

**States, Banks and the Financing of the Economy:
Fiscal Policy and Sovereign Risk Perspectives**

STATES, BANKS AND THE FINANCING OF THE ECONOMY: FISCAL POLICY AND SOVEREIGN RISK PERSPECTIVES

Edited by and Introduction by
Morten Balling, Peter Egger & Ernest Gnan

Chapters by
Axel A. Weber
Harald W. Stieber
Stavros Vourloumis
António Afonso and João Tovar Jalles
Franco Bruni
André van Poeck and Maartje Wijffelaars
Séverine Menguy
Wim Boonstra and Allard Bruinshoofd
Aneta Hryckiewicz

SUERF – The European Money and Finance Forum
Vienna 2013

SUERF Study 2013/2



CIP

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Authors: Axel A. Weber, Harald W. Stieber, Stavros Vourloumis, António Afonso and João Tovar Jalles, Franco Bruni, André van Poeck and Maartje Wiffelaars, Séverine Menguy, Wim Boonstra and Allard Bruinschoofd, Aneta Hryckiewicz

Keywords: bank resolution, Banking Crises, bond market fragmentation, budget decomposition, budget deficit, corporate bonds, credit supply, crisis, Cross-border banking, Debt Sustainability, Economic and Monetary Union, Economic governance, Economic Governance Six-Pack, Enhanced cooperation, Eurobonds, European Semester, Financial markets, financial stability, Fiscal Compact, Fiscal Policy Coordination, Government interventions, Interest rate, Italy, panel analysis, panel causality, Political integration, Public debt, Recession, Sovereign debt, Stability and Growth Pact

By Chapters:

- 2: Recession, cross-border banking, corporate bonds
- 3: Economic governance; Political integration; Enhanced cooperation
- 4: Fiscal Policy Coordination, Stability and Growth Pact, European Semester, Economic Governance Six-Pack, Fiscal Compact
- 5: budget deficit, budget decomposition, panel analysis, panel causality
- 6: Sovereign debt, Italy, bank resolution
- 7: Sovereign debt, Banking Crises, Debt Sustainability
- 8: Eurobonds, Economic and Monetary Union, Public debt, Interest rate
- 9: Financial markets, bond market fragmentation
- 10: Government interventions, crisis financial stability, credit supply.

JEL Codes: C23, E43, E62, F33, F5, G1, G12, G15, G21, G28, G33, H1, H50, H63, H7

By chapters:

- 2: G15, G21;
- 3: F5, H1, H7;
- 4: E62
- 5: C23, E62, H50;
- 6: G21, G33
- 7: E43, E62, G01;
- 8: F33, G12, H63;
- 9: G1
- 10: G21, G28

Vienna: SUERF (SUERF Studies: 2013/2) – May 2013

ISBN: 978-3-902109-67-5

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LIST OF AUTHORS

António AFONSO

Professor of Economics, School of Economics and Management, Technical University of Lisbon

Morten BALLING

Professor Emeritus of Finance in the Department of Economics and Business at Aarhus School of Business and Social Sciences, Aarhus University and SUERF Managing Editor

Wim BOONSTRA

Head of the Economic Research Department/Chief Economist at Rabobank Nederland and Professor by special appointment in Economic and Monetary Policy at VU University, Amsterdam

Allard BRUNSHOOFD

Head of International Research, Rabobank, Nederland

Franco BRUNI

Professor of International Monetary Economics, Bocconi University

Peter EGGER

Professor of Applied Economics at KOF, the Swiss Institute for Business Cycle Research at the Swiss Federal Institute of Technology Zurich

Ernest GNAN

Counsel to the Board and Head of the Economic Analysis Division at the Oesterreichische Nationalbank and SUERF Secretary General

Aneta HRYCKIEWICZ

Assistant Professor at the Department of Accounting at Kozminski University, Warsaw and at the Department of Finance at Goethe University Frankfurt

Séverine MENGUY

Senior Lecturer, Université Paris 5

Harald W. STIEBER

DG Markt, European Commission, formerly economist at the European Commission, Directorate General for Economic and Financial Affairs

João Tovar JALLES

Economist, OECD

André VAN POECK

Professor of Economics, University of Antwerp

Stavros VOURLOUMIS

London School of Economics and Political Science

Axel A. WEBER

Chairman of the Board of Directors, UBS AG

Maartje WIJFFELAARS

Economist, Rabobank Nederlands, formerly Academic assistant at the
University of Antwerp

1. INTRODUCTION

Morten Balling, Peter Egger & Ernest Gnan

On 5-6 September 2012 SUERF held its 30th Colloquium “*States, Banks, and the Financing of the Economy*” at the University of Zürich, Switzerland. The papers included in this SUERF Study are based on contributions to the Colloquium.

In chapter 2 “The global economic outlook – challenges ahead and implications for the financial industry”, *Axel Weber*, Chairman of the Board of Directors, UBS AG gives an evaluation of the current global economic outlook. Growth perspectives are very uncertain. The biggest uncertainty of all concerns the pricing of political risk. Only if the current actions by the ECB succeed, will markets move towards more risk-taking. The downturn in the summer of 2012 is the second leg of a double-dip. European countries lack fiscal space to counter the recession. The US economy is in the process of a cautious revival. Emerging markets now face inflation problems. They are not able to sustain growth at rates experienced over the past decade. So, the rest of the world cannot draw Europe out of the recession. There are no quick fixes to the European problems. Europeans are divided about a possible banking union. Structural reforms are urgently needed. Central bank intervention can only buy time. Ultimately, a fiscal union should supplement the monetary union, but it is difficult to see how EU countries would accept the required harmonisation in their budgets. In the financial industry, funding for banks remains scarce. Banks under pressure are backtracking to their home turf. To an increasing extent, domestic banks will finance domestic firms. Cross-border bank business is declining. Banks are cutting costs. The cost of credit will go up. The market for corporate bonds will develop at the expense of direct bank credit. Merchant banking in the traditional sense will be strengthened. Banks will offer their clients corporate equity services. In the years to come, the development of financial markets will depend on a reduction of political uncertainty, better cooperation between regulators and banks and better designed regulation. There is a challenging decade ahead.

Harald W. Stieber, European Commission, explains in chapter 3 the complex legal foundation of economic governance in the Economic and Monetary Union (EMU). The incomplete architecture has contributed to uncertainty in markets about the finality of economic and financial integration in Europe. The author focuses on the concept “enhanced cooperation”. In the 2012 Fiscal Compact, the contracting parties express their wish to make more active use of enhanced cooperation. The various methods available to implement economic governance in

Europe are explained. Changing the treaties is the most inclusive method, but also the slowest. The intergovernmental method is faster and flexible as it can function with few participants but the flexibility is paid for by lack of enforceability. Opt-out clauses, however, introduce some variable-geometry even in Treaty changes.

Stavros Vourloumis, Athens University of Economics and Business, offers in chapter 4 a critical view of the Stability and Growth Pact (SGP). The sanctions that should strengthen the SGP have not been implemented adequately. An important step in changing the framework for coordination and surveillance of fiscal policies is the “European Semester”, put into practice for the first time during the first half of 2011. In December 2011, the “Economic Six-Pack” entered into force. It covers fiscal surveillance and the surveillance of macroeconomic imbalances. The package includes increased EU surveillance of national budgets, a new enforcement regime, and an early warning system based on a scoreboard of ten indicators. The principal change introduced by the “Fiscal Compact” is the obligation of member states to maintain balanced budgets or budgets in surplus. The new framework for fiscal policy represents a move from “soft” to “hard” policy coordination. The author evaluates the framework in three dimensions of governance: obligation, delegation and precision.

In chapter 5, *António Afonso*, Technical University of Lisbon and *João Tovar Jalles*, University of Aberdeen analyse the relationship between fiscal composition and long-term growth. Government deficits have increased in virtually all countries during the crisis since 2007, and so have debt to GDP ratios. The authors have analysed a large number of countries and they show that government size has a significant negative effect on growth. Institutional quality, by contrast, influences GDP per capita positively. When government expenditures are decomposed, the authors observe that public wages, interest payments, subsidies and government consumption affect output growth negatively, while government spending on education and health boosts growth.

Franco Bruni, Bocconi University, Milan, focuses in chapter 6 on the Italian sovereign debt problem. He lists seven ingredients of a recipe which can contribute to a solution and increase the credibility of national policy makers and European institutions: 1) there should be domestic rules and incentives to adjust fiscal disequilibria, 2) there should be supranational centralisation of economic policy decisions, 3) the central bank should provide collateralized short-term financing, 4) the EU member state governments should through various technical channels, provide medium to long financing, conditioned by the adoption of economic policies and measures agreed with the Commission, 5) an adequate degree of solidarity should be developed reflecting the fact that financial and economic stability is

a collective international good, particularly in a single currency area, 6) a clear set of appropriate rules for euro sovereigns' defaults should be adopted, and 7) European regulation for bank resolutions should be adopted. The need for a credible recipe is underlined by the fact that many European banks continue to have large portfolios of sovereign debt and that the debt levels of several European governments have been, or might be, increased towards unsustainable levels by the costs of bailing out failing banks.

The linkages between banking sector performance and government fiscal sustainability is the topic of chapter 7 by *André van Poeck* and *Maartje Wijffelaars*, Antwerp University. The authors present an equation with the factors that influence the current sovereign debt/GDP ratio: The interest to be paid on the debt, the previous debt/GDP ratio, the GDP growth rate, the primary balance to the GDP ratio and stock flow adjustments. The interest burden of government debt can have a "snow ball effect". There is a two-way causal relation between bank weakness and government weakness. Banks own government bonds and measures by governments to support the financial system contribute to the growth of the sovereign debt/GDP ratio. The authors present a table showing the impact of financial sector crisis support on government debt as a percentage of GDP in some euro area countries. On top of the recorded sovereign debt there are contingent liabilities related to government guarantees. The conclusion of the chapter is that only a full banking union can break the link between banking and sovereign weakness in the euro area.

Séverine Menguy, Université Paris Descartes, gives in chapter 8 an overview of the literature that can illuminate the advantages and drawbacks of issuing Eurobonds. Partial mutualisation of European sovereign debt could contribute to reducing the risks of speculative attacks against a highly indebted country, it could reinforce financial stability, and it could contribute to the creation of a deep and liquid market for European sovereign bonds. Mutualisation could, however, also encourage budgetary laxity and create moral hazard problems in some member countries. Common Eurobonds would prevent financial markets from exerting discipline through higher interest rates, and they would undermine the "no bailout clause" that protects member states from liability related to the debt obligations of other governments. Eurobonds seem therefore to necessitate tighter accompanying rules for budgetary discipline. In a model presented in the chapter, equilibrium of the interest rate on public debt requires very restrictive conditions. The political implication is that only "healthy" countries should be allowed to participate in the issuance of common government bonds.

Wim Boonstra and *Allard Bruinschoofd*, Rabobank, present in chapter 9 a proposal for a temporary programme of short-term Eurobonds (euro T-bills). The

authors argue that the programme could restore calm to financial markets without introducing moral hazard. The current fragmentation of bond markets means that financial markets have the possibility of speculating against the continued existence of the euro zone. This fragmentation is one of the euro zone's biggest design flaws. Eurobonds are bonds issued by a central European agency in order to finance participating member states' national debt. In order to be successful, a Eurobond programme should: 1) give all countries access to funding under reasonable conditions, 2) produce notable benefits for all participating states, 3) have a disciplinary effect on policymakers, 4) preferably be self-funding, 5) break EMU member states' strong financial links between national governments and local banking systems, and 6) free the ECB of its interventions in national sovereign debt markets. The programme should be open to all solvent member states.

In chapter 10, *Aneta Hryckiewicz*, Goethe University Frankfurt and Kozminski University Warsaw, asks whether government interventions restore or destroy financial stability in the long run. She argues that in general, government interventions have a negative impact on banking sector stability, increasing its risk significantly. According to the evidence presented, government involvement in the banking sector exerts a negative effect on credit supply, reducing its availability to borrowers. Nationalizations and asset management companies contribute most to these effects. The evidence strongly encourages regulatory authorities to rely on market mechanisms for resolving systemic banking crises.

All the chapters in this publication discuss from different angles the complex interrelations between states and financial systems, which have developed in recent years with economic, financial and sovereign debt crises. While the contributions included here primarily look at fiscal policy and sovereign risk perspectives, papers on the monetary policy and regulatory perspectives, which were also dealt with at the Zürich Colloquium, will be published in SUERF Study 2012/3 "*States, Banks, and the Financing of the Economy: Monetary Policy and Regulatory Perspectives*".

2. THE GLOBAL ECONOMIC OUTLOOK – CHALLENGES AHEAD AND IMPLICATIONS FOR THE FINANCIAL INDUSTRY

Axel A. Weber

2.1. EXECUTIVE SUMMARY

This paper reviews the current global economic outlook. Specific focus is set on the situation Europe is facing. A possible way forward is outlined based on a stabilization of the banking system in the Eurozone, a structural reform agenda and ultimately steps towards fiscal harmonization. The negative consequences of this difficult environment for the financial sector and their implications for the real economy are then discussed. The paper concludes that a number of actions by companies, policymakers and regulators can contribute to improve the situation.

2.2. GLOBAL OUTLOOK

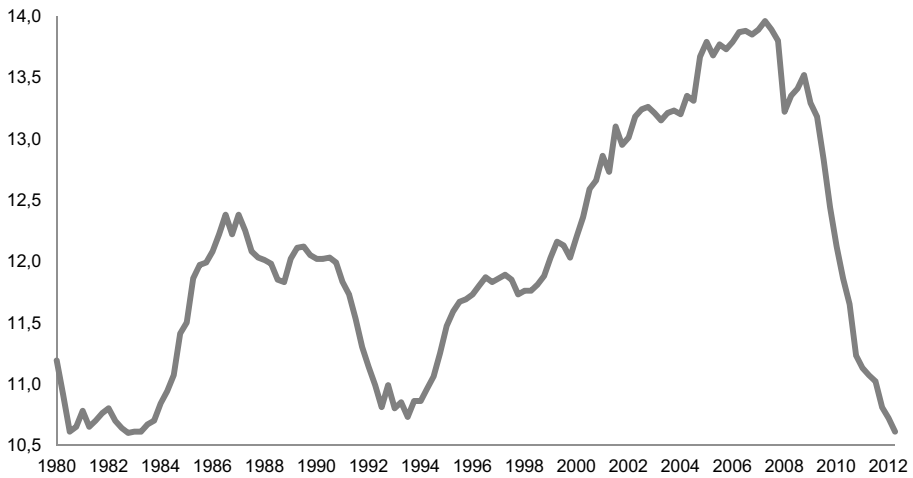
Financial markets rallied strongly since the summer of 2012, but we should not mistake the signal this is giving us. The Eurozone crisis is not over. It is true that the European Central Bank (ECB) has been more explicit in spelling out its strategy for resolving crises, but the era of increased volatility and uncertainty continues, and markets remain at the behest of shifts in political risk, as we have seen recently in Italy for example. Previous rallies petered out once investors realized that Europe's longer-term problems remained unsolved. Statements from the ECB have helped buy time, but do not offer a long-term solution on their own.

The global economic growth outlook remains highly uncertain, with Europe again facing a particularly challenging situation. A loss of market confidence has left governments with little to no scope to operate a counter-cyclical fiscal policy, and has driven most governments into austerity programs. For example, in 2012, France planned to cut its deficit by 0.8% of GDP, Italy by 1.3%, and Spain by 3.1%¹. But in reality, all failed to achieve these targets. Governments are finding it extremely difficult to meet deficit goals – due in no small part to the fact that the austerity measures themselves are contributing to the continent's recession with the absence of fiscal support impacting the current environment in a

¹ Eurostat, national government estimates.

pro-cyclical way. International Monetary Fund (IMF) research suggests that spending and taxation fiscal multipliers are between 0.9x and 1.7x, far in excess of the 0.5x estimate that many governments used when designing their austerity programs. In the IMF's view, every dollar of fiscal consolidation has likely reduced output by more than a dollar, meaning that austerity programs may currently be doing more harm than good to debt sustainability. However, it is hard to imagine substantially weakening program conditionality at this critical stage, where countries need to prove their resolve in breaking from past fiscal behaviors.

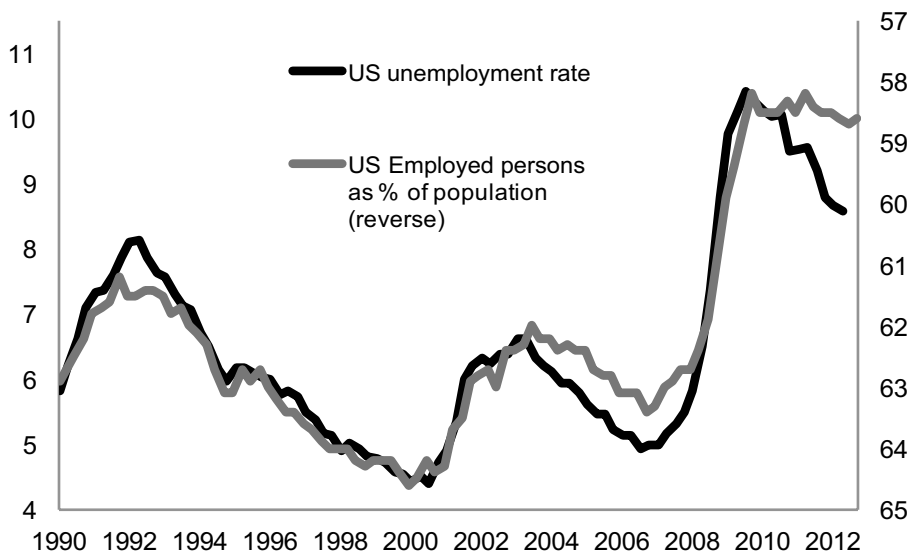
Figure 1: US household debt cost as % of income



Source: Bloomberg

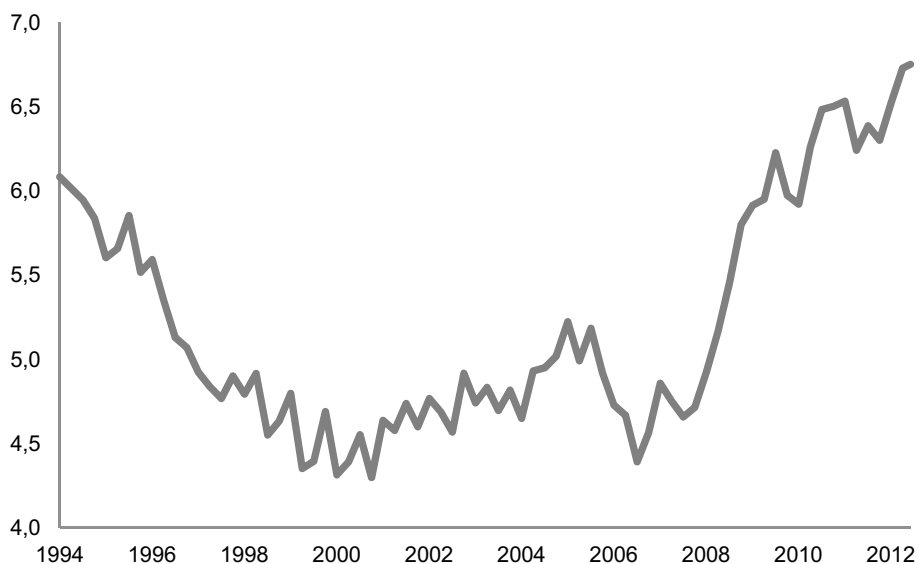
Meanwhile, the outlook for the US economy appears brighter, but it remains tightly linked to events in Europe – and history teaches us that ideas of “decoupling” rarely prove correct. It is true that the US private sector has made good progress in deleveraging; lower interest costs have helped bring the household debt-service ratio to an 18-year low, and household debt-to-GDP has fallen to 87% from a peak of 98%. Nevertheless, this remains far above the levels around 70% seen just a decade ago, and unemployment remains stubbornly high despite recent improvements. Moreover, when labor participation rates are falling, even high unemployment rates mask the true scale of the problem. This is exactly what we are seeing in the US, with almost 7 million people having dropped out of the labor force despite still wanting a job. In fact, the percentage of the US population that is employed fell from 63% in 2007 to 58% in 2009 and has remained around this level ever since.

