was profitable to expand cross-border banking. A further push came when western banks set up cross-border branches in Eastern European countries such as Hungary, Poland and across the Baltic states. By 2005, EU-wide cross-banking activities accounted for 23 % of all banking. The fit between the introduction of the single currency and the expansion of this type of foreign bank can be seen in Figure 4.

![Figure 4. Cross-border banking in the European Union](image-url)

While the interconnectedness among European banks facilitated massive amounts of trade and cross-border claims, it also increased the risks. As the financial crisis hit the European shore, cross-border banks started to fail. One of the first was the Benelux bank Fortis-Group, with headquarters both in Brussels and Utrecht, Holland. Despite the fact that Fortis was the largest bank in Belgium and the second largest in the Netherland, belonging to the 20 largest financial institutions in Europe, it had to be partially nationalized. Subsequently, Fortis was split between a Dutch and a Belgian part. Equally problematic was the collapse of the Franco-Belgian bank, Dexia. It was one of the world largest banks specializing in local lending. Only last December 2012 did the European Commission approve for a second time a multi-billion Belgian and French rescue plan. This was done since it was feared that a total collapse of Dexia could have the same contagion effect as Lehman Brothers.

These two cases demonstrate that the regulators at the European level had few instruments at hand to deal with the failure of cross-border banks. This was due to the fact that while financial integration increased at the European level, supervision and regulation remained almost exclusively in the domain of the member states. The problem was made worse since national supervisors may have a biased incentive and thus fail to cooperate across borders. They may be more reluctant to intervene in a cross-border bank the higher the share of foreign deposits and assets, and more likely to intervene the higher the share of foreign equity. The explanation for this is that a higher asset and deposit share outside the area of supervisory responsibility externalizes part of the failure costs, while a higher share of foreign equity reduces the incentives to allow the bank to continue, as the benefits are reaped outside the area of supervisory responsibility (Beck et al. 2011).

The crisis made clear that there was a need for pan-European supervisory reforms. The European Commission proposed the first post-crisis reforms in 2009 which were put into effect in January 2011. They replaced the EU’s existing supervisory structure with a European System of Financial Supervision (ESFS). It includes both EU supervisors as well as national supervisory authorities. The EU is charged with macro-prudential supervision in a new organization, the European Systemic Risk Board (ESRB), located in Frankfurt. It is made up mainly of central bank governors and its key role is to warn about macro-economic threats in the EU area. While the EU level supervision has been assigned a bigger role than was previously the case, nevertheless ESRB will not have power to force decisions on member states. It can only make recommendations to finance ministers.

The second type of EU level supervision is concerned with micro-prudential supervision and is responsible for a segment of the financial sector. It consists of three European Supervisory Authorities – a European Banking Authority (located in London), a European Securities and Markets Authority (located in Paris), and a European Insurance and Occupational Pensions Authority (located in Frankfurt). Each authority is made up of national supervisors. The goal is to establish common standards and rules for all national supervisors and arbitrate in disputes among national authorities. The three authorities can expand their power if member states agree that there is an emergency, and can make legally-binding decisions covering individual banks or insurers. But they do not have the power to force a country to bail out a bank.
At the cross-border level supervision, which in fact remains outside of the European System of Financial Supervision, supervisors of the member states in which a cross-border institution operates meet in a college of supervisors. These supervisory bodies have been made mandatory, and the aim is to encourage better coordination among them. At the third level of supervision, the national level, home country supervisors are now mandated to take into account the potential impact their decisions have on fellow member states. Moreover, the concept of significant branches has been introduced with the aim to encourage cooperation between home and host supervisors. Despite these new changes at all three levels of supervision, there are some notable shortcomings. First, the EU macro-supervisory framework lacks coercive powers, the cross-border colleges of supervisors have been strengthened, but are still weak, and the home country supervisors remain in firm control (Verhelst 2011).

3.6. The vicious circle between banking and sovereign debt crisis

The sovereign debt crisis in the Eurozone starting in Greece in 2010, subsequently engulfing Ireland and Portugal, and also Spain and Italy, made clear that the sovereign debt crisis was as much a banking crisis. In fact, in many cases, the crisis had much more to do with private than with public debt except for Greece (see Table below). The crises in Spain and problems of banks in Ireland were the result of household debts. For example, in Spain house prices rose by 120 % in the period 1997-2008, which was the highest in Europe and banks got caught with too many collateral debt obligations on their books. Instead of recapitalizing the banks, the government chose to bail them out, since it was believed that they were ‘too big to fail’. Thus a mostly private banking sector crisis turned into a sovereign debts crisis. The only exception to the accumulation of huge private debt levels was Greece. Greece’s public debt amounted to 115 % of GDP in 2007 versus 70 % of household debt. Eventually, Greece’s public debt has skyrocketed to over 160 % of GDP in 2012.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Public Debt as % GDP</th>
<th>Household Debt as % GDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>73 %</td>
<td>87 %</td>
</tr>
<tr>
<td>Germany</td>
<td>66 %</td>
<td>96 %</td>
</tr>
<tr>
<td>Greece</td>
<td>115 %</td>
<td>70 %</td>
</tr>
<tr>
<td>Ireland</td>
<td>29 %</td>
<td>210 %</td>
</tr>
<tr>
<td>Portugal</td>
<td>76 %</td>
<td>143 %</td>
</tr>
<tr>
<td>Spain</td>
<td>42 %</td>
<td>140 %</td>
</tr>
</tbody>
</table>

Source: Public Debt Data from OECD Economic Outlook No. 92 (database) as of December 2012; Households and NPISHs debt data from OECD Factbook 2013: Economic, Environmental and Social Statistics, OECD 2012.
As the borrowing costs of Italian and Spanish government bonds started to reach unsustainable levels in the late spring of 2012, and speculation increased about the possible exit of Greece from the Eurozone, the European state and government leaders decided at a Brussels summit in June 2012 to sign up for ‘more Europe’ by agreeing to transfer some national sovereignty to four new European institutions consisting of a fiscal union, a banking union, an economic union, and a political union. The four building blocks are divided into different problem solving mechanisms.

A banking union would entail a common framework for banking supervision, crisis resolution, and deposit insurance. A fiscal union would include the creation of a commonly issued debt instrument to meet investors’ demand for a credit-risk-free asset (or ‘Eurobonds’)… accompanied by adequate central controls on national budgetary choices. A competitiveness union (or economic union) would monitor, assess and coordinate structural reform policies at the national and European levels, including on areas that have high impact on the potential development of high-growth firms in Europe such as insolvency legislation, financial regulation, service sector regulation, and labor law. A political union would make the European Parliament genuinely representative and able to exert due democratic control of relevant executive functions (Véron 2012: 5-6).

Most of the details have been provided for the banking union. The Euro Area Summit Statement from 29 June 2012 ‘affirms that it is imperative to break the present vicious circle between banks and sovereigns’ on the ‘condition that an effective single supervisory mechanism is established’. The proposals were to be considered on the basis of Article 127(6) for a single supervisory mechanism, based at the European Central Bank. Once a single supervisory mechanism is established, it will be possible to recapitalize banks directly. A roadmap for completing the banking union started with the single supervisory mechanism, followed by an EU-wide banking resolution mechanism, and finally a single deposit guarantee scheme.

In 2014, the construction of the banking union will be completed. Its foundation is the new regulatory framework with common rules for banks in all 28 Member States, set out in a single rulebook. Common rules will help to prevent bank crises in the first place (in particular Capital Requirements Directive and Regulation) and, if banks do end up in difficulty, set out a common framework to manage the process, including a means to wind them down in an orderly way (Directive on Bank Recovery and Resolution). Common rules will also ensure that all EU savers are guaranteed that their deposits up to EUR 100 000 (per depositor/ per bank) are protected at all times and everywhere in the EU (Directive on Deposit Guarantee Scheme).

The banking union ensures the common implementation of those rules in the Eurozone. First, as of November 2014, the European Central Bank (ECB) assumes the supervisory role over all 6,000 banks in the euro area in the framework of the Single Supervisory Mechanism. The degree of direct European supervision by the ECB on a daily basis and the role played by national supervisors will however vary according to the size of banks. The ECB will particularly have responsibility for direct supervision of about 100 to 150 banks having assets of more than EUR 30 billion or constituting at least 20 % of their home country’s GDP or which have requested or received direct public financial assistance from the European Financial Stability Facility (EFSF) or the European Stability Mechanism (ESM).
Second, in the rare cases when banks fail despite stronger supervision, the recently adopted Single Resolution Mechanism (SRM) will allow bank resolution to be managed more effectively through a Single Resolution Board (SRB) and a Single Resolution Fund (SRF). If a bank fails, the SRM with clear decision-making rules for cross-border banks and highly experienced staff will be much more effective in carrying out resolutions than the existing patchwork of national resolution authorities.

Together with the new EU wide regulatory framework for the financial sector, the completed banking union is a big step in the economic and monetary integration of the EU, however it remains to be seen how this framework will work in practice.

3.7. The future of banking and policy challenges

The financial crisis has shuttered the trust of people in a banking system that embraced a business model of excessive risk-taking. Despite some progress on banking regulation in the EU and the United States (with the enactment of the Dodd-Frank legislation), the banking sector continues to face great challenges. Economists have come up with a range of reform recommendations starting with government intervention to relieve distressed banks from toxic assets in order to give banks a fresh start, keep the cost to tax payers low, and at the same time curtail the risk of moral hazard. While the removal of toxic assets is paramount to strengthen banks, there are other structural issues needed to stabilize the banking system such as the recapitalization of banks, ensuring capital adequacy as is presently negotiated in the Basel III reforms, mandating supplemental capital adequacy requirements for systemically important banks, encouraging competition in the banking sector, and creating a bank resolution system which is critical in preventing contagion and minimizing possible future banking crises. Equally important is the issue of corporate governance and executive compensation in the financial sector. Research has pointed out that the executive pay structure enhanced risk-taking and created value for shareholders but did not protect the holder of debts (Mehran et al. 2012). The aim of banking reforms is to prevent future excessive risk-taking and thus stabilize the banking system, regain the bank’s function as a source of credit and restart interbank lending, as well as increase competition in banking.

Two reform recommendations are discussed in more detail below: Restructuring ‘good’ banks through outsourcing toxic assets to a bad bank, and creating a resolution mechanism for failing banks.