Figure 2: US unemployment rate vs. US employed persons as % of the population



Source: Bloomberg

Figure 3: Number (in millions) of Americans not in the labor force but that currently want a job



Source: Bloomberg

Political uncertainty and anxiety relating to the budget deficit threaten to further dampen economic prospects. At the time of writing, the US has still not reached a deal on its budget, and the country faces the prospect of a government shut-down. December's "fiscal cliff" was averted, but showed us the potential for such uncertainty to damage economic prospects: already ahead of the "cliff" we saw durable goods orders collapse and weakness in job creation, reflecting reduced commitment amongst companies to hire staff or undertake capital expenditures in light of the pending uncertainty.

China and other emerging markets are not positioned to pull the West out of its malaise this time around. Unlike in 2008 and 2009, when emerging markets – most notably China – countered the global recession with aggressive stimulus measures, this type of intervention looks unlikely in the current environment. The 2008-2009 stimulus left a legacy of over-investment, exposing banks to increasing volumes of bad debt. While the government is trying to clean this up, it faces a challenge to maneuver between keeping credit growth in check and not damaging growth. The prospect of rising food and energy prices poses another headache. In fact, it seems more likely that any drop-off in growth in the West may pull emerging markets down with it – one need only look at some of Asia's disappointing export numbers last summer to see this in action.

The simple truth is that as long as the industrialized world continues to simultaneously deleverage its public, private, and financial sectors, we will likely experience subpar global growth.

2.3. CHALLENGES IN EUROPE – WHAT CAN BE DONE

While challenges exist in other regions of the world as well, perhaps the biggest singular challenge is in Europe – and actions in the single currency area have implications for the rest of the world. Without a comprehensive solution in Europe, it is hard to see how financial markets will be able to clearly move on from the current era of volatility and uncertainty.

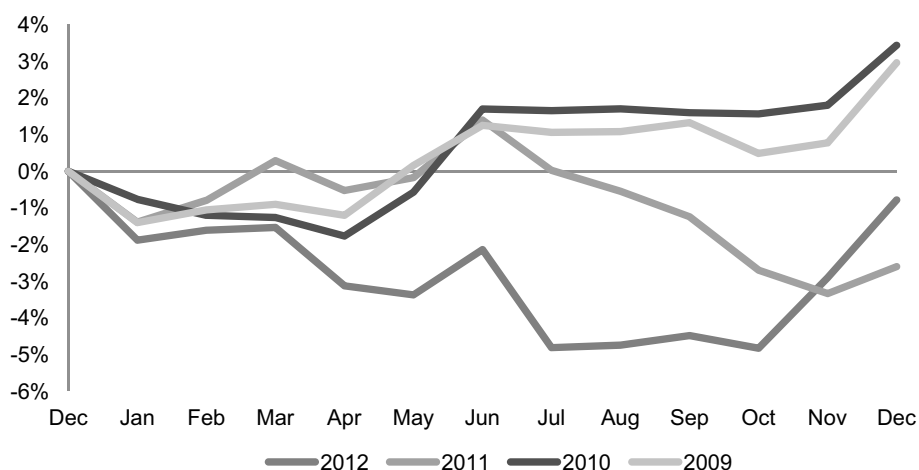
Thus far, Europe has opted for the "kick the can down the road" solution at every stage. Even when seeming to take decisive action, European institutions have continued to provide short-term fixes. This strategy of continual deferral has been the path of least resistance in many respects. Politicians have a much easier time explaining and justifying a "one-off" bailout to their country's taxpayers than they do explaining and justifying a permanent delegation of responsibilities or a fiscal transfer program. This is somewhat ironic given that Eurozone nations gave up much of their sovereignty long ago: when they agreed to abandon their national currencies for the euro, they also gave up the ability to set their own monetary policies.

What has always helped calm market anxiety were palliative actions by the ECB, including the long-term refinancing operations (LTRO) or the outright monetary transactions program (OMT). In both cases, the actions do not provide long-term solutions to the crisis, but rather serve mostly to buy time. They also take the ECB into uncharted territory outside its core remit of safeguarding price stability. They are close – too close in my view – to fiscal policy actions. And, such interventions will, in the long-run, be ineffective if politicians do not use this time to enact appropriate structural reforms.

The “kick the can down the road” strategy cannot continue indefinitely, and Europe must above all decide on a final destination. Until that destination is determined, there will likely be no effective, sustainable “fix” to the crisis. But certain preconditions must be in place before Europe can progress.

The first priority is to stabilize the banking system in the Eurozone, and most importantly in the periphery. In this regard, it is encouraging to see a resurgence in bank deposits in recent months, particularly given the fact that many banks in the periphery remain overly reliant on wholesale funding; loan-to-deposit ratios average 150% in Italy, and c.120% in Spain and Portugal. Many banks, particularly smaller banks, have little option but to shrink their loan books when wholesale funding markets are closed to them and deposits are in decline. Lower availability of loans in turn exacerbates the economic decline. Until such banks are adequately recapitalized, and the trust of both depositors and investors is restored, the downward spiral of deleveraging will continue to eat into the economic prospects of the periphery.

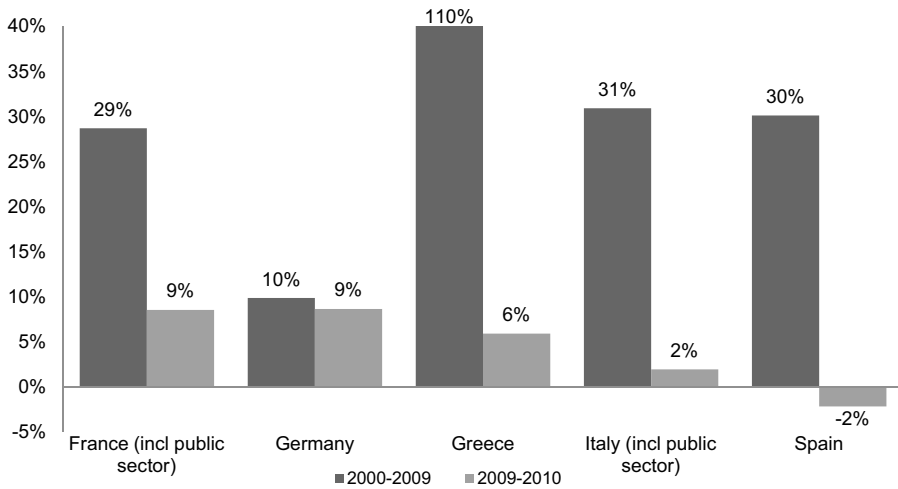
Figure 4: Year-to-date cumulative change in deposits at the Bank of Spain



Source: ECB

Second, the Eurozone needs to create and implement a credible, structural reform agenda in order to restore both internal and external competitiveness. Since the formation of the Eurozone, a 25% gap in competitiveness has opened up between Germany and southern Europe. According to Eurostat, unit labor costs in Germany rose by around 6% between 2000 and 2011, while they increased by 31% in Italy. Nominal compensation shows a similar picture. Between 2000-2009 private sector labor costs increased by around 30% in Spain and Italy, while they increased by only 10% in Germany. These private sector wage differentials have yet to be meaningfully addressed: since 2009, while German private sector compensation has gone up 9%, Italian wages have *also* risen by another 2%.

Figure 5: Change in nominal compensation per employee (private sector)



Source: Datastream

Unless this wage gap narrows significantly, it is difficult to imagine businesses choosing to invest in Italy or Spain rather than Germany. Some have suggested that if Germany had a greater tolerance of inflation it would help close the gap, but this would come at the cost of Germany's external competitiveness – in today's interconnected world, businesses choosing between Italy and Germany could in many cases choose to invest somewhere else entirely.

Finally, the Eurozone will have to take steps toward fiscal harmonization. Simply put, any further steps toward fiscal union and a system of transfers will be difficult to justify to taxpayers and voters without some harmonization in tax rates, pension arrangements, and labor legislation beforehand. However, the differences between social security system designs are still vast. For example, according to Eurostat, the employment rate in Germany amongst those aged between 55 and 64 is 60%, while in Italy it is 38%. Tax rates, minimum wages, social security

provision, and the length of the working week also differ across countries in the Eurozone. These core issues need to be harmonized across countries before a credible fiscal compact can be envisaged. And only once these steps have been taken will it be possible to implement any of the more far-reaching solutions, such as a fully-fledged European Banking Union or a full fiscal union. It seems for now, however, that completion of these steps is still some way off. As a consequence, I expect us to remain in the present environment of uncertainty and low growth for some time to come.

2.4. WHAT DOES THIS ENVIRONMENT MEAN FOR THE FINANCIAL INDUSTRY IN EUROPE?

I began by emphasizing how important it is not to misinterpret the signals that financial markets are giving us. European bank equities have rallied by more than 40% between June 2012 and March 2013, and CDS spreads on senior financial debt have almost halved, but this masks two-tier funding markets. Banks in southern Europe still find it difficult to raise money cheaply enough to make positive returns and many banks remain heavily dependent on the European Central Bank for support. Only 21% of the EUR 1trn LTRO program has been repaid, and much of the repayment was concentrated in banks from core countries.

In an environment of weak growth, irregular funding availability, and tighter regulation, banks have little option but to deleverage. It is very difficult to estimate a precise number for the scale of necessary bank deleveraging in Europe, but we can say with near certainty that the number is in the trillions of euros.

In this new world, certain business functions will become unprofitable – notably those with heavy balance sheet and capital requirements – and banks will likely need to exit these areas. Most banks will not be able to afford to run investment banks with balance sheets as large as in the past.

A further consequence of the changing environment has been an increasing trend of banks retreating to their home territories. Preliminary estimates from the Bank for International Settlements show that cross-border claims rose by only USD 26bn (+0.1%) in the third quarter 2012, barely denting the large USD 609bn (-3%) decline in the second quarter.

While the financial crisis has certainly led to an increasing regulatory burden on banks, for now the ultimate shape of the future environment for the financial industry still remains uncertain. This is also true in Switzerland, where macroeconomic uncertainty and regulatory challenges are coinciding with an overhaul in the wealth management industry.

In summary, bank assets are shrinking and bank profitability will likely diminish, too. Lower profitability will have to impact staff levels and compensation and will also make it more difficult for banks to use retained earnings to meet Basel III capital requirements. Raising capital is unlikely to be a straightforward option for some institutions as long as the outlook remains clouded.

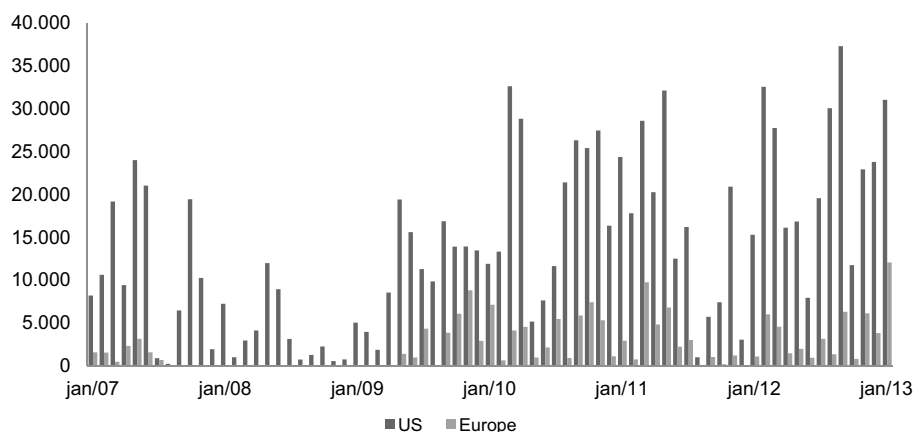
I believe that banks that acted early on to exit unprofitable businesses and built up strong capital buffers will be rewarded in the long run.

2.5. IMPLICATIONS OF FINANCIAL CHANGES ON THE REAL ECONOMY

Developments in the financial industry have a direct impact on the real economy through the cost of funding for consumers and businesses. Quite simply, if banks are under pressure, the prices of credit and financial products will go up. Banks cannot match their higher costs of doing business only by cutting spending – they must raise prices, too.

The difficulty for European businesses in particular is that historically, 70% of credit in Europe is sourced from banks, rather than through issuing corporate bonds or other capital markets instruments. This compares to around 25% in the United States. One main reason for this divergence is that, prior to the advent of the euro, individual European markets were not deep enough to sustain significant corporate bond markets in various currencies. While the creation of the euro almost 15 years ago helped to establish common credit markets in Europe, these markets have developed relatively slowly and remain much smaller and less liquid than in the US. Based on Bank of America Merrill Lynch benchmark indices, US investment grade and high yield credit markets are each over three times larger than their European counterparts, while the respective economies are of comparable size.

This will clearly need to change going forward and in my view Europe will need to become more like the US in this respect. The credit rating agency S&P estimates that in an environment of deleveraging, European companies will have to meet 50% of their debt needs via the corporate bond market. That said, there has been little indication of this to date. For example, while US high yield companies were able to issue an all-time record USD 346bn of bonds (approximately 34% of the current US High Yield market) in 2012, EU High Yield issuers were only able to raise around USD 65bn (just 19% of the current EU High Yield market).

Figure 6: High yield bond new issues volumes, Face Values

Source: BofA Merrill Lynch Global Research

Better developed European corporate bond markets would have wider implications for the health of the overall system, too. Today, European bank balance sheets are more than twice as large, relative to GDP, as US bank balance sheets. We can trace this difference almost entirely to companies' heavy dependence on bank loans as well as the relative lack of securitization and credit origination through debt capital markets. According to preliminary calculations, if European corporate bond and securitization markets were equal in size to their US counterparts, it would free up nearly USD 400bn in bank capital, equal to 30-45% of equity in all banks in Germany, the UK, and France taken together.

2.6. AND NOW?

Companies, policymakers, and regulators alike face many challenges in today's world. Yet, all involved parties can contribute to improving the situation.

First, companies – financial institutions included – must orientate themselves toward growth regions. Part of the reason things appear so gloomy in developed markets is that this may be the first recession that coincided with a sharp shift of economic gravity toward emerging markets. Indeed, while the economic recovery in developed markets has been the weakest since World War Two, the global economic recovery since the 2008-2009 recession is actually in line with an average recovery. For global banks, being successful in Asia is key. In this regard, UBS is well positioned. In addition, banks also need to go back to their core business. While this is a long-term adjustment process, making the right strategic choices will enhance future competitiveness.

Second, companies in Europe and the US have record levels of cash. If policymakers succeed in dealing with the prevailing uncertainties there is the potential for meaningful economic upside if corporates start spending on capital expenditures and new hiring.

Third, regulators should work with the financial industry to reform financial regulation in a way that enhances financial stability, supports economic activity, and avoids unintended consequences.

Finally, the academic world should engage more closely in discussions with the private sector, thinking creatively about business models of the future and solutions for enhancing sustainable economic growth.

3. ECONOMIC GOVERNANCE IN A MULTI-SPEED VARIABLE-GEOMETRY EUROPE

Harald W. Stieber

Abstract

The unfinished architecture of economic governance for the EU's Economic and Monetary Union (EMU) has been blamed to have at least aggravated the recent European banking *cum* sovereign debt crisis. From a political economy perspective, European economic governance principles and rules have collided with national fiscal policies whenever the former lacked the democratic legitimacy of the latter, as discussed in Alesina *et al.* (1995). Recently, political leaders have committed to a new fiscal compact to heal this legitimacy deficit and at the same time to a more active use of the tool of enhanced cooperation to further the smooth functioning of EMU. In this paper I take a closer look at this multi-speed variable-geometry approach to European economic governance. While the overall approach is similar to Baldwin (2008), I also take on board the changes due to the entering into force of the Treaty of Lisbon. I find that enhanced cooperation is indeed a promising implementation mechanism for bringing recent major advances in the area of economic policy coordination and governance under the EU framework. As an example, I discuss how a European (Financial) Stability Mechanism could be set up using enhanced cooperation.

Keywords: Economic governance; Political integration; Enhanced cooperation

JEL Codes: F5, H1, H7

3.1. INTRODUCTION

“As has often been noted, there will be nothing analogous to the America of 1787, and there is no European James Madison waiting in the wings. (...) The conflicting forces, those that exert continuing pressures towards centralization of authority, on the one hand, and those that exert pressures towards decentralization and localized autonomy, on the other, cannot be reconciled in some all-inclusive constitutional ‘bargain’ that would be binding.”

Cited from Buchanan (2004), p. 34.

“Our fathers settled or tried to settle on what principles government should be founded: we are settling or trying to settle on what principles government shall be administered.”

Cited from Thorpe (1891), p. 201.

“The EMU must become a fully-fledged enhanced cooperation with its own budget to stimulate growth, an instrument for economic regulation, and of course, a banking union; and as Michel Barnier stressed, it must lead to gradual fiscal harmonisation, particularly in the area of business tax, because fiscal dumping is the enemy of the EMU – both of its cohesion and of its effectiveness.”

Cited from Delors (2012), p. 4.

The first two quotes could without much modification apply to a comparison of the European discussion of the founding years during the 1950s and the first project for monetary union (to be established by 31 December 1980) with the discussion on the appropriate governance for the Union since the Single European Act until the Treaty of Lisbon. While in the first phase, in principle, all policy areas were up for discussion as to their possible inclusion at the level of the Union (the founders’ debate), during the second phase, a pragmatic consensus on the limits of integration leads to a focus on method rather than content. The third quote from a recent speech by former Commission president Delors reflects renewed interest in flexible modes of integration that has also triggered the present study.

The recent banking *cum* sovereign debt crisis in the euro area has dealt a massive shock to the pragmatic consensus of the last 30 years or so, and we seem to have returned to a debate with some resemblance to the late 1960s to early 1970s. At that time European political leaders sought how to best respond to the end of the post-WWII financial order. Revisiting records of the debates that took place during that period can result in the one or the other *déjà-vu*: Shall the Union try out a system of parallel currencies? Shall it simply continue with fixed exchange rates among its own members? Or shall there be some limited flexibility among members as well? Or shall there be a free float? In the end, a ten-year roadmap was agreed to establish economic and monetary union by 31 December 1980. As is well known, the participants in the debate of the 1970s considered not only a strong coordination of economic policies, but also a federal budget among the necessities to allow the introduction of a common currency.

Today, the unfinished¹ architecture of economic governance for the EU’s Economic and Monetary Union (EMU) is being blamed for having aggravated the recent European banking *cum* sovereign debt crisis. From a political economy perspective, an issue arises regularly when European economic governance rules

¹ Mainly depending on the assumptions on the finality of the European integration, other adjectives have been used in this spot; in academic or non-academic analysis, terms included any of the following: unsustainable, flawed, incoherent, inherently unstable, or just perfectible. We adhere to the view of an open-ended process, even though historically not every evolution has been in the direction of “ever closer Union”, and the integration process has proven to be highly non-linear.

or principles collide with national fiscal policies of the Union's member states as the former lack the democratic legitimacy of the latter. There is no prescriptive framework indicating if and how fiscal policies shall eventually be integrated into the Single Market/EMU framework².

Clearly, this absence of any hint if, how and when fiscal policies could at some point complement and complete EMU, has recently become a growing liability and a main element of market uncertainty about the finality of economic and financial integration in Europe. In terms of perception, evoking the famous spontaneous visitor from Mars without any prior knowledge about the history and dynamics of European integration, fiscal policies are lagging behind if one accepts the existence of a broader secular trend towards a completion of the economic governance framework at the level of the Union. In principle, one could change the European Treaties and bring fiscal policies either under the single market framework (all member states) or under EMU (only euro area (EA) member states).

However, changing the Treaties is a slow and cumbersome process, and it can be a very risky endeavour for the political actors involved, too. It is the *first* and lowest speed for designing the quasi-constitutional features of the Union³. Accordingly, over the course of the past four years or so, a very rapid intergovernmental method has reaffirmed itself as the second speed for designing, adopting and implementing changes to the broader framework of economic governance in the EU and EMU.

A *third intermediate* speed exists in the form of the instrument of *enhanced cooperation* which can be used to establish cooperation among a certain number of (at least nine) member states (figure 1). It was identified as the intermediate implementation mechanism between the intergovernmental method and full-fledged treaty change in the statement of Euro Area Heads of State or Government (EAHoSG) on 9 December 2011 for the reform of economic governance in EMU⁴.

² In the following we will only use the EMU acronym to refer to the entire framework of Economic and Monetary Union with the understanding that the internal market represents the backbone of the E in EMU. Hence, the reader shall avoid reading EMU as European Monetary Union, a misleading, incorrect, but widespread use of the EMU acronym in the literature. However, we are fully aware of the asymmetry where the internal market concerns all member states, whereas monetary union will only gradually catch up to comprise all member states as the euro is progressively adopted.

³ The first speed of Treaty change should be seen in conjunction with the Union's regular method of legislation (which since the Lisbon Treaty is known as the ordinary legislative procedures with the Council of the European Union and the European Parliament acting as co-legislators), since provisions in the Treaty are usually further specified in the form of secondary legislation, e.g., regulations. An important example in the context of economic governance can be found in Article 121(6) TFEU stating: "The European Parliament and the Council, acting by means of regulations in accordance with the ordinary legislative procedure, may adopt detailed rules for the economic surveillance procedure (...)." This also applies to detailed rules for EMU governance via the reference made in Article 136(1) to Article 121. In terms of speed, the adoption of new legislation under this method takes 18 months on average.

⁴ Statement of EAHoSG of 9 December 2011; under the sub-heading of "Stronger policy coordination and governance", point 8 states: "We agree to make more active use of enhanced cooperation on matters which are essential for the smooth functioning of the euro area, without undermining the internal market."

In the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (TSCG), enhanced cooperation has been further identified as one of two implementation mechanisms to bring the content of the TSCG under the EU framework in a medium-term perspective. In contrast to the other mechanism based on Article 136 TFEU⁵, enhanced cooperation can fully take into account the fact that two of the four⁶ major intergovernmental initiatives in the area of economic governance cross the frontier of membership in the euro area (phase III of EMU): the *Euro Plus Pact* (EPP) was signed by 23 member states, and the *Treaty on Stability, Coordination and Governance* (TSCG) was signed by 25 member states and is currently in the process of being ratified according to national legal requirements.

In the present paper, I take a fresh look at this third intermediate speed and implementation mechanism for the rapidly evolving framework of European economic governance⁷. The remainder of the paper is organized as follows: Section 3.2. gives a brief overview of enhanced cooperation in terms of its history, its main features in terms of procedure and voting rules, as well as the first occasions where enhanced cooperation has been used. Section 3.3. contains the bulk of the analysis and explores to what extent the envisaged “more active use of enhanced cooperation on matters which are essential for the smooth functioning of the euro area” (EAHoSG 2009) can be expected to tackle current shortcomings of economic governance in EMU. In section 3.4. I develop a concrete example of a hypothetical reformed European (Financial) Stabilisation Mechanism (E(F)SM) using enhanced cooperation. Section 3.5. concludes.

3.2. ENHANCED COOPERATION: HISTORY, MAIN FEATURES, AND CURRENT PRACTICE

Dewatripont *et al.* (1995) provided a comprehensive discussion of the possible options for introducing a sufficient degree of flexibility into the European model. What they have called “flexible integration” – combining “a common base, where participation is compulsory for all members, with open partnerships that create flexibility” – looks like a blueprint for what was included two years later in the Treaty of Amsterdam, following intense discussions⁸ on flexibility during the Intergovernmental Conference of 1996.

⁵ The third mechanism mentioned in preamble 22 of the TSCG is for consultation purposes only and is not discussed further here.

⁶ The other two major initiatives in the area of economic governance, the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM) were adopted by euro area member only.

⁷ See Bordignon and Brusco (2006) as well as Berglof *et al.* (2008) for an economic analysis of the pre-Lisbon versions of enhanced cooperation.

⁸ See Duff (1997) and Grieser (2003) on details of these discussions.

The Treaty of Amsterdam first established the possibility of “closer cooperation”, the precursor of today’s enhanced cooperation. In the Amsterdam version, at least *half* of all member states needed to participate⁹. Closer cooperation could take place in either the first or in the third pillar. Interestingly, up to the IGC in 1996, the second pillar had originally been considered the ideal place for the introduction of such a new flexible form of integration, but no agreement on a *modus operandi* with sufficient safe-guards could be found¹⁰. Anyway, in 1997 such flexibility remained a theoretical possibility, perhaps because of the rapidly changing debate on the institutional setting for the Union. The Treaty of Nice followed relatively quickly, next came the Declaration of Laeken, and the setting up of the European (Constitutional) Convention followed in 2002; the latter concluded its work by summer 2003, followed by an intergovernmental conference (IGC), the signing of the draft Constitutional Treaty, which then was rejected in the referenda in France and the Netherlands in 2005. It followed the “pause for reflection” in 2006, a new IGC took up work in 2007 and finalized the (Reform) Treaty of Lisbon. After its ratification in all 27 member states, the reformed treaties entered into force on 1 December 2009.

The Lisbon Treaty, also referred to as the reform treaty, led to important clarifications¹¹ with regard to the usability of the instrument of enhanced cooperation¹². In its preceding versions under the treaties of Amsterdam and Nice, the procedural aspects of enhanced cooperation had been set up in a very restrictive manner, too restrictive for making the new instrument a very appealing one. As a consequence of the highly restrictive procedure, and in spite of the well identified need for more institutional flexibility stressed by Dewatripont *et al.* (1995) and many others, no use was made of the new tool. The Treaty of Nice (EU 2001) lowered the future threshold of participation by fixing the required minimum at the then prevailing number of 8 with the enlargement of 10-12 new members approaching quickly. On the other hand, enhanced cooperation was given a more important constraint in terms of policy areas where enhanced cooperation could be established as the Treaty of Nice explicitly excluded internal market matters¹³.

However, in my view, apart from the fact that constitutional change took place at almost breathtaking speed between the 1995 enlargement and the 2005 referenda on the Constitutional Treaty, most discussions seem to have overlooked a crucial

⁹ In 1997, this implied a minimum of 8; see EU (1997).

¹⁰ As reported in Grieser (2003), p. 54.

¹¹ Part of the analysis in Bordinon and Brusco (2006) loses its relevance due to these clarifications; the restrictions as to when enhanced cooperation can be used make it very unlikely that non-participating member states can be put at a disadvantage in economic terms.

¹² For a comparison of the three versions of enhanced cooperation under the treaties of Amsterdam, Nice and Lisbon see the table of comparison in the annex. Part of the analysis in Bordinon and Brusco (2006) loses its relevance due to these clarifications; the restrictions as to when enhanced cooperation can be used make it very unlikely that non-participating member states can be put at a disadvantage in economic terms.

¹³ As reported in Grieser (2003), p. 91.

element which was only removed entirely in the Lisbon Treaty amendments: the possibility of a *political veto*¹⁴.

In the Amsterdam Treaty (EU 1997), Article 40(2) states that “(...) if a member of the Council declares that, for important and stated reasons of national policy, it intends to oppose the granting of an authorisation by qualified majority, a vote shall not be taken. The Council may, acting by a qualified majority, request that the matter be referred to the European Council for decision by unanimity.” Thus, the first version of enhanced cooperation foresaw the possibility that one of the 15 Member States could at least delay a project that had found a minimum of 8 sponsors. The Council could then “overrule” such a delaying veto with a super-qualified majority where not only the two thirds of the votes cast are sufficient, but a minimum of 62 votes cast by at least 10 (i.e. a quorum of two thirds) Member States is required to at least refer the issue to the European Council. Such a conflicting vote is extremely unlikely and difficult to imagine. Finally, at the level of the European Council *unanimity* would be required to re-animate the procedure.

The probability for such a resurrection to occur is quasi-nil. One would need to construct an extremely improbable case where the first opposition in the Council by one or more Member States was not well-founded or due to misunderstandings and a political solution can be found at the level of HoSG at a later stage. Again, this is a very hypothetical scenario given the way legal acts are prepared in the Union. It is therefore not surprising that closer cooperation was never used. *Indeed, up to the Treaty of Lisbon, if a project commanded the necessary unanimity, it could have been implemented at the level of the entire Union anyway.* Note also the very limited role of the Commission in the whole procedure in the Amsterdam Treaty version. Clearly, the first attempt at flexible integration was very close to an intergovernmental approach and it therefore appeared to be somewhat redundant.

The Treaty of Nice *softened* the language on the political veto considerably. Article 11 TEC and Article 40a TEU both reduce the previous veto to what looks now like a safety check at the highest political level since a member of the Council may request that the matter be referred to the European Council, but after the European Council has considered the issue, the Council continues its work and qualified majority is sufficient to launch the *enhanced* cooperation. Plus, the *authorizing decision* is now taken on a *proposal* by the Commission (after *consulting* the Parliament).

¹⁴ Warleigh (2003), pp. 36ff, being the exception to the rule, discusses extensively the rationale for political veto in closer cooperation, including its role of providing an indirect democratic control mechanism for lower levels of governments in a federal member state such as Germany.

Still, the instrument remained unused. But in this case it may have been at least partly due to the fact that the entry into force of the Nice Treaty almost went unnoticed against a background of rapid constitutional dynamics between 2002 and 2005 as already indicated above.

The Treaty of Lisbon contained only limited changes at the level of the Council, but it further strengthened the role of the Commission as *agenda setter*. The Commission's right of initiative is now fully respected also in enhanced cooperation which had started as a tool with initiative residing in the Council in 1997. The Commission also has an important mandate in monitoring the legal and technical aspects of any on-going enhanced cooperation, and it is thereby assuming the function of a *gatekeeper*. As Petite (2007) notes, the Treaty of Lisbon clarifies that enhanced cooperation can apply to any area outside the exclusive competences of the Union once at least nine Member States participate and provided the conditions discussed in detail below are met. In addition, the Reform Treaty, as the Treaty of Lisbon is called as well, simplifies the authorization of enhanced cooperation and facilitates the accession of other (originally non-participating) Member States at a later stage¹⁵.

Whereas Lenaerts and van Nuffel (2011) provide a short exposition of the current version of the instrument of enhanced cooperation after the entry into force of the Treaty of Lisbon, a more detailed discussion can be found in the editorial comments of CML (2011) from which I have extracted the following main points of direct relevance for our discussion. As recalled in CML (2011), enhanced cooperation needs to comply with a number of *substantive* and *procedural* requirements.

In terms of *substantive* requirements it must further the objectives of the Union (set out in Article 3(1) TFEU), protect the Union's interests and reinforce its integration process. It must comply with EU law. A number of substantive requirements are formulated as *constraints* on the scope of enhanced cooperation. Enhanced cooperation must not undermine the functioning of the internal market or economic, social and territorial cohesion. It must not constitute a barrier to trade between Member States and it must not distort competition between Member States. It must not infringe on the competences, rights and obligations of the Member States which do not participate in it.

On the other hand, the non-participating Member States *may not impede* the implementation of enhanced cooperation by the participating Member States (Article 327 TFEU)¹⁶.

¹⁵ As noted by Petite (2007), p. 12.

¹⁶ Enhanced cooperation may introduce variable speeds in a specific policy area, but quite remarkably Article 327 TFEU explicitly recalls that there cannot be any divergence from the overall principles of good and faithful cooperation between Member States in their joint pursuit of the Union's objectives.

In terms of *procedural* requirements, I choose here to split the presentation in CML (2011) into two parts. Indeed, in the economics literature we are rarely concerned with the procedure of setting up an undertaking, but rather concentrate on the rules that govern the functioning of the undertaking. Getting a possible enhanced cooperation off the ground implies *two* main procedural aspects: a *request* that is supported by a sufficient number of Member States (at least nine), and a *decision* by the Council authorizing the envisaged cooperation. First, Article 329 TFEU specifies that (at least nine) Member States wishing to “establish enhanced cooperation between themselves in one of the areas covered by the Treaties, with the exception of fields of exclusive competence and the common foreign and security policy, shall address a request to the Commission, specifying the scope and objectives of the enhanced cooperation proposed.”

The Member States’ request will trigger an analysis by the Commission if the substantive criteria for the proposed enhanced cooperation are fulfilled. In the two cases where enhanced cooperation has been granted so far¹⁷, this step did not lead to a negative assessment by the Commission.

However, the Commission plays an important role at this stage of the process as the mentioned assessment may lead to a much more precise project for enhanced cooperation. The Commission may, for example, point out that some possible variants to implement the project are not viable because they are in breach of one or several substantive conditions mentioned in the Treaties. *In extremis*, if a viable project cannot be identified, the Commission may exercise its right of initiative and not come forward with a proposal for a Council authorizing decision. This possible (negative) outcome is explicitly mentioned in Article 329(1) TFEU which only obliges the Commission to appropriately inform the concerned Member States about its reasons for not going ahead with such a proposal. At this stage of the process, the Commission is fully exercising its role as guardian of the Treaties.

In the meantime, only one of the two cases still prevails as in the case of UPP the two Member States which did not participate from the start had given up their reservations allowing a EU27 solution which in turn included the decision to abrogate the enhanced cooperation in this field. I shall return at a later stage to this interesting question: To what extent could enhanced cooperation become a strategic threat of possible speedier cooperation in areas governed by unanimity rule where otherwise the veto power of even a single Member State would be fully credible? Clearly, this could be a very relevant point in the context of the envisaged enhanced cooperation for the setting up of a tax on financial transactions.

¹⁷ These concerned divorce law and unitary patent protection.

If a viable project for enhanced cooperation can be identified, the Commission *may* proceed by making a proposal for a Council authorizing decision. CML (2011) stresses the “may”, signalling the Commission’s right of initiative and the absence of any kind of automaticity.

However, such automaticity is anyway not needed if one considers the role of the European Council in this context. If the matter is already sufficiently high on the EU’s policy agenda such that it is being discussed at the level of Heads of State or Government, it is very likely that much of the necessary preparation to identify a viable project for enhanced cooperation is taking place at the level of the European Council. This is already the case when it comes to the projects mentioned in the euro area HoSG’s statement of 9 December 2011. And it is explicitly the case of the fiscal compact, the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (TSCG). The 22nd pre-amble of the TSCG states (*italics added*): “Noting, in particular, the wish of the Contracting Parties to make *a more active use* of enhanced cooperation, as provided for in Article 20 of the Treaty on European Union and Articles 326 to 334 of the Treaty on the Functioning of the European Union, without undermining the internal market, (...)”. I consider this to be also the most likely scenario in the case of my illustrative example of an enhanced cooperation E(F)SM, or E(F)SM “plus”¹⁸.

When one reaches the phase where the Council may adopt a *decision* authorizing the envisaged enhanced cooperation, the following points need to be kept in mind (also from a public choice, non-market/public/collective decision making perspective).

First, the Council will consider, in addition to the preparatory work carried out on the side of the Commission, that a minimum number of Member States (at least 9) have agreed on a common undertaking, that this common undertaking is being understood in the same way¹⁹ and that a similar undertaking could not have been reached at EU27 level within a reasonable time frame. Second – and one cannot stress this point enough as it has not received the attention it clearly deserves in the literature so far – *the Council does not need to decide unanimously even if the legal base concerning the policy area in question requires so*. CML

¹⁸ Given the political will of EU HoSG expressed in recital 4 of the European Council Decision by which Article 136(3) has been adopted (subject to national ratification requirements) to not use Article 122(2), the legal basis for the EFSM regulation, once the ESM Treaty has entered into force; what we discuss under the term “enhanced E(F)SM” or E(F)SM “plus” could replace any of the existing instruments of financial assistance, including the BoP instrument, depending on the participating member states in a possible enhanced cooperation to that end. It would in any case be an instrument that remains open to all Member States which is (or rather was) the case of the EFSM.

¹⁹ Both the Commission and the Council will verify this point in particular in the presence of two or more requests (this is a real possibility) for the envisaged enhanced cooperation. The common understanding needs to be verified at this constitutional stage of the process. Once legislation is being enacted (e.g. regulations) within the on-going enhanced cooperation, such common understanding is established by law and does not require separate verification.

(2011) points to the reading of Article 20 TEU in conjunction with Article 329(1) TFEU in that context. Obviously, we will need this feature at a later stage when we are concerned with the concrete legal acts to be adopted for establishing an enhanced E(F)SM, or E(F)SM “plus”.

The second part in terms of procedural requirements concerns the rules governing *accession* to enhanced cooperation and *exit* from enhanced cooperation, as well as the voting rules within enhanced cooperation. Looking at entry versus exit, the EU legislator of the Treaties was only concerned explicitly with accession to an existing enhanced cooperation. Here, the logic is very clear: enhanced cooperation shall get the ball rolling, but eventually the policy area should become part of the EU framework with all Member States participating.

Thus, the possibility of entry at a later stage of other Member States must be ensured right from the start and during the implementation of any enhanced cooperation. The difference to note here is the following: while enhanced cooperation is fully within the EU framework and all kinds of legal Union acts can be adopted within an on-going enhanced cooperation, the enhanced cooperation itself and any legal Union acts adopted under it do not form part of the EU *acquis*, i.e. they cannot form conditions for becoming a member of European Union. Also, any legal act is only binding for the Member States participating in the enhanced cooperation under which the legal act was adopted. The case of UPP has delivered the first example how the legislator saw the role of enhanced cooperation. If a (very small) number of Member States was (for whatever reason) not yet ready to participate in a Union policy that further one of the Union’s objectives, the other Member States should not be held up *ad infinitum* by such country-specific issues. In the case of UPP, Italy and Spain had opposed for almost ten years the language regime proposed by the Commission which foresaw using only the three working languages of the European Institutions – English, French, German – for the European Patent’s office²⁰.

If a Member State wants to join an on-going enhanced cooperation, the Commission shall examine if, at a technical and legal level, all the necessary arrangements are in place in order to ensure the smooth functioning of the existing enhanced cooperation. The Commission clearly has a mandate to ensure the legal certainty and the technical quality, but it cannot block the entry, since even if it voices serious concerns about the readiness of the applicant, the latter can refer its case to the Council and seek a positive decision there. Clearly, everything is arranged to further the highest possible number of participants and to facilitate the joining of those who did not participate from the start.

²⁰ This must not be confounded with the EU languages of which there are 23; EU legislation, as a rule, is translated in all 23 EU official languages and EU citizens interact with European institutions in any of these.

In a symmetrical reading of the procedural requirement concerning the number of initial participants, CML (2011) takes the view that exit would put into question the entire enhanced cooperation. Concretely, CML (2011) has the view that a *disengagement from legislation adopted under enhanced cooperation is not possible* as this would create an unbearable amount of legal uncertainty. This leaves only exit from the cooperation as such as an option, i.e. exit from the possibility to participate in the adoption of any further legal acts of the Union under the enhanced cooperation in question. In this case, an equivalent procedure to the launching phase would apply, i.e., request to the Commission and the Council, proposal by the Commission to the Council for a new/amended Council authorizing decision, now taking into account the changed number of participants. For the issues relating to economic governance that we are concerned with in this paper, the possibility of exit needs to be looked at carefully as it raises immediate questions in terms of *ex-ante* credibility of the arrangements entered into by the first group of participants.

The political statements of EU HoSG in 2011 in the context of the three substantial policy initiatives, respectively dealing with *competitiveness* (EPP), *financial stability* of the monetary union and the possibility of negative spill over effects (ESM Treaty), and finally *fiscal sustainability* (TSCG), the 25 signatory member states of the TSCG voiced their political will to migrate as soon as possible under the EU framework these intergovernmental initiatives that took place under the pressure of rapidly unfolding events that put at risk the entire fabric of EMU. The TSCG is the most explicit of the three (being the last one in the list) by stating the three existing EU framework methodologies to that end: enhanced cooperation, closer coordination under Article 136 TFEU (in a binding form for euro area Member States and the possibility of voluntary participation for Member States with a derogation), and finally the macro-economic dialogue for ex-ante coordination of macro policies between the European Institutions²¹.