3.7.1. Bad banks and the recapitalization of the banking sector

Creating bad banks for toxic assets and the need for recapitalizing banks was proposed at the G20 conferences in Washington, D.C. in November 2008, but the implementation of concrete measures was not addressed until the G20 conference in London in April 2009. Until now, measures for bad banks have, if any, been implemented at the national level. Schäfer/Zimmermann (2009) used the bad bank plan of Germany to describe some of its features, compare it to historically successful bad bank models, and discuss some of the drawbacks with this particular form of crisis resolution. German banks, particularly the federal state banks (the Landesbanken) were heavily exposed to the US mortgage markets, and thus experienced a high quarterly write-down of asset-values.
According to the Bundesbank, the total capital including reserves held by all German banks was approximately EUR 415 billion. Losses from toxic assets vary between EUR 200 and 300 billion, which amounts to about 8 and 12% of German GDP. The large write-downs not only produced destabilizing feedbacks for the financial markets, the eroding capital base was also damaging to the real economy. A mere threat of a bank closure may result in a negative feed-back loop such that market participants start withdrawing capital from the bank, cutting off needed capital flows, thus lowering the bank’s equity and its ability to provide credit to companies outside the banking sector.

Hence a bad bank may help to stem the negative feed-back for financial markets and the non-financial sector. To ensure a fresh start for the remaining ‘good’ bank it is important to provide transparency in the removal of toxic assets. Equally important is to minimize the costs to the tax payers and reduce future moral hazard. The starting point for the bad bank is to take over/purchase the troubled loans and then attempt to restructure and manage them in such a way as to maximize their value. A key aspect is to determine the value of the troubled assets at their current market value. Assets with no market value would be discounted at zero. It is the shareholder who is called upon to take the resulting losses. The plan stipulates that the government would bear responsibility for the management and future resale of toxic assets at its own expense and recapitalize the good bank by taking an equity stake in it. The government would cover the bad bank’s losses and profits would be distributed to the distressed bank’s current shareholders. Once banks are freed from such toxic assets, the bank can then rebuild the trust it had lost and return to normal conditions of capital and funding.

However, as the authors of the German study point out, a bad bank solution is risky and entails costs. Any government supported bad bank bail-out is little more than a transfer of resources from taxpayers to private banks’ shareholders. Also it has to be reckoned that the capital required to create a bad bank may be quite large, and in addition, there may be considerable losses for the taxpayers if the toxic assets cannot be sold. At the same time, it is only realistic to assume that a bad bank will produce losses. Recouping the losses can be minimized if the government has purchased/taken over the toxic assets at a low price. Essentially, the acquisition costs and the operating costs determine the amount of capitalization required. If a low price is paid for the acquired troubled assets, it keeps the initial capital needs at a minimum and reduces the risk of future losses. Conversely, if the government provides 100% of financing, any future losses have to be borne by taxpayers. Not surprisingly, the greater the amount paid initially, the higher the risk of future losses. But the source of financing does not have to come solely from governments it can also include the private sector in absorbing some of these losses.

Governments have experimented with different models of bad banks (see Table 2). For example, Sweden has successfully mastered the financial crisis in the 1990s with a bad bank using a decentralized bad bank model. Former US Treasury Secretary, Tim Geithner, on the other hand, had proposed plans relying on public-private partnership for the purchase of toxic assets. In turn, Germany proposed a special purpose vehicle (SPV) for each participating bank. The purpose of the SPV is to transfer government bonds at some discount to the participating bank in exchange for the toxic assets.
Table 2. Classification of Bad Banks according to their capital source and their mode of organization -

<table>
<thead>
<tr>
<th>Created as</th>
<th>Public</th>
<th>Source of Capital</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed bad bank (neither centralized nor decentralized)</td>
<td><strong>Financial Market Crisis 2007/2008</strong> Bad bank model of the Association of German Banks: Unique account for each bank</td>
<td><strong>Financial Market Crisis 2007/2008</strong> Multiple, competing public-private Partnership (USA)</td>
<td></td>
</tr>
</tbody>
</table>

Classification of Bad Banks According to the Way of Transfer

<table>
<thead>
<tr>
<th>Purchase/Takeover of toxic assets</th>
<th>Exchange of toxic assets for secure bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish Bad Banks: Securum and Retriva USA: RTC Berlin: BIH</td>
<td>German Government’s proposal: government bonds and covering of losses by shareholders over time Bundesbank proposal: Equalisation claim with debtor warrant Association of German Bank’s proposal: Gov. securities and final accounting with ‘fair distribution of burdens’</td>
</tr>
</tbody>
</table>

*** Capitalisation is also classified as public if banks receive government bonds instead of money in exchange for toxic assets. Government bonds are simply an alternative way of financing the purchase of toxic assets.

Source: Schäfer/Zimmer, Bad Bank(s) and the Recapitalisation of the Banking Sector, Intereconomics, Vol. 44:4: July/August 2009: p. 220

As such, there is no single model of a bad bank that could satisfy different countries’ banking structures. However as a caveat, ridding banks of toxic assets through bad banks should only be done in combination with other financial regulations. Once a bad bank is created and the remaining ‘good’ bank’s balance sheet is free of toxic assets, the bank may no longer have any incentive to support new banking regulation.
3.7.2. Banking resolution for distressed banks

Distressed banks can be defined as any bank that is facing difficulties in continuing its activities because of liquidity problems or when its solvency is in doubt. In finding a solution, government leaders and policy makers do not want to repeat the global financial fiasco that was unleashed with the insolvency of Lehman Brothers in September 2008. This was a lesson nobody wanted to repeat. To avert such a crisis, members of central banks and regulators from the largest economies decided in a meeting of the Financial Stability Board, to force all of the global systemically important financial institutions (GSIFIs) to come up with living wills as a guide for policy makers to stabilize or close down a bank. The deadline to hand in such living wills was extended from the end of 2012 to a later date. Despite previous episodes of systemic crisis such as the US savings and loan crisis of the late 1980s, the Swedish crisis of the early 1990s, the Japanese crisis until 2002-2003, and the financial crisis of 2007-09, governments and policy makers stepped into unknown terrains when they had to deal with distressed banks and decide whether to liquidate or provide bail-outs in order to avoid contagion to other banks and minimize the effects on non-financial sectors. Namely, if governments intervened to prop up failing banks, it also increased moral hazard and signaled to the private banking sector that governments had become the ‘lender of last resort’. Thus the threat to close down a bank was essential to enhance the power of supervisors. But as banks in distress face closure it decreases the competitiveness of the banking sector in a given region through numerical reductions while increasing the concentration of those remaining banks in such spaces.

That general bankruptcy procedures proved inadequate to deal with banking failures was an essential lesson learned during the financial crisis.

The bailouts and costly failures of non-bank financial firms during the recent crisis arose in large part because their failure could not be resolved only through the bankruptcy courts using laws designed for nonfinancial firms. The bankruptcy courts are set up to provide a fair distribution of a firm's claimants. These laws are not designed to take into account the effects of a firm's failure on the rest of the economy (Wall 2010, cited in Beck et al. 2012).

Bankruptcy procedures are important to minimize the cost of winding-down banks. Administrators of the Lehman bankruptcy estimated that at least $75 billion have been wasted because of the complete lack of any preparation for bankruptcy. Recommendations to design bank-specific bankruptcy procedures range from maximizing value to creditors, provide fair treatment to claimholders, but minimize the social costs and guarantee the safety of the banking system. Thus speed and legal certainty is of the utmost importance to avoid speculation and bank runs. To deal with distressed banks, some countries have created specific bankruptcy codes such as Canada, Italy, Norway, and the US. Also the Bank of England has required banks to write living wills so as to reduce the cost of unwinding a distressed bank, and at the same time, to increase the credibility of such a threat. At the European level, a resolution system is all the more important, because the European practice of bailing out all senior creditors, even of smaller banks, and many junior ones is not sustainable.
While some European member states did introduce special resolution regimes, hardly any government closed down banks in distress, and if they did unsecured creditors were fully paid at great costs to the respective national taxpayers. In contrast, unsecured creditors in US bail-outs such as Bear Stearns, Fannie Mae, Freddie Mac and AIG had to take major losses (Véron 2012).

This national fragmentation in the EU has been overcome with the creation of the banking union and its Single Resolution Mechanism, which ensures that the complicated decisions which have to be taken when a resolution happens, in particular a cross-border resolution, can be done quickly with binding effect for all Member States in the banking union.

The Single Resolution Mechanism is built around a strong Single Resolution Board and will involve permanent members as well as the Commission, the Council, the ECB and the national resolution authorities. In most cases, when a bank in the euro area or established in a Member State participating in the banking union needs to be resolved, the ECB will notify the case to the Board, the Commission, and the relevant national resolution authorities. The decision-making procedures have been carefully calibrated so that it will be possible to decide on a resolution case over a week-end.
Chapter 4 - Governance of monetary policy
The appropriate design of monetary policy in integrated financial markets is one of the most challenging areas currently facing central banks. The primary goal of the ECB is to maintain price stability. To achieve this target the ECB has developed a two pillar strategy. The first originated in the monetarist view targeting the control of monetary aggregates (quantity of money and credit) to stabilize inflation. This monetarist policy has been pursued by the German Bundesbank, and also by the US-Federal Reserve in the 1980s. The second pillar emphasizes the control of the short-term interest rates. Since in this policy the inflation rate is directly targeted and according to some studies more realistic by not relying on the (unstable) money demand function (Semmler 2011), it has become more prominent in the ECB. The interest rate policy, as the one pillar, is based on the economic analysis of price risks in the short term. The other pillar, the money growth policy, is built on the analysis of risks to price stability in the medium and long run. Given the complexity of the monetary transmission process, central bankers often take some simple rules into account. One rule is that inflation is always a monetary phenomenon in the medium and long term. Therefore, central bankers watch the monetary developments in order to assess future inflation trends in the euro area.

4.1. Monetary policy and the European Central Bank: \textit{leaning against the wind} or \textit{benign neglect}

During the last decade inflation rates have remained relatively low and stable in industrial countries while the prices of equities, bonds, and foreign exchanges have been extremely volatile. Central bankers face thus the challenge whether to pursue monetary policy that takes financial markets and asset price fluctuations into account. It is well known that increases in asset prices can trigger inflationary pressures and might provide wrong signals about the underlying economic fundamentals. Therefore, it has been argued that central banks should \textit{lean against the wind} rather than follow a policy of \textit{benign neglect} as was the pre-crisis strategy of Federal Reserve Chairperson, Alan Greenspan. The assumption of \textit{benign neglect} is that monetary authorities should deal with financial instabilities that may result from the burst of an asset bubble if and when the latter occurs, but they should not adjust monetary policy pre-emptively in the boom phase. This means that central bankers should not take into account financial instabilities such as asset boom-busts (Greenspan 2008). At the same time, increases in asset prices can trigger inflationary pressures and might cause inefficient allocation of resources. Positive shocks to asset markets can generate overconsumption patterns due to perceived wealth effects, and capital over-accumulation due to lower costs of capital.
In contrast, *leaning against the wind* implies that boom-bust bubbles should have been regulated via interest rate increases to prick the bubble and limit the build-up of financial imbalances. At the same time, rules that directly target asset prices could also have undesirable side effects. In periods of rapid price increases in asset markets, a tighter monetary policy can lead to significant output losses. Questions also arise as to whether central banks can be certain if a financial bubble is emerging and at what point to intervene. Given these undesirable side effects of *leaning against the wind*, researchers caution that monetary policy should respond to asset prices only insofar as they affect inflation and output expectations. The reason for this is that leaning against the wind assumes a robust link between monetary policy and asset markets. But evidence has shown that the impact of liquidity shocks on asset prices is far from robust. While monetary policy does not seem to affect share prices, it may have an impact on house prices, especially in the US.

A recent study explores the housing and mortgage markets for the transmission of monetary policy. Given that the housing and mortgage markets across EU member states are quite heterogeneous questions were raised whether this has any impact on the transmission of the (single) monetary policy. Instead of relying on institutional indicators of classifying countries in terms of housing and mortgage markets, the study developed an algorithm that classified countries according to the dynamic interdependencies of important macroeconomic variables. These include real gross domestic product and its aggregates, overall price level, real house prices and short-term nominal interest rates, which serve as the policy instrument. The results show that macroeconomic variables in European countries co-move with real house prices after a monetary policy shock, but there are significant cross-country differences. Overall, the results demonstrate that heterogeneity of housing and mortgage markets across countries reflect differences in the transmission of monetary policy, which can be explained by the amplifying effects that arise from movements in real house prices after a monetary shock. Since the discrepancies are sizeable, the authors of the study recommend that monetary policy should be concerned about the influence of house prices when setting interest rates. This conclusion is particularly relevant for the European Central Bank, which sets a single interest rate for a large group of countries with heterogeneous housing and mortgage rates.
4.2. Interaction between monetary policy and bank regulation

Since the financial crisis, a change of perception has occurred regarding the role of financial regulation and monetary policy. While a new consensus has not yet emerged, some of the older assumptions on the interaction between bank regulation and monetary policy are being reconsidered. In the older models, the two policies were seen in isolation, each pursuing its own goals using separate sets of instruments. The new focus is to analyze them together. The reason for this change is first the realization that traditional formal requirements for individual bank solvency are no longer seen as sufficient for systemic stability, and second there is also the realization that monetary policy should play a role to control systemic risks in the financial sector. Namely, the crisis has demonstrated that monetary policy influences the risks in the financial sector, and such risks have disruptive implications for output and price stability. These new directions do not only open up new research vistas, they are also relevant at a time when central banks have taken on more responsibilities in areas of systemic stability.

In response to these challenges, the economists Angeloni and Faia (2010) designed a macro-model that integrates banks to analyze their role in transmitting shocks to the economy, the effect of monetary policy when banks are fragile, and the way monetary policy and bank capital regulation can be conducted as a coherent set. Essentially their aim is to analyze how bank regulation and monetary policy interact in a macro-economy that includes a fragile banking system. The model is specified in such a way that it explores how capital regulation, and potentially also liquidity ratios and other prudential instruments, influence economic performance, collective welfare and the optimal monetary policy. There are two main aspects that differentiate Angeloni/Faia’s work from previous studies examining optimal monetary policy and bank regulation. First, the previous studies take capital requirements as given and study the optimal monetary policy response, while the present study considers their interactions and possible combinations. Second, in earlier studies the loan market and bank capital structure were specified exogenously or ad hoc, while Angeloni/Faia incorporated optimizing bank behavior explicitly.

When inserting this banking core into a standard DSGE model, a number of results emerge. A monetary expansion or a positive productivity boom increase bank leverage and risk. The transmission from productivity changes to bank risk is stronger when the riskiness of the projects financed by the bank is low. Pro-cyclical capital requirements (akin to those implied by the Basel II internal ratings based approach) amplify the response of output and inflation to other shocks and may generate unstable dynamics. Monetary policy cannot neutralize this effect fully. Conversely, anti-cyclical rations, requiring banks to build up capital buffers in more expansionary phases of the cycle, have the opposite effect. Finally, the optimal policy combination includes mildly anti-cyclical capital requirements (i.e., that require banks to build up capital in cyclical expansions) and a monetary policy rule that reacts to inflation and leaning against the wind – either to asset prices or to bank leverage.
Chapter 5 - Governance of fiscal policy
The issue of fiscal policy as macroeconomic stabilizer goes to the heart of the debate as to whether fiscal policy has macroeconomic stabilizing effects. Yet, there is no consensus as different research results show. Economists analyzing macroeconomic policies in a heterogeneous agents setting start from the premise that since agents are different (i.e., labor market status, market power, expectations, technical capabilities), monetary and fiscal policies affect different people in different ways. By using models which go beyond the representative agent and focus instead on agent based models relying on the New Keynesian tradition, researchers make the point that this heterogeneity is crucial for macroeconomic outcomes. Fitoussi and Saraceno (2008) have shown that most of the arguments in favor of fiscal rules, such as the Stability and Growth Pact (SGP) strengthening the Maastricht Agreement’s debt limitation rules, could justify the imposition of rules at the national level but not at the supranational level unless externalities or credibility considerations are invoked. They point out that due to the inconclusiveness of the available evidence, the SGP could be regarded as a public social norm that countries obey in order to preserve their reputation among other members of the European Union. These researchers conclude that the SGP as a coordinating device at the European level is debatable, since it imposes coordination from the bottom, limiting the space for future fiscal policies that could in principle be beneficial in the short as well as in the long run. The debate on whether to strengthen governance only in the direction of a more rigidly disciplined fiscal policy and the macroeconomic results are still unresolved. A new Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, also known as the Fiscal Compact, was signed by 25 EU governments in March 2012 (except the UK and the Czech Republic). Designed to ensure that the financial crisis would never be repeated, it includes a so-called debt-brake, which mandates that governments have to abide by a legally-binding structural deficit target of 0.5%, which supplements the Maastricht Treaty’s limits of 3% for fiscal deficits and 60% of debt per GDP. Already in 2009, the German coalition government (CDU/CSU and SPD) have inserted this provision in the German constitution to reach this goal in 2016. It is this balanced budget device that Germany has insisted that other Eurozone countries must enact to ensure budgetary discipline. Switzerland was one of the first countries inserting a constitutional debt brake in 2001, and Spain followed in 2011. However, Poland inserted a debt brake of 60% into its constitution already on 2 April, 1997.

Creel et al. (2013) critical of the debt rule agree that it would indeed lead to lower debt levels, hence to larger fiscal margins of maneuver in the future, but the research cautions against a rigid disciplined fiscal policy in order to stem the European sovereign debt crisis. Even the International Monetary Fund in its World Economic Outlook 2012 warned that while fiscal consolidation is necessary, it should be structured in such a way to avoid an excessive decline in demand which could push economies into deflation or a period of weak economic activity. The reasons for a likely negative impact of tight fiscal consolidation or austerity policies is that in a recessionary regime the constraints (on households, firms, financial intermediaries, product markets) are significantly stronger than in boom times and thus budget deficits and sovereign debt will not decrease, but increase and could trigger a recession. Thus the ‘contractionary multiplier’ resulting from a reduction in fiscal spending will be quite strong (Mittnik/Semmler 2012). As a result, the IMF suggests that in times of low inflation rates, there is room for monetary easing and unconventional support by the central banks in order to facilitate the smooth transfer of monetary policy to the real economy.
5.1. Is expansionary fiscal policy able to boost employment in a recession?

The question raised is whether expansionary fiscal policy is able to fight rising unemployment in a recession. For this purpose, Campolmi et al., 2010, have simulated the impacts of fiscal policy within a calibrated New Keynesian model in which unemployment is the result of search and matching frictions. Two forms of government spending are considered: a traditional increase in aggregate demand and an increase in hiring subsidy of firms which is aimed to reduce the cost of posting vacancies and thus boost job creation. Moreover, various forms of government financing are considered, namely lump sum taxation versus distortionary taxation in labor incomes. The aim of the study is to calculate fiscal multipliers when labor markets are frictional. For this purpose a standard New Keynesian model is used for a closed and cashless economy in which unemployment arises due to matching frictions. The Keynesian aspect refers to monopoly power on product markets and inflexible price adjustments due to adjustment costs. Labor markets are characterized by matching frictions and exogenous job separation, and the government has the task to collect lump-sum taxes, levy taxes on consumption purchases and labor income, and issue bonds to finance government expenditures either in the form of government consumption or hiring subsidies. Monetary policy is described by a Taylor interest rate rule. To highlight the role of search and matching frictions, the research compares the fiscal multipliers in the New Keynesian model with search and matching frictions with the standard New Keynesian model in which unemployment is absent.

New important insights from this research show that in countries with frictional labor markets, the impact of the actual demand stimulus may be lower than expected. Thus, in comparison to the standard New Keynesian model the expansionary effects of aggregate demand stimuli are much lower in a model with matching frictions, since the demand stimuli produces low to nearly zero multipliers. In addition, if distortionary taxation is used, multipliers may become even negative meaning that the positive impact of the increase in government spending is dominated by the crowding-out effects. On the other hand, policies targeted more specifically toward the labor market such as a hiring subsidy are particularly powerful in boosting employment and output. In this case, the fiscal multipliers turn positive and become significantly large, since hiring subsidies reduce the cost of posting vacancies which boost job creation and thus employment and output. This policy intervention is thus regarded as particularly powerful in fighting unemployment in a recession.

These insights are important since in response to the financial crisis and the subsequent economic recession governments around the world have passed expansionary fiscal packages arguing that only fiscal stimuli could counter the recessionary impact with rising unemployment. But in contrast to other studies, this research demonstrates that the impact of aggregate demand stimuli on economic activity is at best negligible when labor market frictions are taken into account. However, policies targeted more specifically toward hiring subsidies can dampen the recession triggered by the decline in productivity. According to Campolmi et al. 2010, this policy intervention is particularly effective in fighting unemployment. As a result, the research suggests that it may be more beneficial to model labor market frictions before studying fiscal policy.
5.2. The impact of discretionary Keynesian Government spending in the Euro Area

Eurozone governments started to respond to the financial crisis of 2008 with discretionary fiscal stimulus to boost euro area private spending. Researchers thus asked the question whether this discretionary spending has a so-called Keynesian multiplier effect and boost euro area GDP by more than one for one. Proponents of fiscal packages argue that the Keynesian multiplier effect will boost economic growth and thus mitigate the recessionary impact of the global financial crisis. Critics argue that government spending will displace private consumption and investment, because consumers will anticipate future tax burdens and save rather than spend, while government borrowing will drive up interest rates and crowd out private investment (Cwik/Wieland 2009). Despite these policy uncertainties, the United States as well as the euro area implemented fiscal stimuli measures although the euro zone package (except for Germany) was smaller than the US measures.