To get a better understanding of the potential and possible pitfalls of making more active use of the instrument of enhanced cooperation to ensure the smooth functioning of EMU and prop up its economic governance architecture, I next consider a concrete example of enhanced cooperation tool that took place in the area of patent protection (the other one being in the area of divorce law)²². After all, it is the actual use of enhanced cooperation as a collective decision making framework that will provide the ultimate test as to whether one can expect the emergence of an important new option for a multiple-speed variable-geometry tool for the economic governance in EMU. The Council authorizing decision (see

²¹ The Article 136 route is a promising one but its discussion would go beyond the scope of the present paper.

²² In addition to the Council authorizing decision, related documents can be found via the press release in Council (2011a).

EC 2010, Council 2011b) granting the enhanced cooperation explained the various steps that were required before a request for enhanced cooperation could be considered viable. It recalled the following set of pre-conditions for using the instrument:

- the link of the subject matter of the possible enhanced cooperation to one or several objectives of the Union as they are laid down in the Treaties has been firmly established;
- the measures, including their implementation mechanisms, which are proposed in order to pursue those objectives using enhanced cooperation, are shown to be in line with Union objectives as specified in the Treaties and available implementation mechanisms in Union law;
- the lack of the required majority (in this case unanimity) is documented and the case of “insurmountable difficulties” (Council 2011b, indent 4, p. 3) with regards to achieving the required majority is established;
- it is established that more than 9 member states have formally requested to establish enhanced cooperation between them;
- the respect of conditions laid down in Article 20 of the Treaty on European Union (TEU) and in Articles 326 and 329 of the Treaty on the Functioning of the European Union (TFEU) is verified;
- it is verified that the area to be covered by the requested enhanced cooperation falls within the Treaties;
- it is established that, in respect of Article 20(2) TEU, enhanced cooperation is being adopted as a last resort and “furthers the objectives of the Union, protects its interests and reinforces its integration process in accordance with Article 20(1) TEU”;
- it is verified and positively established that the proposed action does not fall into any of the listed areas of exclusive competence of the Union set out in Article 3(1) TFEU;
- the requested enhanced cooperation needs to comply with the Treaties and Union law (the pre-existing *acquis*), it must not undermine the Union’s internal market or its social and territorial cohesion, and it must respect competences, rights and obligations of non-participating member states.

After all these checks were successfully passed, the Council authorized the enhanced cooperation and the Commission was mandated to put forward proposals concerning its implementation.

3.3. THE POTENTIAL OF A MORE ACTIVE USE OF ENHANCED COOPERATION IN THE AREA OF ECONOMIC GOVERNANCE

The current political economy set-up of the Union implies that, whenever national budgets of member states are concerned, the democratic legitimacy resides with national parliaments in those member states. Looking at the current framework of EMU, the varying degree by which policy competences and democratic legitimacy have been conferred upon the Union's institutions is obvious, and it has been extensively documented in the literature²³. Monetary policy is an exclusive Union competence, single market issues are a shared competence with the European Commission (EC) in a position of Stackelberg leader, thanks to the general mandate for the approximation of laws under Article 114 TFEU. However, as the second paragraph of Article 114 explicitly states, fiscal policies are excluded²⁴. A straightforward way to heal this remaining lack of congruence would be a Treaty change which includes fiscal policies fully in the single market framework with the same voting rules, i.e., Commission proposing, Council and European Parliament acting as co-legislators, Council using qualified majority and European Parliament simple majority.

However, changing the Treaties is cumbersome, and over time it has become less and less attractive as a mechanism for reform²⁵. Thus, treaty change has turned out to be an inadequate method, at least in the short run and during the current banking *cum* sovereign debt crisis. The recent changes to the economic governance structure of EMU have proven this point, as member states turned to inter-governmental solutions that could be implemented after only a few weeks of deliberations and drafting.

Such recent examples include the Euro Plus Pact (EPP)²⁶, the European Financial Stability Facility (EFSF)²⁷, the European Stability Mechanism (ESM)²⁸, and the Treaty on Stability, Coordination and Governance (TSCG)²⁹.

²³ The debate during the European Convention, which started its work in February 2002 and delivered a Draft Treaty establishing a Constitution for Europe in July 2003, and ahead of the possible adoption of the EU Constitutional Treaty in 2005 triggered a substantial amount of academic work on the optimal assignment of responsibilities across different levels of government up to the EU level, on the best voting rules to use to determine those allocations (the constitutional decision) and to act within those assignments (the legislative decision); while by no means comprehensive, a good overview of this debate which was linked more or less to this specific episode in the evolution of the EU can be found in the two volumes of Blankart and Mueller (2004), and Congleton and Swedenborg (2006).

²⁴ Article 114(2) TFEU reads as follows: "Paragraph 1 shall not apply to fiscal provisions, to those relating to the free movement of persons nor to those relating to the rights and interests of employed persons."

²⁵ Furthermore, as Grimm (2009) discusses in detail, substantial treaty change would need to be accommodated by appropriate modifications of the German federal constitution (the German *Grundgesetz*), and the German case may "hide" other similar cases.

²⁶ GSC (2011) which contains the Euro Plus Pact as Annex I; see also Barroso (2011).

²⁷ www.efsf.europa.eu/about/index.htm.

²⁸ www.efsf.europa.eu/attachments/esm_treaty_en.pdf.

²⁹ http://european-council.europa.eu/media/639235/st00tscg26_en12.pdf.

On the other hand, the somewhat lengthier Union method³⁰ was used to put into place the six-pack³¹, to set in motion the limited Treaty change amending Article 136 TFEU, and to propose a further strengthening of the economic governance framework in the form of the 2-pack³². It was used to amend and reform the financial regulatory framework of the single market and more recently, in September 2012, it was used again to propose the main features of a future banking union and a single supervisory mechanism.

Overall, the intergovernmental method has produced a comparable number of outputs as the Community method since the start of the crisis in 2008. Given the interaction with other Union measures, such as the two long-term refinancing operations (LTROs) implemented by the ECB³³ that had been made contingent on a strengthening of the euro area's fiscal governance framework as put forward in the TSCG, some could argue that intergovernmentalism has been the more successful approach in dealing with the crisis.

While going further into this debate is clearly beyond the scope of this paper, one can note at this point that in terms of speed (again, discussing quality and sustainability would require a detailed analysis that cannot be provided here) the intergovernmental method is clearly superior. This is even more the case since the Treaty of Lisbon entered into force, making the co-decision method the rule, where the EP is acting as a full-fledged co-legislator in the ordinary legislative procedure. Co-decision takes time. Even in the case where member states have already reached consensus in the Council, the draft legislation will first go to the relevant EP committee before going back to the plenary (in total three readings) and once the EP has a common point of view, a tripartite arbitrage process takes place between EC, Council and EP before the final piece of legislation can be adopted. Take the example of the six-pack. In spite of the helpful acceleration by the urgency of the crisis, 18 months have passed between the launch of the legislative initiative on the six-pack by the EC on 29 June 2010³⁴ and the entering into

³⁰ We would have liked to use the attractively general distinction between intergovernmental (IG) and supranational (SN) decision-making as proposed by Baldwin 2008. However, for the purpose of differentiating different decision-making procedures in terms of their relative speed (Baldwin's proxy for decision-making cost), we could not find a simple correspondence between speed/cost and the method chosen. Plus, contrary to Baldwin (but see Berglöf *et al.* in the same volume), we also need to allow for the variable-geometry feature (i.e., varying numbers and groups of member states participating in any single legal innovation) which has gained prominence in the context of dealing with the crisis at EU level. Finally, the distinction between IG and SN as implemented in Baldwin (2008) has become more complicated after the entry into force of the Lisbon Treaty, mainly due to the new powers of the Parliament including in the area of Treaty change. We are therefore confined to the use of the less general and more Brussels-style language regime distinguishing intergovernmentalist and Union method (the formerly Community method; as a consequence of the Lisbon Treaty, Community/Communities has as a rule been replaced by Union in the EU's language regime).

³¹ http://ec.europa.eu/economy_finance/economic_governance/index_en.htm.

³² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0821:FIN:EN:PDF> and <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0819:FIN:EN:PDF>.

³³ www.ecb.int/mopo/implementation/omo/html/20120034_all.en.html and www.ecb.int/mopo/implementation/omo/html/20110149_all.en.html.

³⁴ A more useful start date could be the 12 May 2010 Communication by the EC on reinforced economic governance in the EU: [http://ec.europa.eu/economy_finance/articles/euro/documents/2010-05-12-com\(2010\)250_final.pdf](http://ec.europa.eu/economy_finance/articles/euro/documents/2010-05-12-com(2010)250_final.pdf).

force on 13 December 2011 of the regulations contained in the package. 18 months happens to be the average duration for the adoption of a legislative act using the ordinary legislative procedure.

This is actually a very short time span between the initiative and the moment legislation becomes actually binding, and using a concept proposed by Baldwin (2008) one could argue that the crisis has significantly lowered decision making costs for passing new EU legislation. Comparable pieces of secondary legislation in the area of financial market regulation initiated just before the crisis will only enter into force a few years from now. In comparison, the EFSF was set up in the course of more or less one week, and it took another 2 months to become operational. The ESM Treaty is an even more drastic example. Using the community method would have required unanimity at several stages of the process, and it would have included unanimity at the EU27 level, not only among EA member states. Consequently, the latter was rapidly regarded as inadequate by EU leaders.

Again, full blown Treaty change is cumbersome. Even if various national objections can be dealt with successfully, possibly leading to a further mushrooming of Treaty protocols including long lists of national exceptions, just the procedure with its long and cumbersome ratification procedures, including national referenda in some member states, makes full-blown Treaty change a less and less attractive mechanism of reform. As a less costly alternative, the EAHoSG have proposed on 9 December 2011 to make more active use of the instrument of enhanced cooperation as it currently exists in the Treaties. The crucial question is if such use of enhanced cooperation could effectively provide *legal certainty* and *institutional stability*, two features that are crucial in times of rapid economic adjustment and certainly two features that had too often been taken for granted in equilibrium and close-to-equilibrium economics that prevailed before the current crisis.

3.3.1. The political legitimacy is achieved via the legislative method and the increased political stability that comes with it

A possible political economy explanation for previous absence of an effective “fiscal compact” in the overall framework of economic governance in the Union was the lack of democratic legitimacy of the relevant decision making institutions³⁵. As is well known from legislation in the area of financial market regulation, opposition to individual measures is addressed at a very early stage of the legislative process. Once the latter has been completed, the rules are binding for every member state of the Union. As noted below, this would also apply to legal

³⁵ See The Economist (2012) for a recent discussion of the lack of democratic legitimacy in European policy making.

acts adopted under enhanced cooperation. Domestic political change cannot alter such legislation which increased substantially the legal certainty and the political stability in these areas. The cost that has come with this democratic legitimacy in the past has been its very lengthy procedure. Many norms in the fields of financial market regulation enter into force fully several years after the legislative process has been completed at the Union level. This issue of lack of reactivity and speed could be addressed successfully in a multi-speed framework which makes extensive use of enhanced cooperation.

As Baldwin (2008) observes, of the three decision-making bodies at work, only the European Parliament (EP) is directly elected by European tax-paying citizens. As such, this would not pose any difficulty as it corresponds to a typical set-up in representative democracy. However, the difference at the EU level has been the almost inexistent control of the EP over Union policies with major fiscal consequences. This situation prevailed even after the Lisbon Treaty had made the EP a full co-legislator in pretty much every area of economic governance covered by the Treaties (as long as they constitute shared competences). But fiscal policies proper and non-fiscal policies with major direct fiscal impacts still remain outside the scope of the Treaties.

Consider, for example, the decision of a national government to bail-out a failing financial institution. The Commission has to authorize the measure involving state aid under EU competition rules (which can imply substantial and detail conditionality), but for the time being the directly elected EP cannot protect EU taxpayers from possible ramifications³⁶. Another example is financial assistance to member states that have been shut out of capital markets. The directly elected EP has had very little (indirect) influence the degree of exposure of EU taxpayers, not even under the EFSM where liabilities are joint and several at EU27 level. In this context, I do not fully agree with Baldwin (2008) that simple majority rule in the EP is not an effective control mechanism given the qualified majority voting used in the Council (QMV).

The political bargains struck in the Council have a different logic compared to the EP. Even if QMV formally applies, actual voting is very rare³⁷ and only takes place if there is an open conflict, i.e., if consensus could not be established during

³⁶ The situation has continued to evolve rapidly since the first versions of this paper were drafted end-2011. The agreement of EA HoSG to establish a single EU banking supervisory authority which included the mandating of the Commission to come forward with draft legislation to that end has been a major step. Typically, this area of regulation involved co-decision, i.e., the European Parliament is co-legislator with the Council. It remains to be seen how the accountability framework of any such future EU supervisory body will be set up, but *some* form of accountability to directly elected MEPs can be safely expected to figure in the relevant legislation.

³⁷ Actual casting of votes in the Council is a very rare phenomenon as reported in Hayes-Renshaw *et al.* 2005. Within the rare cases, the Ecofin Council dealing with fiscal policy issues takes an almost negligible share with 12 negative votes cast between 1998 and 2004 (Hayes-Renshaw *et al.* 2005, p. 21); the two rounds of voting that brought down the first Stability and Growth Pact in 2003 were such a rare case of actual voting in the Council.

the long preparatory phase which precedes the adoption of legal acts by the Council and which typically starts before the Commission comes forward with a formal proposal. Any member in the Council has only a limited political capital and has to consider very carefully when to use an opposing vote which is a very costly choice in terms of political capital being employed.

Clearly, the details of legal and institutional settings directly impact the effectiveness of economic governance. In this perspective, we shall ask how enhanced cooperation can be used after its successful initiation in the cases of divorce law and patent protection, and how it could be further developed to become a major vehicle to address remaining urgent reforms in a more and more explicitly multi-speed variable-geometry Europe. The recent experience of the euro area has increased awareness of stakeholders of factors that matter for addressing remaining asymmetries in the political economy of EMU, and that the Union is paying a higher and higher price for its inadequate decision making structure. An understanding has emerged that sequence and speed matter in that context (the “too little, too late”).

But awareness has remained rather abstract when it comes to the impact of voting rules that apply in relevant areas that need to be considered jointly to allow a comprehensive set of measures capable of completing EMU. Under the still dominating unanimity principle in the Union’s decision making process, having agreed on something often is considered already a success in itself. Whilst this is not ridiculous at all, given the heterogeneous group of countries the EU27 has grown into, this kind of success has repeatedly failed to get a “thumbs up” in the marketplace. Bond market investors hardly care if the content of any political consensus does not improve their overall investment position.

Another ingredient to democratic legitimacy is *inclusiveness*. Critics of the EU legislative process have tended to overlook an important aspect of democratic decision making and democratic accountability. Politics, in particular in its most extensive legislative mode with its lengthy, inclusive (and therefore not immediately conclusive) deliberations, can create the crucially necessary levels of democratic legitimacy that stand behind the power to tax which in turn represents the effective collateral for (unsecured) sovereign debt instruments. The effort that goes into legislation with significant budgetary consequences constitutes itself a form of sunk cost. Accepting sunk cost, as any chess player knows, but also the economists studying the behaviour of price cartels, is an effective means for creating credibility. And credibility is one building block on the long road to (democratic) legitimacy which in turn can help commit to a set of fiscal policies in a credible manner.

Alesina *et al.* (1995) refer to studies which have tried to proxy inclusiveness with the geographical distance from the political centre. Obviously, the bargain to

move the capital of the new United States after the Philadelphia constitution southwards while accepting the mutualisation of public debts comes to mind immediately (Sargent 2012). In turn, credible legitimate policies provide comfort to creditors when they lend long-term to sovereigns in an unsecured manner. So far, this credibility only exists at the level of nation states in any significant amount. The existing capacity to issue Eurobonds at the level of the Union is currently limited to EUR 110 billion. Could enhanced cooperation provide the basis for fiscal commitments at the level of the Union that could be as credible and legitimate as those at the level of member states in a similar way as in the case of legislation linked to the Single Market?

Mainly thanks to the safeguards built into the legislation procedure (especially if a proposed legal act has budgetary implications), one could argue that enhanced cooperation can be a crucial mechanism for better ensuring congruency between those who benefit from the provision of a public good and those who (agree to) finance it as developed in Eichenberger and Frey (2002). Depending on the policy area, the respective groups of member states could emerge from the process. Also, while not further studied here, one could expect that a smoother preference revealing process would reduce pork-barrel politics that are more likely when decision-making mechanisms are very rigid and/or favour corner solutions.

3.3.2. A multi-speed variable-geometry Europe could mean allowing integration to proceed in selective policy areas in a flexible and dynamic way

A multi-speed variable-geometry Europe could mean allowing integration to proceed in selective policy areas in a flexible and dynamic way (with the number of participating member changing, e.g., according to a criterion which maximizes benefits of membership subject to its costs as discussed in Alesina and Wacziarg 1999³⁸), while at the same time adhering to an approach of limited Treaty change which in turn can be considered as the current political (soft) budget constraint in a constrained political economy optimization exercise. The

³⁸ In our view, Alesina and Wacziarg (1999), pp. 21 ff., have provided a very useful and versatile approach of studying the static choice of political integration from the perspective of the individual member state or the individual citizen. In order to cover the more dynamic model of enhanced cooperation, their model would need several extensions. We mention two: (i) the externality parameter β should depend on the relative size of the union compared to the rest of the world (adequately defined depending on the externality in question); and (ii) since the individual member cannot decide the final number of members N in the union and enhanced cooperation allows both accession and exit, N becomes a function of time; but there is an additional complication for the formalization of N_t : as soon as all members of the Union have joined the enhanced cooperation, the later is abrogated and its policy becomes Union policy (and part of the *acquis*); this later step implies a significant degree of irreversibility and therefore a *discontinuity* for the production or utility function to be maximized in the model of Alesina and Wacziarg. Finally, while the description of a long list political prerogatives deferred to the EU level paints a much exaggerated picture of actual decision making power at the supra-national level in many of the listed policy fields, they correctly point out that in many areas the spillover argument would not justify a centralized provision of a (European) public good.

economic governance framework has evolved rapidly since the European Commission's proposal on strengthened economic governance (better known as "six-pack") on 29 June 2010 with the latest episode being the so-called fiscal compact, i.e. the TSCG.

I interpret the 9 December statement of EAHoSG also as a clear value judgment, namely that the Union method has clear advantages, not to the least due to its clear framework in the rule of law in the Union compared to an inter-governmental approach as championed by some authors, e.g. Piris (2012), and that is evolving in the much looser environment of public international law. The example below of a reformed Union financial crisis instrument uses a multi-step approach with an improved and more democratic enhanced cooperation tool in the final step. Enhanced cooperation addresses several issues identified in the literature on the provision of public goods (Dixit and Olson 2000): it keeps transactions (and enforcement) costs low by allowing for the use of existing European institutions and their administrative capacity, and it reduces the free-rider problem by allowing a rather small number of (9 out of currently 27) Member States to launch the process, restricting the benefits and the right to participate in decision making to this very group, but ensuring that others have the right to join at a later stage.

I find that enhanced cooperation complies with an even wider list of normative criteria that were previously identified as relevant features for constitutions to have a positive impact on economic performance (Elster 1995).