Five different empirical macroeconomic models were used to simulate the fiscal stimulus and its subsequent impact on economic growth in eleven of the largest Eurozone countries, since these account for 99 % of GDP in the Euro area (see Table 3). The models include three New Keynesian dynamic stochastic general equilibrium (DSGE) models, which incorporate recent advances in terms of microeconomic foundations from real-business cycle models and combine them with Keynesian style rigidities, such as price and wage rigidities. Since these models have been criticized for its restrictive assumptions about human behavior, the researchers have also included a Taylor multi-country model, which assumes that market participants are forward-looking. In contrast to the DSGE models, the Taylor model does not impose the full set of restrictions which go with the optimizing behavior in the DSGE models. Finally, an additional model, the ECB’s Area Wide model, was included which ignores both the forward-looking and optimizing motives for private decision making. The latter model provides a traditional Keynesian perspective. As a last caveat, the model simulations focus on increases in government spending rather than increases in transfers and tax rebates.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total fiscal package (bln Euro)</th>
<th>Expenditures (bln Euro)</th>
<th>Total fiscal package (% of GDP)</th>
<th>Expenditures (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>4.9 4.6</td>
<td>1.4 1</td>
<td>1.71 1.63</td>
<td>0.48 0.36</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.3 1.2</td>
<td>0.9 0.8</td>
<td>0.36 0.33</td>
<td>0.27 0.24</td>
</tr>
<tr>
<td>Germany</td>
<td>35.9 48.4</td>
<td>18 13.6</td>
<td>1.44 1.93</td>
<td>0.72 0.54</td>
</tr>
<tr>
<td>Greece</td>
<td>0 0</td>
<td>0 0</td>
<td>0.00 0.00</td>
<td>0.00 0.00</td>
</tr>
<tr>
<td>Spain</td>
<td>26.8 14.7</td>
<td>12.1 0</td>
<td>2.44 1.34</td>
<td>1.10 0.00</td>
</tr>
<tr>
<td>Finland</td>
<td>2.4 2.4</td>
<td>0.4 0.4</td>
<td>1.25 1.25</td>
<td>0.23 0.23</td>
</tr>
<tr>
<td>France</td>
<td>17 4</td>
<td>16.3 4</td>
<td>0.87 0.2</td>
<td>0.83 0.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>0 0</td>
<td>0 0</td>
<td>0.00 0.00</td>
<td>0.00 0.00</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.3 -0.8</td>
<td>3.1 0.2</td>
<td>-0.02 -0.05</td>
<td>0.19 0.01</td>
</tr>
<tr>
<td>Netherl.</td>
<td>3.1 2.9</td>
<td>0.2 0</td>
<td>0.53 0.49</td>
<td>0.03 0.00</td>
</tr>
<tr>
<td>Portugal</td>
<td>1 0.3</td>
<td>0.9 0.3</td>
<td>0.60 0.18</td>
<td>0.54 0.18</td>
</tr>
</tbody>
</table>

EU-11 92 77.6 53.2 20.4 1.01 0.85 0.58 0.22

As Table 3 indicates, the fiscal stimuli enacted differ in the countries in terms of magnitude and composition. Germany has implemented the largest stimulus package in the amount of EUR 84.3 billion over the period 2009 and 2010, which amounts to 3.37% of GDP. Furthermore, the German stimulus corresponds to nearly 50% (49.7%) of the total EU-11 countries under study. The second largest stimuli measures were enacted by the Spanish government, followed by the French.

The model results seem to confirm the critics’ position that fiscal stimuli packages, at least in four of the five simulation estimates, do not lend support to a Keynesian multiplier effect. Figure 5 displays the five models and the estimated impact on additional private spending which includes an implementation time lag of two quarters. Of all the models, only the ECB’s area-wide model demonstrates the desired multiplier effect for the first two and a half years, followed by a significant slump thereafter.

**Figure 5. Impact on euro area GDP: constant interest rates in 2009**


The three New Keynesian models developed by economist at the ECB, the IMF and the EU Commission (that is the Smets and Wouters model, Small IMF Model and EU Quest model) are found to exhibit no multiplier effect. The explanation is that expectations about future tax increases, or rising government debt and future interest rate increases lead to a reduction in private consumption and investment spending. Even if 1/3 of households do not care about the future and consume all of their current income, as is assumed in the model of the EU Commission, the multiplier remains below unity. Similar results are obtained in the multi-country Taylor model. Monetary accommodation in terms of the absence of interest rate hikes may help but is not sufficient to offset the crowding-out of private spending.
However, Mittnik/Semmler (2012) suggest that the fiscal multiplier is regime dependent, thus the reactions of fiscal stimulus have shown to be significantly stronger in recessionary regimes than in times of booms. Studies which deny or show a weak Keynesian multiplier effect stem from estimates of linearized DSGE models or vector autoregressions (VARs) averaging the data over a long time period. In contrast, Mittnik/Semmler argue that neither conventional VAR analysis (one-regime) nor linearized DSGE models may be appropriate to evaluate multi-regime demand effects of fiscal stimulus packages. In order to evaluate the variability, they adopt a nonlinear regime-dependent VAR approach to show that the fiscal multiplier varies with the state of the business cycle and the particular specifics of the measures taken. Thus in a recessionary regime the multiplier is significantly stronger than in booms. The reason for this is that in a recession the households are constrained by labor markets (spending of households depend on income and thus on employment, there are also credit and liquidity constraints on the product markets, and the financial intermediaries face constraints on the capital markets). These constraints – that hold in regimes of economic and financial stress – become less constrained through fiscal spending. As a result the multiplier is much stronger in recessions than in times of booms. For the US, Mittnik/Semmler (2012) found that fiscal expansion multiplier was much higher in a regime of low economic activities than in a regime of high economic activity.
Chapter 6 – Where do we go from here: future challenges and policy recommendations
The global financial crisis has changed the terms of debate in academia and in the policy community regarding research agendas, the design of policies, traditional research methods and methodologies. This is most evident in the new knowledge about forecasting models and the limitations inherent in models based on rational expectations which failed to predict the Great Recession. These findings have important policy implications for macrodynamic policy decisions and help facilitate a discussion about competing models of heterogeneous agents and their performances in forecasting large crises. At the same time, some questions are raised about the US experience and whether it provides the best prototype model for studying the reform potentials of financial services. It may make more sense to promote Europeanization of financial institutions taking into account national differences and traditions linking finance to innovation, stable employment and equitable incomes.

### 6.1. Financial and Eurozone crises: cautious optimism

Despite the doomsday warnings, the feared disasters of a Greek exit, the possible break-up of the Eurozone and the US fiscal cliff have to date not materialized. As a result, there is cautious optimism and as Martin Wolf observed for the first time since 2007 the World Economic Forum in Davos (Jan 2013) was not dominated by discussions of financial calamity (FT 30.1.2012). Yet, challenges remain as Christine Lagarde, Managing Director of the IMF, warned: *We have avoided collapse, but we need to guard against any relapse.* 2013 will be a make-or-break year. One of the positive indicators of the more upbeat economic situation is the spread between the London interbank offered rate (Libor) and the overnight indexed swap rate which has fallen to just 10 basis points in euros and 16 in US dollars. The spread is an indicator of the risk of default in the lending of banks. Another positive sign is also the fallen spread between the yield on sovereign bonds of indebted Eurozone countries and those on German Bunds. The same decline can be seen in the Eurozone banks’ CDS spreads. These optimistic results, according to Wolf, are mainly due to the increasing trust in the competence of policy makers particularly within the ECB, who have used their powers to embark on expansionary monetary policy to forestall an economic depression. This more upbeat picture is not just confined to industrialized countries. The World Bank in its January 2013 Global Economic Prospects cites that international capital flows to developing countries have reached new highs, the bond spreads have fallen and the stock market has risen.

But the Achilles heel in all these positive trends remains the outlook and sustainability of global economic growth. Economic growth is still low in most industrialized countries and has even affected the rather robust GDP growth of Germany. Moreover, many countries face a continuing high fiscal deficit. The big challenge for policy makers and government leaders is thus to time the exit of the exceptional monetary and stimulus policies. Great uncertainty exists here since there is no consensus on the right timing. On the one side, the German Bundesbank wants to retreat from these exceptional policies sooner rather than later fearing that they will lead to inflation. Others, with equal persuasion, suggest that a premature tightening of monetary policy may pose a bigger risk to the economy by stopping an already weak recovery.
6.2. Fiscal policies and debt

One of the major academic and policy challenges concerns fiscal policy in the light of the large public debts resulting from the financial crisis. Unlike monetary policy where a near consensus has emerged on inflation instead of monetary targeting, there is no theoretical and empirical agreement on how fiscal policy works. As the previous research results on fiscal policy demonstrated, theories can equally explain positive and negative multipliers as well as small and large multipliers. Thus policy makers cannot base their decisions on empirical studies, since they yield conflicting results, so that almost any view can be backed by some study. The reason for this scientific uncertainty is that fiscal policy is more complex than monetary policy. Whereas monetary policy tends to have one goal to guarantee price stability, fiscal policy has many goals, and instruments to achieve these goals, which are often conflicting. These include long run growth, stabilization policy, income redistribution, correcting market failures, managing levels of debt and deficits with subsequent trade-offs between these various goals which are less well understood and thus make coordination among governments difficult.

The scientific uncertainty about the effect of fiscal policy is all the more disconcerting for policy makers since they face the challenge to stimulate economic output and ensure a successful economic recovery. The onus is on fiscal policy, since standard monetary policy, given that the present interest rate is close to zero, is largely ineffective. However, since there is widespread concern that growth trend itself may decline as a result of the financial crisis, primary deficits across the G7 are expected to remain large for the coming years. The result is that government debt will rise even further. This has led to three major concerns. First, that government debt is rising to unsustainable levels and fiscal policy needs to be tightened. The second concern is that large debt issuance will lead to higher real interest rates that will both crowd out private sector investment and negatively impact on the recovery and make government debt dynamics even worse. And finally, there is the concern that government will react to unsustainable debt paths by engineering higher inflation. These concerns are part of the wider discussion of having to do with an ‘exit plan’ of governments from the crisis.

But as Charles Wyplosz and others have pointed out, essentially the choice is between which policy mistake is worse: either withdraw the expansionary policy stance too early, or withdraw it too late. In the first case, it would mean an aborted recovery as was the case in the Great Depression of the 1930s with high unemployment. In the second case, the error would mean higher inflationary pressures and a higher debt. In theory, debt reduction should be a primary goal and thus governments should coordinate to withdraw demand. At the same time, it also has to be recognized that an increase of debt in the magnitude of 10 or 20 % of GDP cannot be reversed in a few years. Due to this, government and markets will need to accept higher levels of debt for a longer period of time.

Wyplosz recommends that policy makers should be prepared to take the risk of withdrawing the stimulus too late rather than too early. The danger of an aborted recovery, given the policy lags, could mean another recession and even increasing further the unemployment rate. It would also lead to even more public debt than a belated one. The best option would be the adoption of moderate and gradual deficit reductions, designed not to interfere with growth, along with growth-enhancing supply-side policies. Agreeing on this strategy should be a first step for governments to reach cooperation.
Academic research recommendations

The above dispute about the effects of the fiscal multiplier between those who predict a weak reaction to fiscal stimulus (Cwik/Wieland 2009) and others who argue that the multiplier is regime dependent (Mittnik/Semmler 2012) demonstrates that while the last decade has seen an enormous body of literature focused on monetary policy, fiscal policy has only started to receive academic attention recently. The mere commitment to simple fiscal rules to reach certain numerical levels for debt and deficit at specific dates do not help to achieve these goals, they also prevent debt from acting as a buffer. A central question involves not only the level of maximum debt that is sustainable, but also how quickly governments should tighten fiscal policy to bring about sustainability. Thus a substantial research agenda exists on the role of fiscal policy which should be explored within the new field of public finance or global public economics as Kaul (2012) has advanced within the global public goods literature. She points out that while many countries face high debt burdens and severe fiscal constraints under conditions of shifting geopolitical power relations, increasing competition and rivalry among states, as well as between state and non-state actors, current standard public economic theory, for the most part, is still based on the assumption of a single, closed economy. Whereas the central concern of conventional public economics is on the economic role of the state, the new strand of public economics would take the global challenges and the contagion between these challenges (depletion of resources, global climate change, volatility in international financial markets, nuclear proliferation, global poverty and inequity) into account and offer an integrated global analysis of global public goods. This new sub-discipline would focus on the present challenges with the characteristics of global public goods’ benefits and costs and provide a more systematic understanding of why and when, under the current conditions of policy interdependence among countries, international cooperation would ‘pay’ and be the relatively best way to meet various public and private interests nationally and internationally, and foster more sustainable growth and development.

New research may also explore the establishment of an independent fiscal committee similarly to the independent monetary policy committee as a means to help provide assurance of long-run solvency. Such an independent fiscal committee would provide a framework that will remove a market focus on high levels of debt and deficits and deal with the more important issue of whether in the long run the policies are sustainable.
6.3. Global and regional macroeconomic imbalances

As pointed out in the previous section under Global Macroeconomic Imbalances (1.5.2), the impact of the vast current account deficits of the US and the UK and other economies and the equivalent surpluses of China, Japan and Germany in the Eurozone (including the Netherlands, Austria and Finland) are seen by many as the ultimate cause of the financial crisis. According to this argument, the imbalances have led to the rapid expansion of banks and financial institutions to facilitate the funding of huge current account deficits, low interest rates that led to riskier, higher-yielding assets, and complex innovations giving rise to the excesses on the financial markets. The surge of these imbalances is seen as the result of financial deregulation, since the removal of capital controls and advances in financial innovation allowed current account deficits to be funded through global surpluses. In fact, there were no current account imbalances in 1996. These imbalances are not just due to US deficits financed by Chinese surpluses. While Europe has an overall current account balance, this is only possible since the current account deficits of some countries are funded by the inflows of credits from the surplus countries. This means that within the Eurozone there are huge current account imbalances starting around 2000 which have diverged markedly between 2000 and 2007. This trend continued until 2012, which is the latest year for which data is currently available (all data after Eurostat in May 2014, figures for 2012 are projections). Germany had a balanced current account in 2001, which moved to 7.4% surplus in 2007, then fell as a result of the financial crisis to 6%, but returned to 7% in 2012. In contrast, the current account deficit in Greece swelled from 7.2% in 2001 to 14.6% percent of GDP in 2007, declining to 3.1% percent in 2012. Portugal had a current account deficit of 10.3% in 2001 and stayed at approximately this level until 2010. The deficit then suddenly dropped to 1.5% in 2012. Spain’s deficit increased from 3.9% in 2001 to 10% in 2007 and then dropped to 1% in 2012). The current account deficit in Ireland rose from around 0.6% in 2001 to 5.4% of GDP in 2007, and reached a surplus of 4.9% in 2012. The countries on the two extremes in 2012 were Cyprus with 11.7% deficit and Netherlands with a 9.9% surplus.

Academic research recommendations

New research should focus on the entire pattern of rebalancing global demand and correcting the global trade imbalances. Dealing with the macroeconomic imbalances means that deficits as well as the surpluses have to be reduced globally. One of the problems is that there is no theoretical agreement on the role of macroeconomic imbalances. Whereas some analysts see the global imbalances, particularly between the US and China, as the ultimate cause of the crisis (Richard Portes, PEGGED, PB 3, Jan. 2009), other such as Dooley et al. (2003) rationalize these global imbalances as ensuring sustainable equilibrium. These authors argue that China and other export-oriented developing countries were deliberately depressing their currencies as part of their economic growth strategy, and were then opting to invest the resultant foreign exchange surpluses in the United States. Others such as Caballero et al. (2007) argue that the shortage of global reliable and tradable assets was a particular problem for the countries with excess savings and underdeveloped financial markets. Thus they had little choice but to invest their surpluses in US assets. These equilibrium arguments are refuted by others who argue that they ignore the stresses created for financial intermediation in the US by fast inflows of capital, which was used for debt-fuelled
consumption and rising government deficits, and they fail to provide an answer about the future of these huge macroeconomic imbalances.

Equally contentious is the discussion about the adjustment strategy in Europe between Germany (with Finland, Austria and the Netherlands) as the world’s leading exporter and dominant creditor and the highly indebted peripheral countries. One side is backed by the neoclassical economic school which argues that reduction in spending and structural reforms in the labor market and in the social system would lead to improved debt sustainability and economic growth over the long term. The Keynesians, on the other hand, point out that creditor countries need to expand their fiscal positions in order to stimulate growth in the peripheral countries. Olli Rehn, the European Commissioner for Economic and Monetary Affairs, has called the dispute a political battle between the Austerians and Spendanigans. Whether the European Commission sees surpluses as less problematic than deficits, it nevertheless defined current account deficits at 4% as a sign of imbalance while the criterion for surplus countries was set at a higher level of 6%. But as the Nobel prize laureate Paul Krugman and the chief economic commentator at the Financial Times Martin Wolf (FT 8.5.2013) have repeatedly argued, the Berlin consensus with its emphasis on stability-oriented policies is counterproductive. Monetary policy aiming at price stability and fiscal policy aiming at a balanced budget and low public debt bears the risk that the low inflation (presently below the 2% target of the ECB) is turning into deflation. Thus current account imbalances need a symmetrical adjustment strategy obliging surplus and deficit countries to find a balanced solution to the present unsustainable situation at both the global and regional level.

6.4. Global inequalities and rethinking global governance

Most research until recently has focused on the internal dynamics within the financial sector to understand the shifts which led to the worst melt-down since the 1930s. However, the focus is shifting to more structural factors such as inequality of incomes and wealth that played a major role in unleashing the excesses in finance. As pointed out previously, James Galbraith (2012) suggests that rising inequality is closely associated with the relative gains by the financial sector as the driving force behind the income inequality. Money made from capital gains, stock options, and the payout from venture capital investments goes mostly to the top strata of society, which is mostly made up of men. This phenomenon of global and gendered inequality is not just restricted to the United States, but is also found in countries from Brazil to China. Similarly, Joseph Stiglitz (2012) and Jean Paul Fitoussi (2009) arrive at similar conclusions that the root of the financial crisis is the unprecedented rise of income and wealth disparities in the last three decades. A process, which Fitoussi calls the reverse redistribution of income in advanced industrial countries. Accordingly, an increase in inequalities depressed aggregate demand, in turn monetary policy reacted by maintaining a low interest rate which allowed private debt to increase beyond sustainable levels. It was the search for high-return investment by those who benefited from the increase in inequalities which led to the bubble. According to this argument: While the crisis emerged in the financial sector when the bubble burst, its root is to be found in the structural changes due to the skewed income distribution since the 1980s.
Academic research recommendations

New research should focus on the structural changes in income and wealth distribution, and propose ways in how to reverse these destabilizing trends. This should also include a gender perspective, since not only are the contractionary impacts of aggregate fiscal policy (public expenditure and revenue) to be considered, but also the (gendered) composition of fiscal consolidation affecting health, education, infrastructure and public consumption as well as the distributional impacts of consolidation policies on women and men. One important issue for future research is how to end the social and fiscal competitiveness among countries, both within Europe and on a global scale. In the European Union, member states conceive themselves as closed economies and thus enter into institutional competition with their neighboring countries. This has, according to Fitoussi, led to competitive social deflation with the aim to attract business by decreasing taxes and social regulation and to increase exports by lowering wages and labour costs. But social and fiscal competition is not just confined to the European Union, but is played out at the global level. For this purpose we need to rethink public finance to go beyond the concept of single closed nation-states and consider public finance within the context of open and interdependent global public economies.

Kaul (2012) suggests that it is most urgent to begin developing theories and global public economics with a clear focus on global and/or regional public goods. Of critical importance then is a more systematic understanding of why and when, under current policy interdependence among countries, international and regional cooperation could reduce the debilitating competitive social deflation which is not even in the interest of the most powerful states. Thus we need more research on the potential returns of global social investment which in most of the economic literature is seen as a cost factor for individual countries. Contrary to what was commonly believed during the last decades, investment in social protection also yields high returns within countries and across countries. Put simply, increasing the opportunities in terms of education, training and health care increases the opportunities also for women and for subsequent generations. Alleviating the large public debt is to invest in new and innovative growth in both current account surplus and deficit countries. Policies focusing solely on price stability to ensure macroeconomic stability should aim for both price stability and social protection in the context of countries’ interdependencies.
6.5. Shadow banking – need for a European regulatory approach

Since the global financial crisis of 2007-09, it is well established that we need to improve our scholarly understanding and regulatory oversight of the shadow banking world. Indeed, the crisis drew attention to the profound structural changes that financial systems had undergone in the past thirty years. In particular, it brought to light global networks of credit and risk intermediation connecting financial markets and institutions in novel ways, often with limited or no regulatory oversight. Following McCulley’s definition, regulators termed these new global financial architectures the shadow-banking world, a world of complex and opaque intermediation chains that created bank-like risks to global financial stability. With these concerns in mind, the G20 at the November 2010 Seoul Summit mandated the Financial Stability Board (FSB) to ‘develop recommendations to strengthen [its] oversight and regulation’ (FSB 2011). In early 2012, the European Commission similarly embarked on the process of creating a new European regulatory framework for shadow banking.

Three factors energized this immediate regulatory attention. First, shadow banking has become a serious rival to regulated banking. Estimates indicate that the shadow banking system supported flows of $60 trillion in 2011, revised upward to $67 trillion in 2012, approximately half the value of regulated bank balances (FSB 2011; 2012). Second, drawing borders between shadow and regular, taxpayer-backed banking is not straightforward. Both the FSB and the European Commission have stressed interconnectedness in recognition that the shadow banking system relied on close links with the regulated, global banking sector – in particular globally systemic financial institutions (G-SIFIs)- and vice versa. For example, repo markets, the key funding markets for shadow banking, had grown to reach a similar size in the US and Europe prior to Lehman’s collapse; although in contrast to the US, the European repo market is dominated by large, regulated European banks (Gabor 2012). In other words, in Europe, shadow banking occurred both outside and within the banking system due to the particular institutional contexts.