In section 3.4., using my illustrative example of establishing a single Union financial assistance mechanism in *three succinct steps with a progressively increasing reliance on enhanced cooperation*, I show how the voting rules interplay with legal and institutional options. The starting phase is governed by unanimity rule, afterwards the process switches to qualified majority as defined in the European Treaties, and finally the improved enhanced cooperation is putting to work (a double) simple majority rule. Of course, in my constructed example, this implies varying degrees of financial solidarity across the various steps of the process. However, this aspect is beyond the scope of this paper. As I will discuss in more detail in the next section, a broadened approach to financial assistance at the level of the Union seems to be possible and would be rather straightforward at least from a legal, procedural and political economy point of view. Using a joint and several liability framework, it should be superior to the EFSF in terms of providing protection against the feedback loop between ratings of sovereigns and the capacity of the same group of sovereigns to sustain a multilateral bail-out mechanism. It could be estimated to be broadly similar to the ESM in that respect, but, as I will argue below, it should have a higher feasible upper limit (firing power).

Fully taking on board the 9 December statement by EAHoSG and the renewed commitment in the TSCG, enhanced cooperation could provide a fully democrat-

ically legitimate arrangement that functions nearly as if the legislative process was implemented in a (national, bicameral) liberal democracy, while still not transforming the Union, or the group of participating member states, into a state. At the same time, the current enhanced cooperation under the Lisbon Treaty has to withstand the test of being a superior approach compared to more intergovernmental initiatives such as the parallel European Treaty championed by Piris (2012)³⁹, and/or the outright move to a European state (see figure 1).

3.3.3. Towards a stability mechanism fully embedded in the EU framework

An E(F)SM fully embedded in the Union's legal and institutional framework would also go a long way towards addressing issues of dynamic inconsistency due to the impossibility to credibly commit to policies that may not be optimal over time (Kydland and Prescott 1977) by transferring the matter from the very soft body of public international law with very limited effective possibilities to sanction non-compliance with stated commitments to a constitutional level fully embedded in the EU framework (North and Weingast 1989, CML 2012). As CML (2012) point out, even if enhanced cooperation contains a possibility of exit, commitments taken by the member state while taking part in enhanced cooperation have to be respected even after an exit has occurred. Up to now, the core articles of the still to be ratified fiscal compact remain subject to the commitment problem stressed by Kydland and Prescott (1977), and the fact that ESM conditionality is linked to those articles will weaken the effectiveness of the ESM.

The supposed fiscal pact requires only the implementation of fiscal rules in the national legal framework (at least until the entry into force of the 2-pack regulation on budgetary frameworks). That is much weaker compared to a Union framework as I argue in the present paper, since applicable law of the Union is much better protected against arbitrary change than national law in a single member state. With this construction, one should expect that the ESM construction will exhibit a weakest-link technology with the least credible (large) participant driving the pricing of the entire construction in the market place with an immediate impact on the cost of funding of the ESM.

The impossibility to commit is an argument frequently encountered in the literature and applied to the fiscal pact – ESM context can be roughly stated as follows:

³⁹ From a historical and legal perspective, the proposal by Piris (2012) is very attractive and has a lot of merit. He proposes, similar to the previous shift from the European Coal and Steel Community to the European Communities and later the EU, to build a new shell where we put all the goals and functions for the Union of the new century. Once the new shell is up and running, the old one, the current EU as set up by the Treaties, is progressively emptied as goals and functionalities are replaced by the new variants in the new shell. Once the old shell is sufficiently empty, it can be completely dismantled, i.e., the old Union goes into liquidation mode.

Depending on what at any moment in time will be the more opportune option for a political decision maker in any of the participating states, they will chose to benefit from ESM protection and comply with the fiscal pact, or not comply with it if national advantages outweigh the loss of ESM protection. There is perhaps a variant to this principle in the sense that markets will especially care about the commitment problem in the case of the larger states, but that is a risky assumption. Even if principles are watered down in the monitoring (by the European Commission) in one of the smallest, and economically insignificant members to the compact, the equal treatment principle will enforce the weakest link technology, since no member will accept a less favourable treatment⁴⁰.

3.3.4. Strengthening the principle of variable-geometry multiple-speed evolution in the Treaties rather than conferring new competences upon the Union

However, the proposed improved version of enhanced cooperation would go further in terms of the Union's operational constitution's (Cogan 2009) potential impact on economic performance (Elster 1994). Just stopping short of being a decision rule derived from a constitution of a state, it could possibly respect all the criteria listed by Elster (1994) as relevant for an efficient interaction of "the institutional and the economic variables". I cite the full catalogue here: "accountability", "stability", "predictability", "protection against time inconsistency" of both the individual type (Strotz 1956) as well as the strategic type à la Kydland and Prescott (1977)⁴¹, protection against "short-term passions" as Elster calls it, "protection against (social, economic) suicide".

Thus, in my view, enhanced cooperation could well be used to further implement the EPP as well as a reformed E(F)SM. It would complement the Article 136 route mentioned in the TSCG by effectively accommodating the veto power of individual euro area member states. It could strengthen democratic legitimacy in a straightforward way in case enhanced cooperation is to be used for the introduction of a financial transaction tax⁴², for the common consolidated corporate tax base and/or a common corporate tax rate, for the harmonization of social

⁴⁰ Applying the standard assumption in the literature that politicians prefer spending today over spending tomorrow.

⁴¹ In particular, we think that the required checks and balances via an accountability to an (independent and strong enough) third party or institution are provided in the case of our improved enhanced cooperation which remains fully embedded in Union law with all the Union's comprehensive system of checks and balances applying, including of course jurisdiction of the European Court of Justice.

⁴² On 22 January 2013, the Council (ECOFIN) of the European Union, on a proposal from the Commission, decided to authorize enhanced cooperation in the area of financial transaction tax for 11 EU member states. The request for enhanced cooperation had been made after the original proposal of the Commission of 28 September 2011 (for a Council Directive on a common system of financial transaction tax (FTT)) had not met the necessary unanimity requirement.

security entitlements in the areas of pensions, health, long term care, etc. Albeit under a more restrictive setting with unanimity rule being in place at the phase of initiation, it could still be used to achieve common objectives in the area of internal security or (external) defence. In terms of the need to increase democratic legitimacy in all cases where new EU initiatives have an impact on the national citizens' capacity to express and form their preference via national parliamentary bodies, it would not replace the need to compensate such new initiatives at the EU level with additional legitimizing (legal) acts at the national as pointed out by the German *Bundesverfassungsgericht*, but it could at least alleviate pressures in that context.

3.3.5. Enhanced cooperation could be used to discover the current Union's finality in each policy area

Indeed, enhanced cooperation could provide the Union for the first time since the failure of the early attempt to achieve political union in 1954 with an effective means to really achieve all its objectives within a reasonable time horizon. It would allow the Union to do so in a credible, fully recognized democratic way of a co-legislative process, possibly with both co-legislators using simple (absolute) majority rule. The Council, acting effectively as the upper chamber under the enhanced cooperation, would use either qualified or simple majority rule whereas the Parliament, acting effectively as the second (lower) chamber, would stick to simple (absolute) majority rule.

Note that our revised E(F)SM, as developed in section 3.4., would not yet imply an explicit redistribution via fiscal transfers. Explicit solidarity schemes, including full-fledged euro bonds, would almost certainly require a further step establishing a European state, in particular if the transfer would not be limited in time⁴³. Enhanced cooperation could be an efficient instrument to explore the limits of the Union in its current form of a supranational organization. It could make the frontier more visible, possibly helped by additional legal challenges⁴⁴, where any further political integration, including explicitly redistributive policies of a permanent nature, would effectively require a fiscal federalism including a federal state replacing the level of the Union, as defined in the current European Treaties.

⁴³ Claessens *et al.* (2012) correctly refer, in our view, to the possibility to implement some of the proposals for (unconditional) common debt instruments using enhanced cooperation; the best chances could be given to the proposal of the debt redemption fund (Bofinger *et al.* 2011, 2012) due to its feature of being limited in time.

⁴⁴ We can mention here two types (there may be others) of possible legal challenges under enhanced cooperation: (i) a natural or juridical person challenging the legality of a measure adopted under enhanced cooperation in the European Court of Justice; (ii) a challenge of the legality of national implementing legislation in a national (constitutional) court.

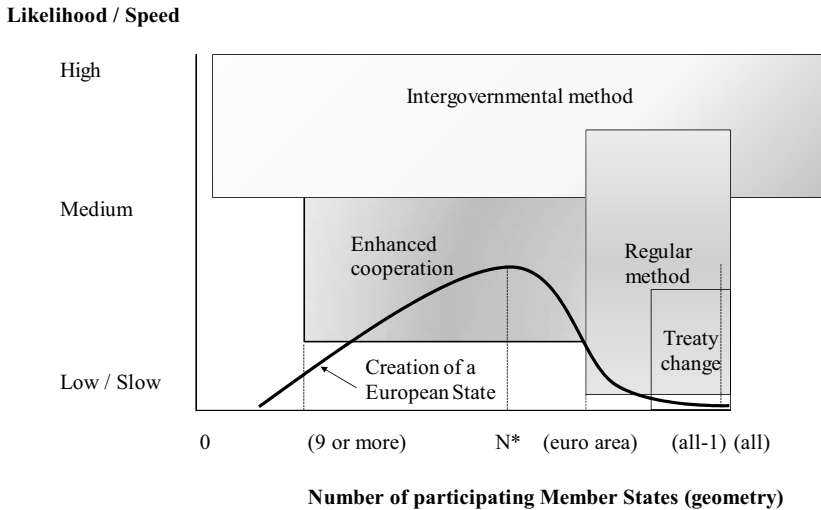
This way, any change in integration at the EU level will be achievable by using one of the following 4 decision making mechanisms: (A) intergovernmental arrangements outside the Treaties; (B) enhanced cooperation under the current Treaties; (C) the regular (legislative) method under the current Treaties; (D) reform via Treaty change. (A) can go as fast as the stroke of a pen; only applicable EU law has to be respected. (B) and (C) together form the second speed, (B) is not faster as a method compared to (C), only the change in terms of participation can accelerate the initiative at hand for those who want to participate before unanimity can be achieved at the level of the Union. (D) is the slowest speed of the Union, partly due to constitutional requirements in member states that specify how changes to the Treaties that are of a constitutional character need to be adopted. On the other hand, (D) is not constrained by applicable EU law apart from the relevant procedures for Treaty change itself.

A simple graphical representation can best show that enhanced cooperation, in its current version after the Treaty of Lisbon, has the potential to occupy an important share of the overall political space of EU decision making mechanisms (figure 1). Indeed, before enhanced cooperation became an option, there was limited ground in practical terms to talk about a multi-speed, variable-geometry model of integration.

In figure 1, the various methods available to implement economic governance in Europe are displayed. Note the flexibility of the intergovernmental method that can function with as few as 2 participants and can even extend beyond the current number of EU Member States. The main price to pay for this flexibility is the lack of enforceability of commitments taken in such a framework. Enhanced cooperation covers a large area under the intergovernmental method. The area is defined by the possible number of participants extending from 9 to (currently) 26⁴⁵. In terms of implementing speed (the proxy of the cost of cooperation in Baldwin 2008), enhanced cooperation is slower than intergovernmentalism; further, by construction, its maximum speed is *below* the maximum speed of the regular method, and its minimum speed, again by construction, is *above* the minimum speed of the regular method. Finally, changing the treaties is the most inclusive method, but certainly the slowest one. The current experience with the ratification of Article 136(3) using the simplified method of amendment suggests that 18-24 months remains a lower bound even for the simplified method. Realistically, full-blown treaty change cannot be expected to take less than 3-4 years, counting the time between its launch and the entry into force of the amended treaties.

⁴⁵ Future enlargements of the EU will shift the number upwards; the next scheduled enlargement is the accession of Croatia in July 2013.

Figure 1: Enhanced cooperation in a multiple-speed, variable-geometry policy space



In addition, for illustrative purposes I have inserted another “method” that would transcend the current framework: the creation of a European state, e.g. a European confederation or a European federation. Depending on the Constitution of such a state and applying the Baldwin-Wacziarg model to choose which countries would sign up to any such constitution, one could expect to find an optimal number of members for any particular constitutional arrangement. The line attaching a medium probability and a middle-ground number of member states is quite arbitrary with respect to N^* as the latter depends on the content of the Constitution or constitution-like framework. I have included this in figure 1 to keep in mind that any solution within the current framework must also be considered superior compared to the hypothetical alternative of ending the treaty-based cooperation and making the step towards statehood.

The intergovernmental method can function with as few as two participants, and it can, in principle, include more than all Union member states. It is without any doubt the decision making framework with the highest potential for acceleration. If necessary, a multilateral cooperation treaty can be negotiated and signed in the course of a few days. In contrast, Treaty change is the slowest implementing mechanism for reforms in the Union, and it is basically reserved to changes affecting all member states in the same way.

However, in view of the frequent opt-outs and special arrangements for some member, there is some variable-geometry element present as well even in the case of full-blown Treaty change. The regular method covers either all member states (there are opt-outs possible here as well, e.g., as a consequence of Treaty opt-

outs), or, alternatively, all euro area member states. An example for the latter are Union acts under Article 136 TFEU⁴⁶. As figure 1 nicely shows, enhanced cooperation can therefore fill an important gap in the Union's policy space. This is by definition welfare enhancing since nobody is forced to make use of it, and the enhanced cooperation instrument provides for strong safeguards against negative spill overs to non-participating members.

3.4. PUTTING ENHANCED COOPERATION TO THE TEST: THE CASE OF UNION FINANCIAL ASSISTANCE

In the following, I present a concrete example how to use enhanced cooperation in order to go towards an efficient mechanism that can handle the risks attached to sovereign debt in a monetary union with decentralized fiscal and economic policies⁴⁷. A first step consists in amending the European Financial Stability Mechanism (EFSM) with a view to using the Union budget more effectively to tackle the European sovereign debt crisis⁴⁸. From an efficiency point of view, this first step could actually represent already a first best solution. It fully uses the level of the Union as a supra-national level that has an indirect power to tax (to the extent and up to the amount it has been authorized by its member states) and can use this power to back up borrowing activity in the supra-national organizations market segment of the Eurobond market. If the first step cannot take off for political reasons, in a second step one can build on this first step and launch an initiative for enhanced cooperation. As explained in section 3.2., it is necessary to demonstrate that enhanced cooperation is requested as a last resort measure.

In a *first* step, the Union (the current 27 member states) would try to reach the first best cooperative solution where all member states participate in a risk insurance mechanism and share the costs by adopting an enhanced E(F)SM and providing the Union with sufficient callable resources to create a single crisis instrument. Hence, *step 1* is a proposal to replace the current approach of using a combination of a Union instrument (the EFSM) and a multilateral instrument of the member states, i.e., the European Financial Stability Facility (EFSF) and further on the European Stability Mechanism (ESM), by a single coherent instrument⁴⁹ of the Union pooling the power to tax of all members and being accessible

⁴⁶ The Council Decisions on the implementation of the Greek macroeconomic adjustment programme belong in this category.

⁴⁷ We refer to the Union framework in the sense of collective action within the existing Treaties as opposed to resorting to separate international agreements/treaties – the EFSF/ESM approach.

⁴⁸ Note that bond issuance under the EFSM is different from the so-called Eurobonds as discussed under the label of Stability Bonds in the Commission's Green Paper. For details we refer to the information provided on the Commission's website http://ec.europa.eu/economy_finance/eu_borrower/efsm/index_en.htm.

⁴⁹ Later on in the text, we will often use the notation E(F)SM to signal that also the current ESM could be brought within the EU framework using enhanced cooperation.

to all members. The latter would reduce overall complexity while increasing legal certainty for market participants and observers, including rating agencies.

Not long ago, such a proposal would have fallen on deaf ears in many member states. But several elements had gathered by Spring 2012 that now strengthened the case for a single financial assistance instrument for the Union. First, contagion risk had reached a regional, if not global dimension: The sovereign debt crisis was not confined to a few euro area member states anymore, but contagion has become a reality putting at risk all member states of the Union. Second, political awareness among member states may have reached a necessary critical level that would enable the Commission to go forward with the necessary legislative proposals. This element was still lacking during the first half of 2010 when the Greek Loan Facility and the European Financial Stability Facility (EFSF) were set up. The current proposal is to harmonize the EU's crisis instrument, the EFSM⁵⁰, and increase its capacity to borrow in the market and lend on to Member States with difficulties to access the market at sustainable rates. As is the case now, such on-lending would come with strict policy conditionality with a view to regain access to regular market funding at sustainable rates. Given the recent evolution of the sovereign debt crisis, a harmonized and strengthened EU crisis instrument seems justified and, as a matter of fact, necessary, as it may turn out to be the only viable approach left in the short term. It could be a game changer in a situation where some market observers have a split of the euro area as their baseline scenario.

3.4.1. Necessary legal acts in the case of unanimity

If the European Council could reach a consensus on such a proposal, a new Council Regulation would be required, doing two things: First, it would merge the current EFSM and the BoP instrument into a single crisis instrument, capable of providing financial assistance, with policy conditionality attached, to all member states, EA member states and member states with a derogation. The merger of the two instruments would increase its efficiency, since instead of having two EU budget margins, one would only have one. A more powerful version of an E(F)SM should then benefit from additional callable resources under the Union's budget of around 4-5% of EU GNI. Assuming a term structure of Union debt broadly similar to the current one, one could increase the borrowing capacity

⁵⁰ The EFSM in its current form can borrow up to EUR 60 billion and lend on to euro area MS. It has been set up along the lines of the well-established BoP instrument, but making use of a different legal base in the Treaties (Article 122(2) TFEU instead of Art. 143 TFEU for the BoP instrument which by the legal base is reserved for MS not yet having adopted the euro, i.e. MS with a derogation). Under the BoP instrument up to EUR 50 billion can be borrowed and lent on to non-euro area MS; Council Regulation (EC) 332/2002 of 18 February 2002 establishing a facility providing medium-term financial assistance for Member States' balances of payments; *O.J.L.* 53, 23.2.2002, p. 1.

under the E(F)SM to at least EUR 2,000 billion, possibly up to EUR 2,500 billion. The budget margin thus created would allow sustaining a borrowing of these amounts in the capital market, and it would not put any additional pressure on the sovereign ratings of member states. Until very recently, despite the fact that it would only create a memorandum item on the revenue side and would not translate into any increase in the budget on the expenditure side, such an increase of the Union's budget in terms of immediately callable resources would not have had any chance to obtain the necessary unanimity of member states. But, the background against which such a decision would have to be taken is radically different from the one in May 2010 when the original EFSM was set up.

Also, contrary to the EFSF/ESM construction, there would be a much smaller risk of negative feedback between the use of the instrument and the sovereign credit ratings of member states. There is no need to provide additional guarantees or cash on the side of member states as the budgeted Union expenditures would remain unchanged. Possibly, a prudent approach would be to create a reserve in national budgets that is commensurate with a reasonable likelihood of a default on an EU loan by beneficiary member state that would in turn trigger callable resources. This should be in line with a prudent risk management approach, but may not increase a lot what is already done by national debt management offices in that respect for outstanding debt at national level. As is the case already, for the broadened E(F)SM, a memorandum item would continue to be entered into the EU budget (on both revenue and expenditure side) to take care of the unlikely event that the EU could not honour its commitments on any individual EU bond and as a consequence holders of other EU bonds request immediate repayment.

In parallel with the Council Regulation on the single E(F)SM, the process to amend the Union's budgetary framework backing such an enhanced E(F)SM would be launched. This would require a new Council Decision (Article 311 TFEU) on the system of the Union's own resources increasing the ceiling from the current 1.23% of GNI to around 4-5% of GNI⁵¹. The decision would clearly specify that this is solely done in order to create a sufficiently large margin, but *not* in order to increase spending on individual policies at the EU level. The decision would be implemented, as before, by two Implementing Regulations.

One, for the increased amount of callable resources, a Regulation by the Council and the European Parliament based on Article 322 TFEU would be required as own resources of the EU are concerned. Again, since these resources have rather the role of reserves and their only function is to widen the margin under the EU budget, the Regulation would explain and further detail the special role of these additional callable resources. The Regulation would, in line with Article 322

⁵¹ It should be noted that the latest such Decision was taken in 2007, i.e., it was a political decision in an economic and political environment that was strongly different from the one the Union is facing today.

TFEU, adapt the financial rules of the EU to allow the creation of such a callable resource with a reserve motive.