Third, regulators recognize that shadow banking grew both through regulatory arbitrage and as breeding ground for complex financial innovations (see European Commission 2012). These tendencies may sharpen in the future. For example, the tighter capital and liquidity requirements proposed under Basel III are expected to increase demand for high quality liquid assets. This may inspire a return to the pre-crisis financial innovation through which (shadow) banking created such assets in response to regulatory pressures and a growing demand from institutional investors that could not be met by government debt (Pozsar 2011). In short, Basel III may accelerate the growth of shadow banking if financial institutions - both regulated and non-regulated - are allowed to move risks into the shadow. From a different perspective, the combination of size and interconnectedness raises complex questions of cross-border regulatory coordination and crisis resolution for both central banks and governments.
Academic research recommendations

With notable exceptions (Dunne et al. 2013), shadow banking scholarship is largely US-based and US concerned. Hence, regulators have conceived shadow banking in the terms defined by US scholarship, both in the definition and in identifying the specific bank-like risks to financial stability. There is little research that seeks to understand how, if at all, the European sovereign debt crisis has had a shadow-banking component (see Shin 2011; Gabor 2014) or indeed is a full-blown crisis of shadow banking but in a different – sovereign – guise due to the specific institutional context of Europe.

The attempts to map the size and functions of shadow banking undertaken so far have been informed by regulatory concerns with financial stability. This regulatory approach largely ignores the historical evolution of shadow banking activities and the strong interdependence with regular banking. Indeed, that a large shadow-banking sector – comparable to the US - has grown in the bank-based European financial system suggests that we need new conceptual tools to re-think finance and how we can harness its productive potential in order to serve the needs of the European economies. In particular, there is a pressing need for more Europe-centered research that takes into account the spatial, temporal, political and cultural factors that shape the ‘Europe-grown’, if global in nature, shadow universe. Scholarly research on shadow banking should combine the following features:

- Comparative: are there national varieties of shadow banking, as FSB statistics suggest for European countries? What determines these? To what extent are differences related to credit intermediation or derivatives and trading? How much of the shadow banking world is not bank-related and what explains these differences across jurisdictions?

- Multiscalar: how is shadow banking practiced within and across borders? How do these change in response to the crisis and new regulatory pressures? What distinctive regional and global regulatory challenges does European shadow banking raise?

- Interdisciplinary: how to understand and locate shadow banking through the lens of sociologists and anthropologists of finance, with their distinctive focus on a late modernity characterized by logics of calculation and risk? What does it imply analytically to take seriously economic geographers that warn about territorial accountancy traps that lead researchers of finance to ignore strategic jurisdictional arbitrage?

- Policy-relevant: how can governments harness the innovative potential of shadow banking in order to support sustainable growth? How can securitization improve access of small and medium enterprises to sustainable, affordable finance? What policy tools do governments need in order to ensure that they can benefit from engaging with shadow banking that relies on high-quality liquid assets? To what extent does the production of safe assets for collateralized finance (as for example envisioned by Basel III liquidity rules) represent a new, financial stability responsibility for governments, and how can it be reconciled with the recent attribution of macroprudential powers to central banks? What are the potential fragilities underpinning this new symbiotic relationship between governments and shadow banking?
6.6. From linear to non-linear models

As the new empirical studies using MRVAR (Multi-Regime Value at Risk) on fiscal and monetary policy show intertemporal equilibrium models have severe deficiencies in predicting what happens in out-of-steady-states and what effects they have on policies. Intertemporal equilibrium models of a DSGE type allow for only small perturbations around some normal state of the economy. By nature of the theory and the solution methods applied, such as DYNARE, only small shocks can be allowed for and shocks are always mean reverting: the economy reverts back to the same steady state of the economy as before the shocks. Larger shocks, frequently triggered by financial or banking shocks, cannot be dealt with and the effects of larger shocks, where the economy is moving to a different regime, for example to a low level of output and high level of financial stress, are outside of the range of these models. In real economies larger shocks may generate macroeconomic amplifiers and the economy may not return by itself to the normal steady-state, thus fiscal and monetary policies are needed. Modeling this type of behavior of the economies is not feasible using DSGE models, since it requires a new methodology that allows for instabilities, macroeconomic amplification mechanisms regime changes. Such a new macroeconomic methodology is provided by recently developed work going under the name nonlinear model predictive control (NMPC) (Grüne et al. 2013). This new methodology is actually the outcome of EU Framework Programme FP7-PEOPLE-2010-ITN, SADCO. The corresponding empirical methodology is the MRVAR that shows in a number of country studies that in fact fiscal and monetary policies are strongly regime dependent (Mittnik/Semmler 2012).

Academic research recommendations

Most research until now has focused on model linearities, allowing only for some small disturbances about some normal steady-states. Consequently, the multipliers were wrongly calculated and policies were misguided. New research should focus on economic regimes and regime dependence of policies. Moreover what one needs is not only medium run stabilization policies that take into account regime specificities, but also long run growth policies should be pursued. Many of the current economic problems, for example the budget deficits of EU countries, originated in the lack of economic growth. So growth policies, in particular policies for sustainable growth, have to accompany stabilization policies. An important future topic for research is the proper link between stabilization and sustainable growth policies.
6.7. Gender and the challenges of rebalancing finance and the real economy in the EU

The task of rebalancing the EU economy is urgent. It will require not just technical changes in the regulations of the financial sector, but more profound changes in institutions, social norms, macroeconomic policies and modes of economic analysis across both finance and the real economy. It is widely agreed that the real economy in the EU (also globally) has not been well served by the dominance of a deregulated financial industry. Finance came to dominate the real economy of production of goods and services, and reproduction of human well-being and human beings themselves on a daily and an intergenerational basis. The financial crisis and the policy responses have led to massive falls in production and human well-being. It has also strengthened many existing gender inequalities in the labor market, housing market, market for business loans, and in the impact of public finance as austerity policies have had a greater impact on women than on men. The long run challenge is to put finance at the service of production and social reproduction. Examining finance (including private finance, public finance, and the governance of finance) through a gender perspective helps to understand these challenges and how they might be overcome.

For instance, finance might serve the real economy better if there were a more equal gender balance in decision making in both private and public finance. By itself the increasing participation of women in decision-making bodies would not have prevented a systemic financial crisis. But the low or even non-existent female representation in top positions of financial institutions, in decision-making bodies of key regulatory institutions, central banks, ministries of finance, and professional networks is argued to be conducive to a narrow ‘groupthink’ in finance. The absence of women at the helm of finance is a continuing systemic characteristic of the present global financial governance regime. For instance, only 5 % of UK retail funds are managed by women (FTfm, 25.11.2013).

Research recommendations

Gender, understood as a form of asymmetrical power and social stratification, structures both how finance and the real economy shape the different choices women and men make. Looking at finance and real economies from a gender perspective has the potential to illuminate the challenges of rebalancing and also point to ways in which rebalancing can be achieved. Future research should target the following issues:

- **Gender Balance in Financial Governance to avoid Groupthink.** A certain groupthink – a result of decision-making bodies drawn from a narrow social group – has been widely blamed for the financial crisis we have found ourselves in. Experts coming from the same social and elite educational background share common objectives and normative commitments which is conducive to herd behavior. The inclusion of a more gender-balanced decision-making would increase diversity which has been shown to be helpful in improving the quality of decisions. Studies should thus focus on how to bring about more inclusive decision-making in finance including measures to attract and retain more women. Gender stereotypes in finance need to be interrogated, for instance through investigations of the extent to which women on average do equally or better in financial management and investment than men.
• **Questioning supposed gender neutrality of macroeconomic analysis and policy.** Many economists start from the assumption that macroeconomic knowledge and policy (such as monetary or fiscal) is gender neutral. Missing is a reflection that the cognitive models of the macroeconomy reflect economic training and education that have been shaped by the life experiences of men, focusing on the paid economy that produces for the market, and ignoring the unpaid economy that produces goods and services, in homes and communities, that are critical for social reproduction of human well-being and human beings. Studies are needed to investigate the extent to which this absence produces gender biases in the operation of macroeconomic policy, including the extent to which they hamper rebalancing, and the ways in which reduction of the biases might promote rebalancing of the economy. For example, investment in social infrastructure to provide good-quality care services may be hampered by accounting conventions that classify the wages of construction workers as capital expenditure (investment) while the wages of care workers (and health and education workers) are classified as current expenditure (consumption) rather than investment in human capital. This is compounded by policy rules that permit government borrowing for capital but not for current expenditure.

• **In addition, studies are needed to investigate the gender dimensions of Risk and Creditor biases.** Risk bias is present when public policies reduce the extent to which risk is pooled and measures to protect against it are shared, individualizing risk instead. Women are affected in a particularly negative way by the individualization of risk as they have, in comparison to men, little savings and limited ownership of real wealth. Due to this, women are often seen as more risky borrowers than men, and are often integrated into formal credit markets which lend comparatively large sums on terms that are more disadvantageous that the terms open to men. Also, women depend more than men on risk pooling through publically financed social security and public services. **Creditor bias** is the result of the increasing power of financial capital on a global scale which has meant that the relationship between creditors and debtors has become highly asymmetric. When people are unable to service their mortgage debts, their homes are taken from them. When important lending institutions, such as big banks, get into difficulties, they are bailed out. There are reasons to believe that women are more subject to creditor bias than men. Studies are needed to investigate the extent to which both the risk and creditor biases have intensified in much of Western Europe since the global financial crisis, the extent to which they are gendered, and the ways in which they hamper the
6.8. The democratic deficit in EU economic and financial governance

While a vast amount of literature exists on the lack of democratic accountability and legitimacy of European institutions such as the European Commission, the European Council, the European Central Bank (and even to some extent the European Parliament) there is a paucity of research on the democratic deficit of economic and financial policy making to take account of stakeholder preferences outside the financial sector. Especially important are here the inputs of developing countries and of non-financial stakeholders. The way in which policy is made and by whom (the input side) also affects the quality of policy and the system of financial markets itself (the output side). It can be argued that how decisions are formulated is as important as the substance thereof. After all, it is the taxpayer who is the ultimate guarantor of the financial system, thus the emphasis should be on a socially useful financial system to serve the interest of the general consuming and investing public in developed and developing countries and not the financial system itself.

At present, most decisions, such as Basel II and the subsequent reform proposals of Basel III were developed by a close alliance of private actors and autonomous state agencies wherein the accountability was limited. The outcome of this process seemed to provide tacit support for product innovations that had only the support of private sector inventors. But as we have seen from the financial crisis, regulation and supervision of financial markets cannot be considered purely a technical matter restricted to an insider-group of finance experts, since outcomes of financial policies have invariable distributional consequences. But in finance economics, it is assumed that markets are populated by disembodied actors pursuing profit maximization and in this way contributing to efficiency and overall welfare. Increasingly the field as an academic discipline and professional practice is conceptualized independently from arenas such as society, history and culture. But if we start from the perspective of democratic legitimacy, decision-making on economic policies with distributional effects need the broad-based participation of those affected by the impact of financial regulation and supervision. In short, the safety and soundness of the financial system needs to ensure the inclusion not only of financial experts but also countervailing input of developing countries and non-financial stakeholders.

Academic research recommendations

A research project with the explicit goal to develop an agenda for a socially useful financial system is not an easy task. Such a task is confronted with several challenges. Most of the democratic theories stem from the experience of nation-states in which citizens provide their political representatives with the necessary legitimacy through regular elections. Little work has been done to conceptualize economic democracy in a European setting. But money and currencies are not just technocratic instruments, they are essentially political constructs. And since money is political and the Euro is a transnational currency, it nevertheless exists without a transnational democracy (Guérot 2012). The absence of ‘post-national’ democratic structures (Menasse 2012) has to do with the methodological nationalism in that sovereignty and solidarity are conceptually tied to the nation-state. As a result, the European financial crisis, the banking and sovereign debt crises are at the same time...
democracy and legitimacy crises. Most of the crisis resolution proposals were negotiated behind closed doors between European head of states and leaders of governments through intergovernmental coordination or by a close alliance of private actors in autonomous state agencies. While it is true that the European Central Bank has to be given high marks for its sensible intervention in the Eurozone debt crisis, nevertheless, the decisions were taken without any public discussion, and most importantly without sufficiently communicating to the European public the importance of these steps. Consequently the rift between the European public and the European institutions is widening. In other words, the tensions between economics and democracy are increasingly endangering the Euro project as a whole, since the support of citizens for the Euro has declined sharply in virtually every member state of the Eurozone. In short, the task at hand is not only to call for more publicness in financial and economic decision-making, but to explore a concept of democracy that surmounts the problem of national sovereignty and creates a transnational parliamentary foundation for a democratic legitimated European executive (Guérot 2012; Menasse 2012).

6.9. Financial system and innovation

One of the puzzling aspects confronting the policy and research community is to understand the links between financial markets, innovation and economic growth. While the financial crisis started in the US subprime sector, it not only triggered a worldwide financial crisis, it transformed into a broader economic crisis across various geographic regions with devastating social consequences. Innovation experts such as Lazonick and Mazzucato (2012) suggest that due to the rise of shareholder capitalism and financialization, the financial system no longer supports innovation that leads to value creation and economic growth. Instead we have innovation supporting the financial system through value extraction and in some cases even value destruction. An important policy recommendation to better coordinate innovation policy with financial market reform policy is to limit the scale of stock buybacks, as well as limit government support to companies that spend their returns on such activities. This highly financialized business model is detrimental to innovation, since the company takes money out of its own bank account and distributes it among shareholders, depleting its own savings and capital and thus having to rely on debt financing to innovate further. Thus equity is replaced by debt, which according to experts should be restrained in Europe. Policy makers should also consult alternative hypothesis in their models to study how the benefits of financial innovation may outweigh the negative consequences and how financial regulation may prevent market instability and welfare losses (Hommes – POLHIA 2011). Rebalancing the economy is not just about reducing the size of the financial sector, but also changing its effect on indicators of economic performance, how these shape investments, and how the risk and rewards of these investments are distributed. Thus there is a need to encourage a systemic approach to innovation. This requires not only horizontal links between actors but more understanding about the exact role that each actor plays, including the public sector. Financial reform should aim to help credit markets create valuation tools which reward the most efficient firms, rather than penalize many of them. In particular, the tradition of linking the economic and financial soundness of a business activity to a single ‘rating’ measure should be abandoned in favor of more structured assessment devices.

In terms of the relationship between financial markets and innovation, the key lesson is that one size will not fit all the important actors in this policy space. Policy must be
guided by models which adequately take heterogeneity into account, and which study the co-evolution between heterogeneity and the competitive selection mechanism. Key to these policy changes is to focus on Europe’s unique form of institutional governance instead of poorly copying the United States. According to Bebchuk and Walker (2002), US corporate governance measures are extremely ineffective and they should be understood in terms of managerial power and rent extraction. Europe is different and has its own patterns of governance, innovation and distribution that are themselves not only worthy of further study, but may also result in superior economic outcomes.
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Appendix 1 – Summaries of completed EU-funded research projects reviewed for this publication

FINESSENT - FINancial systems, Efficiency and Stimulation of Sustainable growth

The principal aim of the FINESSENT project was to get a clear understanding of the implications of ongoing financial market integration in Europe on economic growth, employment and competitiveness, to identify likely future paths of the development and to draw policy relevant conclusions.

The project focused on a number of key issues:

1. Exploring the impact of financial systems and their transmission channels on growth taking into account dynamic interactions between financial, product and labour markets.

2. Developing a range of indicators to measure the degree of financial integration.

3. Proving insights into the working of financial institutions at the micro-economic level from the perspective of heterogeneous agents.

4. Uncovering catalysts and bottlenecks in the architecture of financial systems through a comparative approach.

5. Studying the role of financial structure (i.e., the banking sector, markets for private equity and venture capital) in improving efficiency and sustainable expansion of start-ups and established companies.

6. Analysing the impacts of different degrees of financial integration on the portfolio decisions of households.

Project coordinator:

Christian Dreger, Deutsches Institut für Wirtschaftsforschung, Germany

Further information about FINESSENT and all outcomes of the projects can be found at:
http://www.finess-web.eu/
FINNOV - Finance, INNOVation and growth: changing patterns and policy implications

FINNOV aimed at understanding the relationship between financial markets, innovation dynamics, and economic performance as well as the sources, implications and management of positive and negative changes in financial markets. The ultimate goal was to consider the ways in which financial markets can be reformed to better support innovation and long run growth.

The effective operation of the credit and financial markets that supply finance and monitor and redistribute the returns to innovation is essential to the long term economic and social coherence of Europe. In order to these complex processes, the project employed an inter-disciplinary approach that analyses different kinds of bank and venture funding, the operation of equity markets and innovation, the evolution of markets, and the consequences of the varied forms of finance in Europe on income distribution and employment generation. The social consequences of different forms of financing innovation, investment and corporate growth were also in focus as they are likely to have far-reaching consequences for job creation and job destruction across different types of firms.

Much of the current debate on financing of innovative companies in Europe is based on models and data derived from experience in the USA. This project focused on empirical evidence and theoretical models to underpin the evolution of a distinctive and self-confident European approach to the financing of innovative businesses.

**Project coordinator:**

Mariana Mazzucato, Open University / SPRU, United Kingdom

Further information about FINNOV and all outcomes of the projects can be found at: http://www.finnov-fp7.eu/
POLHIA - Monetary, Fiscal and Structural Policies with Heterogeneous Agents

Composed of six European institutions, the POLHIA consortium’s core goal focused on exploring the nexus of macroeconomic and microeconomic/structural policies in a heterogeneous agents setting. The project in particular aimed at providing new insights for the implementation of both macroeconomic policies and structural policies and for rethinking policy coordination and coherence between monetary and fiscal policies and between micro and macro policies.

The project explored the role of macro-economic policies in a wider sense adopting heterogeneity of agents approach which is crucial for macro-economic outcomes. The research group used a wide range of tools. At the level of model building the development of macro-economic frameworks in the New Keynesian tradition was paralleled and complemented by the use of agent-based models, which are appropriate for the exploration of heterogeneous agents environments. Econometric research was complemented by experiments to study, for instance, the formation of expectations.

**Project coordinator:**

Domenico Delli Gatti, Università Cattolica del Sacro Cuore, Italy

Further information about POLHIA and all outcomes of the projects can be found at: www.polhia.eu

The MONFISPOL project contributed to the evaluation of macro-economic policy by advancing the analysis of optimal fiscal and monetary policy in monetary union such as the European one. This work resulted in the addition of new numerical tools, specially designed for the computation of optimal policy in large macro-econometric models. Such multi-country models are necessary to take into account the diversity of the countries making now the European Union.

These new tools for the computation of optimal policy were added to Dynare, a public domain platform for the simulation and estimation of dynamic stochastic general equilibrium models that is increasingly used in policy-making institution and in academic research alike.

New models were also proposed to analyse the contribution of optimal policy to smoothing shocks in a union of heterogeneous countries with rigidities in labour and financial markets. In that framework, special attention was given to the dynamics of public debt. Systematic models comparison was also made possible due to the development of a data base of macro-economic models currently in use in policy-making institutions around the world.

Project coordinator:
Michel Juillard, Centre pour la Recherche Economique et ses Applications (CEPREMAP), France

Further information about MONFISPOL and all outcomes of the projects can be found at: http://www.monfispol.eu/
PEGGED - Politics, Economics and Global Governance: the European Dimensions

The long-standing US-EU partnership and dominance of a range of international institutions (IMF, World Bank, Security Council, etc.) is rapidly breaking down under the impact of shifting interdependencies and power relationships.

In this sense, global economic governance is at a crucial crossroads. If a more complex and multi-polar world is now emerging, interwoven with bilateral agreements and a proliferation of regional efforts of uncertain outcome and dimensions, it is unclear how cooperation will be organised in the future and by whom.

Europe must play a major part in the reform and reinforcement of global governance mechanisms, but in order to do so the EU requires a clear definition of its self-interest, a correspondingly clear sense of purpose and objectives, and the internal coherence and institutional capacity to exercise leadership. The PEGGED project aimed at providing scientific base to foster such a reflection with a focus on four domains:

- macro-economic adjustment and governance;
- the integration of markets for finance and investment;
- the integration of markets for trade in goods and services;
- migration and the mobility of labour.

These questions were analysed from political science and economic perspective.

Project coordinator:

David Vines, University of Oxford, United Kingdom

Further information about PEGGED and all outcomes of the projects can be found at: http://pegged.cepr.org/
Appendix 2 – Summaries of the relevant on-going EU-funded research projects

FESSUD – Financialization, Economy, Society and SUstainable Development

The FESSUD project integrates diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms.

The consortium of the project involves partners from 14 countries. The programme is distinctively pluralistic and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs.

The central issues addressed in this research are:

- to what extent and why has the growth and performance of national economies in the last 30 years been dependent on the characteristics of the processes of financialization;
- how has financialization impacted on the achievement of specific economic, social, and environmental objectives;
- the nature of the relationship between financialization and the sustainability of the financial system, economic development and the environment;
- what lessons can be drawn from the crisis about the nature and impacts of financialization;
- what are the requisites of a financial system able to support a process of sustainable development, broadly conceived;
- which are the crucial policy measures that may establish in the EU a new model of sustainable finance in the light of the objectives of the Lisbon.