Two, a Regulation by the Council and the Parliament based on Article 323 TFEU would lay down the specific rules how, in the extreme case of a risk of an EU default, e.g., triggered by serial default on behalf of beneficiary MS, callable resources could be made available sufficiently rapidly. Concretely, rapid action would be required, if the cash reserve under the EFSM is insufficient and needs to be replenished very rapidly. In practice, this event can only be imagined in the case of a total meltdown in markets for sovereign debt instruments across the entire maturity spectrum. In such a scenario, the rules of the game would change anyway, so it is more or less impossible to insure against.

An important feature of the current proposition is that a decision on a harmonized and enhanced E(F)SM *does not seem to require a change of the Treaties*, not even a limited one. There is a need for one Council Regulation, a Council Decision and two Regulations of the Council and the Parliament, all four acts are to be adopted on a proposal by the Commission.

The ruling of the German Constitutional Court on 7 September 2011 mentioned above would seem to cover such a harmonized and enhanced E(F)SM. The ruling may even be read to call for such a step. After all, the new E(F)SM would represent a less intrusive element with respect to individual rights guaranteed by the German basic law, in particular the right to vote, than the EFSF on which the ruling was pronounced. It would be a regular EU instrument with all the standard decision making procedures, audit and control and jurisprudence by the EU Court of Justice.

However, all legal acts outlined require *unanimity* for their adoption.

If the unanimity requirement can be met, the necessary acts could, in principle, be adopted in a short period of time. In principle, a new E(F)SM regulation could be adopted in a matter of weeks. The Council Decision and the two (implementing) Regulations, using the ordinary legislative procedure, would take slightly more time, but given the critical period of 2012-14 with very challenging debt redemption schedules in several member states, the Parliament would certainly make every effort to speed up procedures. Plus, by requesting the Commission to examine the feasibility of so-called Eurobonds, the Parliament has signalled already a political majority for more powerful debt instruments at the level of the Union.

Note that the proposals in this paper are different from the Eurobond in the sense of the request by the Parliament to the Commission (EC 2011). It is a proposal for an enhanced Union crisis instrument to tackle the current sovereign debt crisis with its dangerous negative feed-back loop with the under-capitalized banking sector; it is *not* a proposal for a permanent restructuring of the European

sovereign debt market. In particular, under the present proposal, there is no need for Germany, or any other member state, to change its own financing approach.

The enhanced Union instrument would come on top of existing member states' financing tools and it is restricted to conditional financing with a clear view to help beneficiary member states to regain access to capital markets at sustainable rates. Programmes under the revised E(F)SM would therefore continue to use a mix of fiscal adjustment (shrinking the gross financing needs) and structural reforms with a view to enhance the growth potential of the economy. Having a single Union instrument (possibly still complemented by IMF support) would increase transparency vis-à-vis market participants and facilitate the management and the coordination of programmes also with respect to the broader framework of EU surveillance including recent proposals by the European Commission for new regulations under Article 136 TFEU (the so-called "two-pack") forwarded to the Council of the European Union and the European Parliament on 25 November 2011.

3.4.2. Lack of unanimity as prerequisite for requesting enhanced cooperation

If, as widely expected, if the required unanimity cannot be achieved at this stage, a necessary condition would be fulfilled for a request to use enhanced cooperation with those member states ready to implement the (Commission) proposal. This would be *step 2*. Article 20(2) TEU indicates that enhanced cooperation must be reserved to be an instrument of "last resort when (the Council) has established that the objectives of such cooperation cannot be attained within a reasonable period by the Union as a whole, and provided that at least nine Member States participate in it"⁵². In the case of the unitary patent protection outlined in section 3.2., this phase took more than a decade. Clearly, in a context of crisis, a decade would not constitute the lower bound of a "reasonable time frame" as requested in the Treaty, and we may actually have gone past any such reasonable period, already.

A natural group of member states could be formed by the 23 signatory states of the EPP as they have already fulfilled the criterion on voluntary participation requested by the Coase theorem (Dixit and Olson 2000). The EPP is one of the recent examples of the Union using its third speed in order to advance more quickly. The Pact was adopted at the crisis summit of 24/25 March 2011 amidst critical discussions about the future shape of the European crisis instruments which eventually resulted in a significantly widened tool box for the EFSF and

⁵² See EU (2010), p. 28.

future ESM. Other than speed, it bears already much resemblance to a possible future enhanced cooperation, e.g. in mentioning to remain open to other member states.

Also, the EPP is in the process of being implemented by forthcoming secondary legislation (using the Union's regular speed with unanimity, but only applying at the level of euro area member states which without exception signed up to the Pact) with a view to link it with the regular EU surveillance framework. A future implementation of *step 1* and linking up with the EPP in the form of an enhanced cooperation would have imminent advantages: the use of the EU's Institutions and policy instruments would be ensured (Article 20(1) TEU). No new institution of body would need to be created.

3.4.3. Limits of using enhanced cooperation in its current form

The drawbacks of formalizing the EPP *cum* E(F)SM *cum* fiscal compact could be limited. Enhanced cooperation has to be granted by the Council (qualified majority) which should not be an issue given the necessity of exhausting the feasibility of *step 1*. It is difficult to perceive that any coalition of non-participating member states should use its entire political capital to block the others from going forward. Such a blockage may not even be legally possible and the only restriction to go forward with enhanced cooperation therefore would consist in the necessary minimum number of nine member states requesting it and the sincere demonstration that a decision involving all member states has been tried and found impracticable at least within "a reasonable time frame".

Secondly, enhanced cooperation caters for the possibility, by using Article 333 TFEU, the so-called *passerelle* (Piris 2010), to opt out from special majority rule and agree to use qualified majority voting as well as the ordinary legislative procedure instead of the special legislative procedure (which requires ratification according to national constitutional requirements). In this respect, an enhanced cooperation that makes full use of Article 333 TFEU could turn out to be superior to the current EFSF/ESM constructions also from a governance and effective decision making point of view as the latter are intrinsically constructed as consensus- or quasi-consensus-based institutions. Qualified majority voting, similar to the voting rules in the ECB, would provide the necessary flexibility and effectiveness of the enhanced cooperation. The latter could fully rely on the Commission's and the Council's respective administrative capacities and it would be fully under the jurisdiction of the European Court of Justice, creating legal certainty that market participants are craving for. Of course, the insurance function of 23 Member States would be somewhat smaller, as the UK would be expected to not

participate (if the UK was ready to go forward, the original proposal requiring unanimity would probably become feasible). On the other hand, the 23 could find it easier to agree on the ceilings that would determine the enhanced E(F)SM's firing power.

A rather logical extension would consist in the strengthening of the budgetary insurance mechanism. This would be *step 3*. Rather than providing an increased margin in the budget using enhanced cooperation, one could combine the backing of an E(F)SM with other fiscal objectives. The EPP group of Member States establishing between themselves an enhanced cooperation encompassing both the current EPP and the new E(F)SM could go further and establish a common VAT regime among themselves. This would certainly strengthen the functioning of the single market by increasing the comparability of end-user prices. In terms of the new E(F)SM, the common VAT regime could be used as follows: The common VAT continues to be collected in the Member States by the local tax administration, but at the time of its collection, it is registered as revenue under the budget of the enhanced cooperation⁵³. Thus, it provides revenue backing up debt instruments of the E(F)SM (with or without borrowing in the capital market). Using VAT this way, the firing power of an E(F)SM “plus” could lie anywhere in the region of EUR 2,000 to EUR 5,000 billion (depending on the degree of insurance against payments default of debtors vis-à-vis the enhanced cooperation budget). Since the current VAT revenues are not needed, the impact on national budgets can be kept very small. Technically speaking, it should be sufficient to keep a revolving cash buffer of the equivalent of one month of VAT revenue.

3.5. CONCLUSIONS

In this paper I have tried to examine the potential for enhanced cooperation to become an intermediate implementation mechanism for furthering the goals of the Union as laid down in the Treaties, and for testing, via a *tâtonnement*-like process, the limits of European economic and fiscal integration with regards to those overarching goals. Such a discussion aims also to appreciate the political commitment made by European HoSG in the context of the EPP, the ESM Treaty, as well as the TSCG to bring all these intergovernmental policy frameworks within the EU framework of the Treaties within a reasonable time frame. I have tried to identify the potential of this aim, but also some of the constraints. Against the background of the commitment of euro area HoSG to make more active use of enhanced cooperation, I have developed a hypothetical example for enhanced cooperation in the area of a reformed Union financial crisis mechanism.

⁵³ Technically, it would be booked for one second on the designated account under the enhanced cooperation before being re-transferred to the tax-collecting agency in the participating Member State.

I have argued that enhanced cooperation seems to respect a broad list of normative criteria that were previously identified as relevant features for constitutions to have a positive impact on economic performance. Of course, the same logic could apply to other policy areas outside these immediate economic governance frameworks. Enhanced cooperation could soften the current political budget constraint in a flexible and dynamic way, while at the same time adhering to an approach of limited Treaty change in the current Union's constrained political economy optimization exercise.

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APPENDIX: TABLE OF COMPARISON

<i>Treaty of Amsterdam</i> (EU 1997)	<i>Treaty of Nice</i> (EU 2001)	<i>Treaty of Lisbon</i> (EU 2010)
<p>Article 11 TEC</p> <p>1. Member States which intend to establish <i>enhanced cooperation</i> between themselves in one of the areas referred to in this Treaty shall address a request to the Commission, which may submit a proposal to the Council to that effect. In the event of the Commission not submitting a proposal, it shall inform the Member States concerned of the reasons for not doing so.</p> <p>2. Authorisation to establish enhanced cooperation as referred to in paragraph 1 shall be granted, in compliance with Articles 43 to 45 of the Treaty on European Union, by the Council, <i>acting by a qualified majority on a proposal from the Commission</i> and after consulting the European Parliament. When enhanced cooperation relates to an area covered by the procedure referred to in Article 251 of this Treaty, the assent of the European Parliament shall be required.</p> <p><i>A member of the Council may request that the matter be referred to the European Council. After that matter has been raised before the European Council, the Council may act in accordance with the first subparagraph of this paragraph.</i></p> <p>3. The acts and decisions necessary for the implementation of enhanced cooperation activities shall be subject to all the relevant provisions of this Treaty, save as otherwise provided in this Article and in Articles 43 to 45 of the Treaty on European Union.</p> <p>Article 11a TEC</p> <p>Any Member State which wishes to participate in enhanced cooperation established in accordance with Article 11 shall notify its intention to the Council and to the Commission, which shall give an opinion to the Council within three months of the date of receipt of that notification. Within four months of the date of receipt of that notification, the Commission shall take a decision on it, and on such specific arrangements as it may deem necessary.</p>	<p>Article 20 TEU</p> <p>1. Member States which wish to establish <i>enhanced cooperation</i> between themselves within the framework of the Union's non-exclusive competences may make use of its institutions and exercise those competences by applying the relevant provisions of the Treaties, subject to the limits and in accordance with the detailed arrangements laid down in this Article and in Articles 326 to 334 of the Treaty on the Functioning of the European Union.</p> <p>Enhanced cooperation shall aim to further the objectives of the Union, protect its interests and reinforce its integration process. Such cooperation shall be open at any time to all Member States, in accordance with Article 528 of the Treaty on the Functioning of the European Union.</p> <p>2. The decision authorising enhanced cooperation shall be adopted by the Council as a <i>last resort</i>, when it has established that the objectives of such cooperation cannot be attained within a reasonable period by the Union as a whole, and provided that <i>at least nine Member States</i> participate in it. The Council shall act in accordance with the procedure laid down in Article 329 of the Treaty on the Functioning of the European Union.</p> <p>3. All members of the Council may participate in its deliberations, but only members of the Council representing the Member States participating in enhanced cooperation shall take part in the vote. The voting rules are set out in Article 330 of the Treaty on the Functioning of the European Union.</p> <p>4. Acts adopted in the framework of enhanced cooperation shall bind only participating Member States. They shall not be regarded as part of the acquis which has to be accepted by candidate States for</p>	<p>TITLE IV (TEU)</p> <p>PROVISIONS ON ENHANCED COOPERATION <i>(ex Articles 27a to 27c, 40 to 40b, and 43 to 45 TEU and ex Articles 11 and 11a TEC)</i></p> <p>Article 20 TEU</p> <p>1. Member States which wish to establish <i>enhanced cooperation</i> between themselves within the framework of the Union's non-exclusive competences may make use of its institutions and exercise those competences by applying the relevant provisions of the Treaties, subject to the limits and in accordance with the detailed arrangements laid down in this Article and in Articles 326 to 334 of the Treaty on the Functioning of the European Union.</p> <p>Enhanced cooperation shall aim to further the objectives of the Union, protect its interests and reinforce its integration process. Such cooperation shall be open at any time to all Member States, in accordance with Article 528 of the Treaty on the Functioning of the European Union.</p> <p>2. The decision authorising enhanced cooperation shall be adopted by the Council as a <i>last resort</i>, when it has established that the objectives of such cooperation cannot be attained within a reasonable period by the Union as a whole, and provided that <i>at least nine Member States</i> participate in it. The Council shall act in accordance with the procedure laid down in Article 329 of the Treaty on the Functioning of the European Union.</p> <p>3. All members of the Council may participate in its deliberations, but only members of the Council representing the Member States participating in enhanced cooperation shall take part in the vote. The voting rules are set out in Article 330 of the Treaty on the Functioning of the European Union.</p> <p>4. Acts adopted in the framework of enhanced cooperation shall bind only participating Member States. They shall not be regarded as part of the acquis which has to be accepted by candidate States for</p>