Project coordinator:

Malcolm Sawyer, University of Leeds, United Kingdom

Further information about FESSUD and all outcomes of the projects can be found at: http://fessud.eu/
RASTANEWS - Macro-Risk Assessment and Stabilization Policies with New Early Warning Signals

The project’s main objective is to identify what risks the EU (or the Member States) should absorb and how the institutional framework can answer these risks and favour solid systemic solutions. The proposed research investigates how the evolving system of economic governance in the EU (including the implementation of the common monetary policy, mechanisms of economic policy coordination and the system of financial market supervision) is likely to impact on the economic stability in the Union and in individual Member States. In addition, RASTANEWS analyses the integration of the decision-making processes of economic governance in Europe and the roles of the various actors involved at national and EU levels.

More specifically, the lines of research are defined as follows:

1. Regional imbalances, macroeconomic options and the design of the European financial network.

2. Complex systems and the future of macroeconomic and monetary integration in Europe

3. Limited asset market participation, credit frictions, and the interaction of fiscal and monetary policies in a currency union.

4. Early warning indicators within the EMU surveillance mechanism: macro-finance approach.

5. Critical review of the on-going reforms of the EU

**Project coordinator:**

Patrizio Tirelli, Universita’ degli studi di Milano-Bicocca, Italy

Further information about RASTANEWS and all outcomes of the projects can be found at: www.rastanews.eu
SYRTO - SYstemic Risk TOmography: Signals, Measurements, Transmission Channels, and Policy Interventions

The SYRTO project explores in detail the relationships between Sovereigns – Banks and other Financial Intermediaries (BFIs) – Corporations of the European Union. First, it plans to identify the common and the sector-specific risks, and assemble a web-based Early Warnings System (EwS) to be used. This aims at serving as risk barometer for each sector and countries alike, in order to identify potential threats to financial stability and as a system monitoring a series of leading indicators so as to minimize the possible negative impacts from systemic crises, preventing contagion.

The EwS will realize Risk Reports for individual Sovereigns, BFIs and Corporations on the ‘4 R’s’:

1. Rating, specifying the membership risk category and corresponding risk value,
2. Risk Anomalies, i.e. the risk indicators which appear as excessively risky,
3. Risk Assessment, namely the sensitivity towards systemic risk,
4. Risk Impacts, quantifying the potential risk severity.

The realization of the EwS will be carried out together with a ‘Data Center’, by implementing a sound data-management infrastructure for systemic-risk monitoring and controlling for data merging, missing data, and data quality issues.

Second, the project aims at exploring monetary policy and macro-prudential issues relative to systemic risk developing a ‘SYRTO Code’ in order to develop recommendations, also expressed in terms of EwS prescriptions, on (i) the appropriate governance structures for EU to prevent and minimise systemic risks; (ii) the best mechanisms for ensuring an effective interplay between, and coordination of, macro and micro-prudential responsibilities.

At the end of the project, the group aims to establish a permanent research centre in order to give a formal structure to the mission, objectives and results of the SYRTO project. This centre will use the methodologies developed by the team to produce indicators about the state of the markets, corporates, banks and financial intermediaries, and sovereigns, both through the publication of periodic reports, and through risk indicators.

**Project coordinator:**

Roberto Savona, University of Brescia, Italy

Further information about SYRTO and all outcomes of the projects can be found at: http://syrtoproject.eu
WWWforEUROPE - Welfare, Wealth and Work for Europe

The objective of this 4-year project is to provide the analytical basis for a socio-ecological transition in Europe: the change to a new growth path with smart, sustainable and inclusive growth as is envisaged in the EU 2020 strategy.

In order to support the transition, we analyse the need, the feasibility and best practice for change, specifying the institutional changes needed at all policy levels to implement these options. The old and new challenges Europe is facing define the starting point: globalization, new technologies and post industrialization, demographic change and ecology in the context of welfare systems that have come under stress due to high public deficits.

The vision is that Europe will become a role model for a ‘high road growth path’ which actively incorporates social and ecological goals, employment, gender and cultural aspects in an ambitious, forward looking way while continuing to be competitive in a globalized world.

To achieve these objectives, the consortium will carry out and synthesize robust research in the areas covering the challenges to the welfare system, the biophysical dimension of socio-economic development, the identification of drivers towards socio-ecological transition, the role of governance and institutions on the European as well as the regional level.

The consortium will benefit from ongoing dialogue with international experts in the form of expert panels and sounding boards, taking into account their views on the direction and feasibility for this new growth path. The project will be carried out by a consortium of 33 partners from universities and research institutes with international and interdisciplinary expertise. It represents 12 member states. High level Scientific and Policy Boards will monitor the analysis and the policy conclusions to guarantee the impact and dissemination of the results.

Project coordinator:

Karl Aiginger, Austrian Institute of Economic Research, Austria

Further information about WWWforEUROPE and all outcomes of the projects can be found at: www.foreurope.eu
MACFINROBODS - Integrated Macro-Financial Modelling for Robust Policy Design

During the global financial crisis and ensuing Great Recession, economists at policy-making institutions had little choice but to augment macroeconomic models with ad-hoc assumptions and adjustments in order to provide analysis and advice for policy makers.

The project aims to move policy-focused macroeconomic modelling beyond this approach to the endogenous modelling of the dynamics resulting from financial risks and related decision making in banks, households, firms and public institutions.

The project will bring together four broad lines of research to systematically develop new behavioural and institutional building blocks, integrating them in policy-focused macroeconomic models and using these models in a new framework for policy evaluation.

In terms of building blocks, one line of research moves beyond the assumption of representative and homo-oeconomicus-type agents to incorporate micro-behavioural realism in decision making, while a second line of research advances the modelling of financial institutions, their fragility and the dynamics of systemic risk.

The third line of research integrates these new building blocks (including a selection of those developed by researchers outside the consortium) in a new generation of policy-focused macroeconomic models.

In parallel, in the fourth line of research new policy evaluation tools are developed, with a focus on robust tools aimed at containing financial contagion and boom-bust cycles, maintaining fiscal sustainability and coordinating monetary, fiscal and regulatory policies in normal and crisis regimes.

The consortium comprises researchers with a strong track record in advancing the frontier on behavioural and institutional modelling, highly influential macroeconomic modellers as well as seasoned veterans of model-based monetary, fiscal, and regulatory policy evaluation and design.

**Project coordinator:**

Cars Hommes, University of Amsterdam, Netherlands

Further information about MACFINROBODS and all outcomes of the projects can be found at: www.macfinrobods.eu
FinMap - Financial Distortions and Macroeconomic Performance: Expectations, Constraints and Interaction of Agents

The project starts from the premise that financial markets have undergone dramatic crashes and display speculative bubbles with market prices far removed from their equilibrium values, but Economic research has been able to make only limited progress in resolving the issues of the apparent instability in financial markets. FINMAP seeks to address this deficiency by:

- Explicitly taking into account the existence of various forms of heterogeneous, boundedly rational behaviour in financial markets as well as in goods and labour markets;
- Investigating the potential of such behaviour to generate bubbles, crashes and a system-wide break down of activity as collective outcomes of individual activities;
- Investigating the linkages and repercussions between the complex area of financial activity and real economic activity which could be affected by e.g., the cancellation of credit lines and a breakdown of expected liquidity provision; and
- Studying how the transmission channel of monetary policy works in times of distress in the financial markets (particularly the interbank market) and how it could restore the credit flow from banks to companies operating in the real sector.

The project adopts a methodologically pluralistic approach trying to augment existing macro models and construct new (agent-based) ones from bottom-up. The results will provide insights into the consequences of different modelling paradigms for the conduct of monetary policy, and in particular, appropriate reactions of monetary authorities to prevalent financial distress.

**Project coordinator:**

Thomas Lux, Christian-Albrechts-Universität zu Kiel, Germany

Further information about FINMAP and all outcomes of the projects can be found at: www.finmap-fp7.eu
Appendix 3 – Selected peer reviewed publications resulting from the reviewed research projects


Barasinska Natalya, Schäfer Dorothea - Is crowdfunding different? Evidence on the relation between gender and funding success from a German peer-to-peer lending platform, German Economic Review.


Cwik T., Wieland V. - Keynesian government spending multipliers and spillovers in the Euro area - Economic Policy, 01/07/2011, p. 493-549


Levasseur Sandrine - International outsourcing over the business cycle: some intuition for Germany, the Czech Republic and Slovakia - Eastern Journal of European Studies, Universitatea ‘Alexandru Ioan Cuza’ din Iasi - Centrul de Studii Europene, Romania, 01/12/2010, p. 165-185


Metcalfe, J.S. [2010] - Technology and economic theory,

Mina, A., Lahr, H., Hughes, A. [2013] -
‘The Demand and Supply of External Finance for Innovative Firms’,


Industrial and Corporate Change, 22(4), 953-979.


Riccetti, Luca, Russo, Alberto, Gallegati, Mauro, [2013] -
‘Leveraged network-based financial accelerator,’


Santoro, E., Holly, S. and Petrella, I. -
‘Aggregate Fluctuations and the Cross-sectional Dynamics of Firm Growth’,

Santoro, E., Pfajfar, D. - ‘News on Inflation and the Epidemiology of Inflation Expectations’,
Journal of Money, Credit and Banking, September 2013, 45:1045-1067.


Schäfer Dorothea, Klaus F. Zimmermann [2009] - Bad bank(s) and recapitalization of the banking sector, Intereconomics 44, 215-225.


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Reviewing the outcomes of EU-funded research in social sciences funded under the seventh framework programme, this publication addresses the causes of the financial crisis, the policy responses taken, and future challenges left to resolve.

The first chapter opens with a discussion on the functions of financial markets, the causes of the financial crisis in 2007/2008 and its contagion to other regions of the world, as well as the role of financialisation and the economics of risk-shifting which may have undermined productivity enhancing innovation at the expense of social inequity.

Following the discussion on the changes in financial markets and the pros and cons of complex financial innovations, the topic shifts in the second chapter to analyse the role of forecasting models to predict the Great Recession of 2008 and 2009. Excessive risk-taking and the crisis in the banking sector are the focus of the third chapter.

Related to banking and the credit market is the conduct of monetary policy in integrated financial markets, discussed in the fourth chapter. The next section analyses different fiscal policy proposals and their macroeconomic outcomes. This issue goes to the heart of the debate as to whether fiscal policy has macroeconomic stabilising effects.

The last chapter ends with a discussion on challenges left for policymakers and academics to reform the financial system, foster long-term sustainable and equitable economic growth (Lisbon Agenda 2005), and ensure smart, but also inclusive growth (Europe 2020 Strategy).