<p>Article 40 TEU</p> <p>1. Member States which intend to establish <i>closer cooperation</i> between themselves may be authorised, subject to Articles 43 and 44, to make use of the institutions, procedures and mechanisms laid down by the Treaties provided that the cooperation proposed:</p> <p>(a) respects the powers of the European Community, and the objectives laid down by this Title;</p> <p>(b) has the aim of enabling the Union to develop more rapidly into an area of freedom, security and justice.</p>	<p><i>Article 40 shall be replaced by the following: Articles 40, 40a and 40b.</i></p> <p>"Article 40 TEU</p> <p>1. Enhanced cooperation in any of the areas referred to in this Title shall have the aim of enabling the Union to develop more rapidly into an area of freedom, security and justice, while respecting the powers of the European Community and the objectives laid down in this Title.</p> <p>2. Articles 29 to 39 and Articles 40a to 41 shall apply to the enhanced cooperation provided for by this Article, save as otherwise provided in Article 40a and in Articles 43 to 45.</p> <p>3. The provisions of the Treaty establishing the European Community concerning the powers of the Court of Justice and the exercise of those powers shall apply to this Article and to Articles 40a and 40b.</p> <p>Article 40a TEU</p> <p>1. Member States which intend to establish <i>enhanced cooperation</i> between themselves under Article 40 shall address a <i>request</i> to the Commission, which may submit a <i>proposal</i> to the Council to that effect. In the event of the Commission not submitting a proposal, it shall inform the Member States concerned of the reasons for not doing so. Those Member States may then submit an <i>initiative</i> to the Council designed to obtain authorisation for the enhanced cooperation concerned.</p> <p>2. The authorisation referred to in paragraph 1 shall be granted, in compliance with Articles 43 to 45, by the Council, acting by a qualified majority, on a <i>proposal</i> from the Commission <i>or</i> on the <i>initiative</i> of at least eight Member States, and after consulting the European Parliament. The votes of the members of the Council shall be weighted in accordance with Article 205(2) of the Treaty establishing the European Community.</p> <p><i>A member of the Council may request that the matter be referred to the European Council. After that matter has been raised before the European Council, the Council may act in accordance with the first subparagraph of this paragraph.</i></p>	<p>accession to the Union.</p> <p>TITLE III (TFEU)</p> <p>ENHANCED COOPERATION</p> <p><i>(ex Articles 27a to 27c, 40 to 40b and 43 to 45 TEU and ex Articles 11 and 11a TEC)</i></p> <p>Article 326 TFEU</p> <p>Any enhanced cooperation shall comply with the Treaties and Union law.</p> <p>Such cooperation shall not undermine the internal market or economic, social and territorial cohesion. It shall not constitute a barrier to or discrimination in trade between Member States, nor shall it distort competition between them.</p> <p>Article 327 TFEU</p> <p>Any enhanced cooperation shall respect the competences, rights and obligations of those Member States which do not participate in it. Those Member States shall not impede its implementation by the participating Member States.</p> <p>Article 328 TFEU</p> <p>1. When enhanced cooperation is being established, it shall be open to all Member States, subject to compliance with any conditions of participation laid down by the authorising decision. It shall also be open to them at any other time, subject to compliance with the acts already adopted within that framework, in addition to those conditions. The Commission and the Member States participating in enhanced cooperation shall ensure that they promote participation by as many Member States as possible.</p> <p>2. The Commission and, where appropriate, the High Representative of the Union for Foreign Affairs and Security Policy shall keep the European Parliament and the Council regularly informed regarding developments in enhanced cooperation.</p> <p>Article 329 TFEU</p> <p>1. Member States which wish to establish enhanced cooperation between themselves in one of the areas covered by the Treaties, with the exception of fields of exclusive competence and the common</p>
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<p>present its opinion; the request shall also be forwarded to the European Parliament.</p> <p><i>If a member of the Council declares that, for important and stated reasons of national policy, it intends to oppose the granting of an authorisation by qualified majority, a vote shall not be taken. The Council may, acting by a qualified majority, request that the matter be referred to the European Council for decision by unanimity.</i></p> <p>The votes of the members of the Council shall be weighted in accordance with Article 205(2) of the Treaty establishing the European Community. For their adoption, decisions shall require at least 62 votes in favour, cast by at least 10 members.</p>	<p>Article 40b TEU</p> <p>Any Member State which wishes to participate in enhanced cooperation established in accordance with Article 40a shall notify its intention to the Council and to the Commission, which shall give an opinion to the Council within three months of the date of receipt of that notification, possibly accompanied by a recommendation for such specific arrangements as it may deem necessary for that Member State to become a party to the cooperation in question. Within four months of the date of that notification, the Council shall decide on the request and on such specific arrangements as it may deem necessary. The decision shall be deemed to be taken unless the Council, acting by a qualified majority, decides to hold it in abeyance; in that case, the Council shall state the reasons for its decision and set a deadline for re-examining it. For the purposes of this paragraph, the Council shall act under the conditions set out in Article 44.</p> <p>4. The provisions of Articles 29 to 41 shall apply to the closer cooperation provided for by this Article, save as otherwise provided for in this Article and in Articles 43 and 44.</p> <p>The provisions of the Treaty establishing the European Community concerning the powers of the Court of Justice of the European Communities and the exercise of those powers shall apply to</p>	<p>foreign and security policy, shall address a request to the Commission, specifying the scope and objectives of the enhanced cooperation proposed. The Commission may submit a proposal to the Council to that effect. In the event of the Commission not submitting a proposal, it shall inform the Member States concerned of the reasons for not doing so. Authorisation to proceed with the enhanced cooperation referred to in the first subparagraph shall be granted by the Council, on a proposal from the Commission and after obtaining the consent of the European Parliament.</p> <p><i>(para 2 concerns CFSP)</i></p> <p>Article 330 TFEU</p> <p>All members of the Council may participate in its deliberations, but only members of the Council representing the Member States participating in enhanced cooperation shall take part in the vote. Unanimity shall be constituted by the votes of the representatives of the participating Member States only. A qualified majority shall be defined in accordance with Article 238(3).</p> <p>Article 331 TFEU</p> <p>1. Any Member State which wishes to participate in enhanced cooperation in progress in one of the areas referred to in Article 329(1) shall notify its intention to the Council and the Commission. The Commission shall, within four months of the date of receipt of the notification, confirm the participation of the Member State concerned. It shall note where necessary that the conditions of participation have been fulfilled and shall adopt any transitional measures necessary with regard to the application of the acts already adopted within the framework of enhanced cooperation. However, if the Commission considers that the conditions of participation have not been fulfilled, it shall indicate the arrangements to be adopted to fulfil those conditions and shall set a deadline for re-examining the request. On the expiry of that deadline, it shall re-examine the request, in accordance with the procedure set out in the second subparagraph. If the Commission considers that the conditions of participation have still not been met, the Member State concerned may refer the matter to the Council, which shall decide on the request. The Council shall act in accordance with Article 330. It may also adopt the transitional measures referred to in the second subparagraph on a proposal from the Commission.</p>
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<p>paragraphs 1., 2 and 3.</p> <p>5. This Article is without prejudice to the provisions of the Protocol integrating the Schengen acquis into the framework of the European Union.</p> <p>TITLE VII PROVISIONS ON <i>CLOSER COOPERATION</i></p> <p>Article 43 TEU</p> <p>1. Member States which intend to establish closer cooperation between themselves may make use of the institutions, procedures and mechanisms laid down by this Treaty and the Treaty establishing the European Community provided that the cooperation:</p> <ul style="list-style-type: none"> (a) is aimed at furthering the objectives of the Union and at proceeding and serving its interests; (b) respects the principles of the said Treaties and the single institutional framework of the Union; (c) is only used as a last resort, where the objectives of the said Treaties could not be attained by applying the relevant procedures laid down therein; (d) concerns at least a majority of Member States; (e) does not affect the 'acquis communautaire' and the measures adopted under the other provisions of the said Treaties; (f) does not affect the competences, rights, obligations and interests of those Member States which do not participate therein; (g) is open to all Member States and allows them to become parties to the cooperation at any time, provided that they comply with the basic decision and with the decisions taken within that framework; (h) complies with the specific additional criteria laid down in Article 11 of the Treaty establishing the European Community and Article 40 of this Treaty, depending on the area concerned, and is authorised by the Council in accordance with the procedures laid down therein. <p>2. Member States shall apply, as far as they are concerned, the acts and decisions adopted for the implementation of the cooperation in which they participate. Member States not participating in such cooperation shall not impede the implementation thereof by the participating Member States.</p>	<p>The heading of Title VII shall be replaced by the following: "Provisions on enhanced cooperation".</p> <p>Article 43 shall be replaced by the following: "Article 43 TEU</p> <p>Member States which intend to establish enhanced cooperation between themselves may make use of the institutions, procedures and mechanisms laid down by this Treaty and by the Treaty establishing the European Community provided that the proposed cooperation:</p> <ul style="list-style-type: none"> (a) is aimed at furthering the objectives of the Union and of the Community, at protecting and serving their interests and at reinforcing their process of integration; (b) respects the said Treaties and the single institutional framework of the Union; (c) respects the <i>acquis communautaire</i> and the measures adopted under the other provisions of the said Treaties; (d) remains within the limits of the powers of the Union or of the Community and does not concern the areas which fall within the exclusive competence of the Community; (e) does not undermine the internal market as defined in Article 14(2) of the Treaty establishing the European Community, or the economic and social cohesion established in accordance with Title XVII of that Treaty; (f) does not constitute a barrier to or discrimination in trade between the Member States and does not distort competition between them; (g) involves a minimum of <i>eight</i> Member States; (h) respects the competences, rights and obligations of those Member States which do not participate therein; (i) does not affect the provisions of the Protocol integrating the Schengen acquis into the framework of the European Union; (j) is <i>open to all the Member States</i>, in accordance with Article 	<p><i>(para 2 concerns CFSP)</i></p> <p>Article 332 TFEU</p> <p>Expenditure resulting from implementation of enhanced cooperation, other than administrative costs entailed for the institutions, shall be borne by the participating Member States, unless all members of the Council, acting unanimously after consulting the European Parliament, decide otherwise.</p> <p>Article 333 TFEU</p> <p>1. Where a provision of the Treaties which may be applied in the context of enhanced cooperation stipulates that the Council shall act unanimously, the Council, acting unanimously in accordance with the arrangements laid down in Article 330, may adopt a decision stipulating that it will act by a qualified majority.</p> <p>2. Where a provision of the Treaties which may be applied in the context of enhanced cooperation stipulates that the Council shall adopt acts under a special legislative procedure, the Council, acting unanimously in accordance with the arrangements laid down in Article 330, may adopt a decision stipulating that it will act under the ordinary legislative procedure. The Council shall act after consulting the European Parliament.</p> <p>3. Paragraphs 1 and 2 shall not apply to decisions having military or defence implications.</p>
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<p>Article 44 TEU</p> <p>1. For the purposes of the adoption of the acts and decisions necessary for the implementation of the cooperation referred to in Article 43, the relevant institutional provisions of this Treaty and of the Treaty establishing the European Community shall apply. However, while all members of the Council shall be able to take part in the deliberations, only those representing participating Member States shall take part in the adoption of decisions. The qualified majority shall be defined as the same proportion of the weighted votes of the members of the Council concerned as laid down in Article 205(2) of the Treaty establishing the European Community. Unanimity shall be constituted by only those Council members concerned.</p>	<p>43b."</p> <p><i>The following Articles shall be inserted:</i></p> <p>Article 43a TEU</p> <p>Enhanced cooperation may be undertaken only as a last resort, when it has been established within the Council that the objectives of such cooperation cannot be attained within a reasonable period by applying the relevant provisions of the Treaties.</p> <p>Article 43b TEU</p> <p>When enhanced cooperation is being established, it shall be open to all Member States. It shall also be open to them at any time, in accordance with Articles 27c and 40b of this Treaty and with Article 11a of the Treaty establishing the European Community, subject to compliance with the basic decision and with the decisions taken within that framework. The Commission and the Member States participating in enhanced cooperation shall ensure that as many Member States as possible are encouraged to take part."</p> <p><i>Article 44 shall be replaced by the following Articles 44 and 44a:</i></p> <p>Article 44 TEU</p> <p>1. For the purposes of the adoption of the acts and decisions necessary for the implementation of enhanced cooperation referred to in Article 43, the relevant institutional provisions of this Treaty and of the Treaty establishing the European Community shall apply. However, while all members of the Council shall be able to take part in the deliberations, only those representing Member States participating in enhanced cooperation shall take part in the adoption of decisions. The qualified majority shall be defined as the same proportion of the weighted votes and the same proportion of the number of the Council members concerned as laid down in Article 205(2) of the Treaty establishing the European Community, and in the second and third subparagraphs of Article 23(2) of this Treaty, as regards enhanced cooperation established on the basis of Article 27c. Unanimity shall be constituted by only those Council members concerned.</p> <p>Such acts and decisions shall not form part of the Union acquis.</p> <p>2. Member States shall apply, as far as they are concerned, the acts</p>	
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<p>2. <i>Expenditure resulting from implementation of the cooperation, other than administrative costs entailed for the institutions, shall be borne by the participating Member States, unless the Council, acting unanimously, decides otherwise.</i></p> <p>Article 45 TEU The Council and the Commission shall regularly inform the European Parliament of the development of closer cooperation established on the basis of this Title.</p>	<p>and decisions adopted for the implementation of the enhanced cooperation in which they participate. Such acts and decisions shall be binding only on those Member States which participate in such cooperation and, as appropriate, shall be directly applicable only in those States. <i>Member States which do not participate in such cooperation shall not impede the implementation thereof by the participating Member States.</i></p> <p>Article 44a TEU <i>Expenditure resulting from implementation of enhanced cooperation, other than administrative costs entailed for the institutions, shall be borne by the participating Member States, unless all members of the Council, acting unanimously after consulting the European Parliament, decide otherwise."</i></p> <p><i>Article 45 shall be replaced by the following:</i> Article 45 TEU The Council and the Commission shall ensure the consistency of activities undertaken on the basis of this Title and the consistency of such activities with the policies of the Union and the Community, and shall cooperate to that end."</p>	<p>Article 334 TFEU The Council and the Commission shall ensure the consistency of activities undertaken in the context of enhanced cooperation and the consistency of such activities with the policies of the Union, and shall cooperate to that end.</p>
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4. THE NEW EU FRAMEWORK FOR FISCAL SURVEILLANCE: HARD POLICY COORDINATION IN THE SHADOW OF THE CRISIS

*Stavros Vourloumis*¹

Abstract

The ongoing sovereign debt crisis in the Eurozone has exposed a series of flaws in the architecture for economic governance and the way fiscal policy has been conducted both at the EU and Member State levels. The unsustainability of public finances of several Member States launched an institutional debate on the necessary changes that have to be implemented in the framework for EU Economic Governance, in order to remedy the flaws of the pre-existing institutional arrangements and policy content, and to restore sustainability and efficiency. The policy-makers have responded by introducing changes and reforms such as the Economic Governance Six-Pack, the European Semester and the Fiscal Compact. This article provides an early assessment of these changes and examines whether they represent a move towards more “hard” coordination in EU fiscal policy.

Keywords: Fiscal Policy Coordination, Stability and Growth Pact, European Semester, Economic Governance Six-Pack, Fiscal Compact

4.1. INTRODUCTION

The global financial crisis that erupted in the summer of 2007, triggered by the collapse of the housing market in the United States, hit severely the global markets and, in the Eurozone area, morphed into a sovereign debt crisis. The unsustainability of public finances in several Member States, along with the negative growth rates caused by the crisis and the need for governments to inject significant amounts of capital into both the financial sector and the real economy, created a vicious cycle. This has been described by Paul De Grauwe (2011, 2012) as multiple equilibria: market participants worry about what could happen if other market participants are worried, creating thus a self-fulfilling prophecy.

The sovereign debt crisis has exposed a series of flaws and loopholes in the architecture for economic governance of the Eurozone, the most important of which being: a) the combination of centralized monetary policy, conducted by the European Central Bank (hence, the ECB) and decentralized fiscal policy, con-

¹ This is a paper presented at the Colloquium session “Fiscal Policy Coordination in the EU”. I would like to thank the Chairman of the Session, Professor Morten Balling, the other presenting authors and all the attendants for their comments, which aided me in improving my methodology and analysis.

ducted by national fiscal authorities at the Member State level, a structure that creates a bias towards large fiscal deficits and rising debt levels (Feldstein, 2005), and b) the tension between the intergovernmental and the community method in the decision-making processes (Tabellini, 2003).

The Stability and Growth Pact (SGP) was introduced in order to achieve a minimum level of coordination between fiscal policies of the Member States and convergence in certain numerical rules for public finances, but it further complicated the situation. Although it was intended, through the introduction of the SGP, to direct fiscal policies designed at the Member State level towards certain directions, there was no way for the Eurozone authorities to enforce policy measures and bypass national sovereignty over fiscal policy decisions. The reform of the SGP in 2005 only led to its institutional weakening, setting the stage for the current crisis.

As the crisis was developing, a wider debate was launched on how economic governance within the Eurozone should be reformed. The key question concerned whether the Eurozone should develop into a fiscal union, with delegation of authority over fiscal policy-making to the EU level, or whether a series of reforms in the institutional structure and policy content would be enough to restore stability and confidence. A series of reforms and new structures and instruments have been adopted in order to enhance economic and fiscal governance and to strengthen fiscal policy coordination: the Economic Governance Six-Pack (a legislative package of six acts that would strengthen financial and economic surveillance), the European Semester (a governance architecture for better coordination and surveillance over fiscal and budgetary matters) and the Fiscal Compact (an intergovernmental instrument that would strengthen fiscal policy coordination and budgetary discipline), along with the Euro Plus Pact (focusing more on competitiveness and employment issues).

This article attempts an early assessment of the new framework for fiscal policy coordination and surveillance in the Eurozone, focusing particularly on whether the changes and reforms represent a move towards “harder” fiscal policy coordination the move from “soft” towards “hard” coordination in the area of fiscal policy and surveillance. The research is topic is in a currently developing and shaping area and has attracted the interest of academics, policymakers, private sector actors, politicians, journalists, and also of the wider public. Any account, therefore, of the topic is both academically interesting and policy relevant.

In the next sections, the main reasons for fiscal policy coordination in a monetary union will be presented, along with a brief overview of the relevant literature, before discussing the pre-crisis status and the crisis-induced changes and reforms in the fiscal policy framework of the Eurozone and addressing the aforementioned research questions.

4.2. FISCAL POLICY COORDINATION IN A MONETARY UNION

When a country joins a monetary or currency union, it gives up one of its two macroeconomic instruments, monetary policy, and retains control of the other, fiscal policy. Fiscal policy should then be used to deal with asymmetric shocks and to stabilize output and employment fluctuations, Kenen (1969) suggested that in an optimal currency area (a currency or monetary union that fulfills the requirements of the OCA) fiscal policy and budgetary surveillance ought to be centralized, in order to use fiscal transfers to deal with asymmetric shocks. If the centralized design and implementation of fiscal policies is not possible, then they should be conducted at the national level with discretion. In their seminal article, Kydland and Prescott (1977) supported that coordination in economic policy is a solution to the time inconsistency problem and enhances credibility. Rogoff (1985), on the other hand, opposed to coordination of macroeconomic policies, warning that a binding commitment to certain policies would create incentives for independent central banks at the national level to deviate from their commitment to price stability.

Coordination of fiscal policies in a monetary/currency union or other type of interconnected economies is also necessary due to the existence of fiscal policy externalities and spillovers between countries through multiple channels, such as income and spending, inflation, borrowing costs and financial distress. A potential source of negative externalities is the default of a country that would undermine the credibility of the entire union. The arguments concerning the fiscal policy externalities have received criticism on two areas (Buiter & Kletzer 1990, von Hagen 1991): a) the efficiency of capital markets, leading to differential pricing of the default risk for the different Member States of a monetary/currency union, and b) the difficulties in establishing fiscal rules that would act as constraints in fiscal and budgetary policy decisions (Wyplosz 2005, 2012).

A research question that has attracted the interest of researchers and produced a significant amount of research work has been whether a monetary union enhances or weakens fiscal discipline within it (for an overview of the up to then literature see Wyplosz 1991). Deficit bias, the tendency of national fiscal authorities to create larger deficits, is a factor that leads to lesser fiscal discipline within a monetary union, although the latter usually has inherent mechanisms that achieve a minimum level of discipline (Buti *et al.* 2002). A factor that countervails the deficit bias in a monetary union is the delegation of authorities over monetary policy that constraints governments in adjusting the circulation of money to finance budget deficits and increase public spending (Alesina and Tabellini 1987).

The issue of fiscal policy coordination in a monetary union has been studied both theoretically and empirically, leading to mixed results. Beetsma and Bovenberg (1998) showed that fiscal policy coordination strengthens the position of the fiscal authorities against the monetary authority (independent central bank) and tends to undermine the discipline on monetary targets, resulting in higher inflation. Beetsma *et al.* (2001) concluded that when shocks hit interconnected economies, fiscal policy coordination tends to decrease the overall welfare and is, therefore, counter-productive. Dixit and Lambertini (2003) supported that fiscal coordination is not necessary to achieve the goals of output and inflation in a monetary union, and that centralized monetary policy and decentralized fiscal policies suffice if there is agreement on the targets for both inflation and output. Ferré (2005) showed that fiscal coordination may produce higher volatility of interest rates and deficits in the Member States of a monetary union, than non-coordination. Uhlig (2003), using a symmetric game-theoretic model with n -countries, concluded that a cooperative equilibrium between all fiscal authorities is a beneficial outcome for all of them and advocated for independent authorities and fiscal rules, in order to constraint free-riding.

Lombardo and Sutherland (2004) showed that when country-specific shocks are negatively correlated fiscal coordination is productive, and an appropriate mix of monetary and fiscal policy instruments can deliver optimal results. Von Hagen and Mundschenk (2003) introduced in their analysis the temporal dimension, arguing that, although in the long run there is little need for coordination, in the short term the coordination of fiscal authorities produces substantial gains, which are more significant if all authorities commit to particular targets. Beetsma and Jensen (2005) developed a two-country monetary union model (following the New Keynesian theory), where national fiscal authorities use public spending to stabilize the economy, supporting that fiscal coordination's advantages do not diminish in importance when there is a decrease in the correlation of shocks. On the other hand, they argued that, from a welfare point of view, the coordination of fiscal policies, through commitment to a specific target, can lead to welfare losses equivalent to a permanent reduction in consumption (estimated at the order of 0.5 to 1%), proposing that national governments ought to be active in using stabilization policy instruments in such situations.

Lambertini and Rovelli (2001) developed a theoretical framework for the relations between monetary and fiscal policies in the particular context of the Economic and Monetary Union of the European Union (EMU). A Central Bank is bearing the mandate to achieve price stability and is in its interests that the national fiscal authorities cooperate in achieving a set of targets, including the stabilization of output, with respect to the monetary policy targets. Engwerda *et al.* (2009) extended the New-Keynesian literature, proposing a model of monetary union similar to the EMU, and suggested that partial cooperation of fiscal

authorities are counter-productive in the cases of symmetric and asymmetric shocks, being however a viable alternative for stabilization if political obstacles are surpassed.

4.3. FISCAL POLICY COORDINATION AND SURVEILLANCE IN THE EUROZONE

The roots of the Stability and Growth Pact can be found in the fiscal criteria set by the Treaty of Maastricht (1992). The fiscal pillar of the Maastricht Treaty intended to bridge the gap between exchange rate stability and macroeconomic policy coordination, that was inherent to the EMU Project since the Werner Plan (1969, see Simoni Talani 2008). The German side was not convinced that the Treaty could correct the deficit and debt biases of the majority of EMU Member-States, and proposed a complete legal instrument to enhance fiscal prudence and enforce the Maastricht rules properly. After extensive negotiations between the Commission and Member States, the Stability and Growth Pact was finally adopted by the European Council, during its summit in Amsterdam in June 1997 (for one of the seminal contributions in the debate surrounding the genesis of the GDP see Eichengreen and Wyplosz 1998, for rich account of the negotiations that led to the SGP and its various aspects see Brunila, Buti and Franco 2001, and for political narrative and analysis see Heipertz and Verdun 2010).

The content of the first version of the SGP was built around the provisions of the Articles 99 and 104 of the Maastricht Treaty and of the Protocol on the Excessive Deficits Procedure, including ceilings on general government deficits of 3 percent of GDP and on government debts of 60 percent of GDP. It was put into practice through the adoption of two Council Regulations: Regulation 1466/97 “on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies” (the preventive arm of the SGP) and Regulation 1467/97 “on speeding up and clarifying the implementation of the excessive deficit procedure” (the corrective arm of the SGP). Member-States should submit annual stability and convergence programmes, representing their medium-term objectives (MTO) in terms of budgetary/fiscal and economic policies that should lead to a budget “close to balance or in surplus”. The preventive arm of the SGP included multilateral surveillance and peer pressure in order to make Member-States comply with the aforementioned rules. In the case of deviations, the corrective arm would be activated, including more formal procedures and detailed measures a Member-State should implement in order to bring its deficit in the required level, and if it still failed to comply the Council would impose a financial sanction of a non-interest-bearing deposit, that would be converted into a fine in the event of continuing non-compliance after two years.

On the academic and policy debate between fiscal rules and independent fiscal institutions (see Wyplosz 2005 for an overview of the debate), the EMU stood on the side of the first option, as it was considered that rules could balance between discipline and flexibility (Beetsma 2001). In other words, this choice would help in binding at some degree the governments' hands from increasing deficits and debt with maintaining a level of sovereignty in national fiscal and economic policy decisions (von Hagen and Wyplosz 2010).

The first years of the SGP coincided with the introduction of the common currency, leading to unintended consequences as the efforts of Member-States to achieve sound public finances were relaxed, as nominal budget balances improved and created the perception that fiscal positions were also improving (Catenaro and Morris 2008, p. 25). There was already criticism for the SGP that, instead of promoting fiscal discipline, it could not prevent the deterioration of public finances. But the moment of truth came after 2002, starting with the rejection of the Council to recommendations made by the Commission for activating the Excessive Deficit Procedure (hence, EDP) for Germany and Portugal, while at the same time France was exceeding the 3% deficit threshold. A series of negotiations and political struggles began, including Germany and France, the Commission and the other Member-States, leading to the Council of end-November 2003 opposing the Commission recommendations for Germany and France and suspending the EDPs for the two countries (a detailed analysis of the events that led to the November 2003 SGP crisis is included in Heipertz and Verdun 2010, see also Bini Smaghi 2004). Although the SGP was considered then "dead", the markets did not react negatively towards the common currency, not questioning therefore the credibility of the currency and the future of the EMU judging from the failure of fiscal policy coordination within the EMU (Leblond, 2005).

The crisis continued with the Commission bringing the decisions made by the Council before the European Court of Justice, the decision of the latter being satisfying for both the Commission and the Council and declaring the need for reform in the SGP. There was already a rich body of literature calling for reforms in the SGP (see, among others, Begg and Schelkle 2004, Blanchard and Giavazzi 2004, Buiters and Grafe 2002, Buti *et al.* 2003 and Hodson 2004, Pisani-Ferry 2002, see also Fischer *et al.* 2006 for an overview of the various proposals made). The 2005 revision of the SGP, adopted in June 2005, attempted to make the framework more flexible and less rigid, in order to take the economic circumstances into consideration. Some of the new elements introduced in the SGP were the definition of Medium-Term Objectives on a cyclically-adjusted basis and taking into consideration country-specific factors (potential growth, level of debt, implementation of Lisbon Agenda reforms etc.) and the extension of the deadlines for taking action after a Council recommendation and for correcting the excessive deficit. In addition, emphasis was placed in debt and sustainability,

asking from the Member-States to approach the Treaty-required debt/GDP ratio. According to some assessments, the reformed SGP was introducing a new balance between rules and discretion (Deroose and Langedijk 2005), but others concluded that the revision made the rules more flexible and did not address the lack of proper enforcement mechanisms, making the overall framework insufficient (Calmfors 2005, Feldstein 2005, Kostoris and Padoa Schioppa 2006). As Baldwin and Wyplosz argue phrased it “the SGP was reformed in 2005 but without resolving the logical conflict that lies at its heart (the conflict between the high collective need for fiscal cooperation and the lack of willing from the Member States to delegate fiscal policy decision making)” (2012, pp. 484).

Under the revised SGP, little progress was made towards more sound public finances and lesser deficits. The Stability and Convergence Programmes and the Medium-Target Objectives submitted by the Member-States in 2006, the first year after the reform, were all seem to be consistent with the requirements. Also consistent with the requirements were the adjustment programmes presented to the Commission and adopted by the countries deviating from the required deficit and debt levels. Despite that, growth in the overall Euro area was rising and improved, at least nominally, the public finances. The flexibility of the revised SGP was considered to give to the Member-States additional space for achieving deficit and debt targets in an overall economic environment more favorable for the European countries than that of the years prior to the SGP crisis and its subsequent reform. But the reality was more complicated: deficits in the majority of the EMU Member-States were above the 3% threshold or continuously increasing (as shown in figure 1), showcasing that fiscal discipline was still missing from the EMU. In addition, the EDP was launched for Italy and Portugal, while at the same time there was evidence that Greece (for which the EDP was launched in 2004) would not manage to correct its excessive deficit in the given deadline (an overview of the EDPs launched since the adoption of the first version of the SGP for all Euro Area Member-States can be found in table 1). And although the experience of using both the preventive and corrective arms of the revised Pact was considered as a positive one, the state of fiscal discipline was worsening in the years leading to the crisis.

Figure 1: GRAPHIC Annual Government Surplus/Deficit for the Eurozone Member/States, period 1999-2011, Source: Eurostat

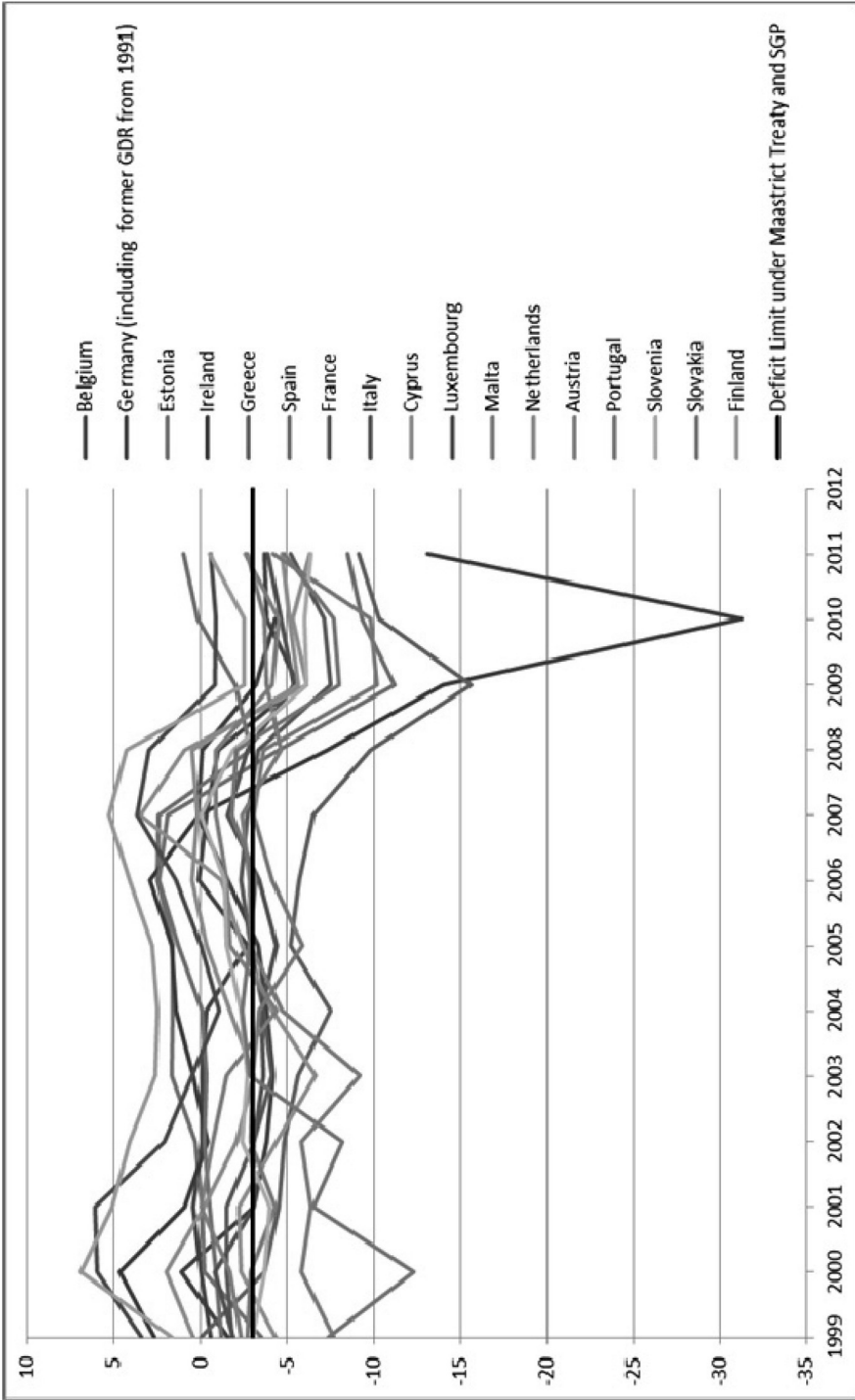


Table : Excessive Deficit Procedures in Eurozone Member States since 1999, adopted by Baldwin & Wyplosz (2012), pp. 486

Austria	2009		
Belgium	2009		
Cyprus	2010		
France	2003	2009	
Germany	2003	2009	
Greece	2004	2009	
Ireland	2009		
Italy	2004	2005	2009
Malta	2009		
Netherlands	2004	2009	
Portugal	2002	2005	2009
Slovakia	2009		
Slovenia	2009		
Spain	2009		

Source: http://ec.europa.eu/economy_finance/sgp/deficit/index_en.htm.

4.4. CRISIS AND THE NEW FRAMEWORK

During the first weeks after the fall of Lehman Brothers, Euro Area leaders and policymakers were declaring that the Area, the common currency and, as a consequence, the national economies are shielded from the market turbulence, adding that the crisis could be a unique opportunity for the euro to emerge stronger within the international monetary landscape. Soon enough, European systemically important banks such as the Belgium-Dutch bank Fortis and the Irish banks Allied Irish Bank and Bank of Ireland started encountering severe liquidity and capitalization problems. Despite statements that the European banks would not be saved by capital injections from their home-country governments, Fortis was partially nationalized and the two Irish banks were bailed out with a sum of EUR 3,5 billion, while several other countries decided to support financially their banking systems. The result was the further deterioration of public finances.

It was a matter of time before the banking crisis turns into a sovereign debt crisis, and the lack of fiscal and budgetary discipline was one the causes. The Stability and Growth Pact, even after the revision that intended to make it more efficient, had failed on preserving sound public finances and did not stand up even to the more modest of expectation of EMU policymakers (see for example Brunila, Buti and Franco (2001) and Buti, Eijffinger and Franco (2003)). Criticisms, such these made by Willem Buiters supporting that the SGP is not an “operational and even

minimally effective supranational mechanism for encouraging fiscal-financial sustainability and macroeconomic stability either at the level of the nation state or at the level of the EMU or EU” (2006, pp. 21), were proved to be right as the sovereign debt crisis escalated (despite being formerly refuted and judged as exaggerating by officials). Larch *et al.* (2010) identified seven flaws in the design of the SGP that had to be corrected: weak statistical surveillance, inoperability of the preventive arm in periods of economic boom, ignorance of macroeconomic imbalances, weak EU enforcement, lack of provisions for mitigation of economic shocks, lack of provisions for sovereign debt defaults of Member States and treatment of fiscal consolidation and structural reforms as substitutes rather than complements. As the one episode of the Eurozone crisis succeeded the other, it soon became evident that the proper framework could not be maintained without consequences.

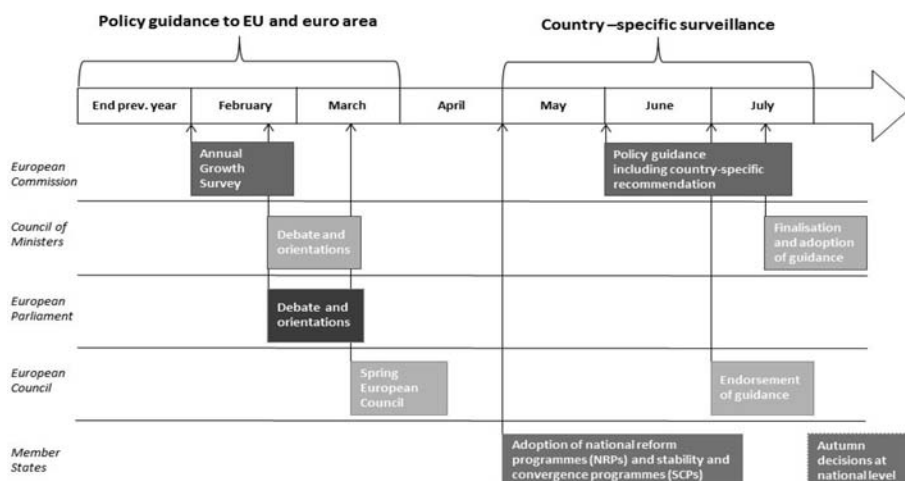
The turning point was the massive increase in the sovereign debt spreads of Greece, excluding it from access to the markets that it needed to refinance its sovereign debt. During the first months of 2010, the situation deteriorated, with Greece being unable to honor its debt obligations, leading (after a series of negotiations with Eurozone and Member-State leaders for the creation of a supporting mechanism) to the Greek President’s statement asking financial assistance from the International Monetary Fund (hence, IMF). It was then decided that a joint loan from IMF, the Commission and the European Central Bank (the so called “trilateral” or “troika” in media) along with extensive guidelines for budgetary discipline measures and structural reforms. Greece, as it proved, was only the beginning. Ireland and Portugal also had to receive “troika”-type loans due to their unsustainable debt levels, while Ireland received a loan after the fiscal deterioration caused by the bailouts of troubled banks. The crisis started spreading to the whole of the Euro Area, with interest rate spreads constantly rising, austerity measures imposed in order to correct the excessive deficits as quick as possible and the markets starting to doubt about the credibility of the EMU and the common currency.

Both in the academic and political-policymaking arenas, the opinions on how to amend the effects of the crisis were various, and often mutually exclusive, with some supporting enhanced fiscal policy coordination and budgetary surveillance, in order to reinstate fiscal discipline and give credible signals to the markets, and others arguing in favor of less austerity and more pro-growth policies. After months of discussions and negotiations, the European Commission (2010a, 2010b) and the Van Rompuy Task Force (2010a, 2010b) made proposals for the reform of the SGP, adopted by the European Council (2010), meeting either the disapproval (De Grauwe 2010, Giavazzi and Spaventa 2010 and Manasse 2010) or the approval of academics (Black 2010, Buti and Larch 2010 and Wyplosz 2010).

The first important change in the framework for coordination and surveillance of fiscal policies was the *European Semester*, introduced in 2010 and put into practice for the first time during the first half of 2011. According to that process (as can be seen below), in January the Commission publishes its Annual Growth Survey, analyzing the economic outlook of the EU, describing economic and fiscal policy challenges for Member States and issuing policy recommendations.

Figure 2: The European Semester

The European Semester



Source: http://ec.europa.eu/economy_finance/economic_governance/index_en.htm.

From February the debate on policy priorities and orientations for the EU as a whole and for Member States individually takes place that reaches conclusions at the Spring EU Summit in March. In April, Member States submit their National Reform and Stability & Convergence Programmes, in line with the revised SGP and the new Europe 2020 Strategy (that replaced the Lisbon Agenda). The Commission evaluates the programmes and issues in July country-specific policy guidance and assesses in the next year's annual report the degree of successful implementation of these recommendations and advices.

The European Semester represented an ambitious plan to introduce generalized coordination on fiscal and economic policies of the Member-States, through extensive use of peer-pressure and “soft” coordination methods, but without provisions for the proper enforcement of recommendations and decisions.

On 13 December 2011, a package of six legislative proposals on economic governance and fiscal surveillance (the *Economic Six-Pack*) was entered into force,

consisting of five regulations and a directive. These six EU secondary law instruments apply to the 27 Member States of the European Union, with specific rules for Eurozone Member States, and cover fiscal surveillance (three regulations and a directive) and macroeconomic imbalances (two regulations). An important change brought about by the Six-Pack is the introduction of the 60% as a numerical benchmark for the debt-to-GDP ratio. If this benchmark is breached the Member State will have to reduce the gap between its debt level and the 60% reference value by 1/20th annually. Debt reduction will be measured into a three-year basis, taking into account all relevant factors and the impact of the economic cycle. If the Member State fails to comply, it will be put into the excessive deficit procedure, even if its actual deficit is below the 3% threshold. Financial sanctions can be imposed in a gradual way, from the preventive arm to the latest stages of the EDP, if the Member State still does not respect its obligations may eventually reach a level of 0.5% of GDP, unless a qualified majority of Member States vote against the sanctions (the voting system is called 'reverse qualified majority voting').

Another change was the introduction of an expenditure benchmark to support fiscal sustainability and guide Member States towards their country specific, medium-term budgetary objectives (MTOs), through placing a cap on the annual growth of public expenditure according to a medium-term rate of growth. This instrument, under the preventive arm of the SGP, targets at improving medium term budgetary planning and execution, ensuring that expenditure plans are adequately financed by permanent revenues. Deviations in the budgetary execution can lead to financial sanctions (an interest-bearing deposit of 0.2% of GDP as a rule).

The Six-Pack also included measures for stronger national fiscal planning, through establishing multi-annual budgetary frameworks under specific rules on accounting, reporting, statistics and numerical targets, and for increased EU surveillance of national budgets, through expanding the role, responsibilities and powers of Eurostat to include centralized fiscal surveillance and even surveillance missions in rule-breaching Member States.

In the area of macroeconomic imbalances, the two relevant regulations of the Six-Pack introduced a new surveillance and enforcement mechanism, the Macroeconomic Imbalances Procedure. The procedure includes preventive recommendations from the Commission and the Council towards Member States and corrective actions, through the submission of a corrective plan with specific measures and implementation deadlines that will be under surveillance by the Commission on the basis of regular progress reports. A new enforcement regime is introduced for Eurozone Member States, where an interest-bearing deposit can be imposed after one failure to comply with the recommended corrective action

and after a second compliance failure, this interest-bearing deposit can be converted into a fine (up to 0.1% of GDP). Finally, an early warning system is established, based on a scoreboard of ten indicators covering the major sources of macro-economic imbalances. If the indicators are breached it will trigger in-depth studies to determine whether the potential imbalances identified in the early-warning system are benign or problematic. The Commission can organize missions, with the ECB if appropriate, to conduct the in-depth reviews on the country's situation, which shall be made public.

Table 2: Macroeconomic Imbalances Procedure Scoreboard

Macroeconomic Imbalances Procedure Scoreboard
3 year backward moving average of the current account balance as a percent of GDP, with a threshold of +6% of GDP and - 4% of GDP
net international investment position as a percent of GDP, with a threshold of -35% of GDP
5 years percentage change of export market shares measured in values, with a threshold of -6%
3 years percentage change in nominal unit labour cost, with thresholds of +9% for euro-area countries and +12% for non-euro-area countries.
3 years percentage change of the real effective exchange rates based on HICP/CPI deflators, relative to 35 other industrial countries, with thresholds of -/+5% for euro-area countries and -/+11% for non-euro-area countries
private sector debt in % of GDP with a threshold of 160%
private sector credit flow in % of GDP with a threshold of 15%
year-on-year changes in house prices relative to a Eurostat consumption deflator, with a threshold of 6%
general government sector debt in % of GDP with a threshold of 60%
3-year backward moving average of unemployment rate, with the threshold of 10%

Source: http://ec.europa.eu/economy_finance/economic_governance/macroeconomic_imbalance_procedure/index_en.htm.

The *Fiscal Compact Treaty* (formally, the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union) is an intergovernmental treaty (subordinate to EU law), signed on 2 March 2012 by all Member States of the EU except the United Kingdom and the Czech Republic, that will enter into force on 1 January 2013, if ratified until then by 12 Member States of the Eurozone. The result of a long series of discussions since the first events of sovereign debt crisis, the Fiscal Compact came to enhance the framework for fiscal coordination within the EU.

The principal change introduced by the Fiscal Compact is the obligation of Member States to maintain balanced budgets or in surplus. Along with the debt (60% of GDP) and deficit rules (3% of GDP) a rule was introduced for the structural deficit, which must not exceed the level of 0.5% of GDP. Structural deficit

is the public deficit cleared of cyclical effects and one-off measures as well as temporary measures. In the case of sustainable public finances, with the public debt significantly below the 60% of GDP benchmark, the Member State can run a structural deficit of up to 1% of GDP. The rule will be introduced in the national legal systems of Member States and will contain an automatic correction mechanism, defined by each Member State on the basis of principles proposed by the Commission and triggered in the event of deviation. In addition, a debt brake is introduced in the national legal systems, preferably in the constitution but certainly permanent and binding. Where the Commission finds that a Member State has failed to comply with the transposition of the rules and the debt brake, it can request from the European Court of Justice to impose financial sanctions of no more than 0.1% of the GDP, paid to European Stability Mechanism or to the EU budget.

The Fiscal Compact also enhanced the efficiency of the SGP, confirming the provisions related to the excessive deficit procedure and the requirement of Member States to issue detailed programmes with specific measures that would correct the deficit. Article 7 of the Compact makes the procedures quasi-automatic, unless a qualified majority opposes them, making it more difficult for Member States that exceed the permissive deficits to avoid correction. Member States subjected to the EDP must put in place structural reforms that ensure the sustainable correction of deficits and public finances. The reform plans are subject to the approval of the Commission and the Council and Member States with a public debt exceeding the level of 60% of GDP must reduce the difference between their debt and the limit by 1/20th annually.

The final change brought by the Fiscal Compact, is the enhancement of economic policy coordination, through a stronger institutional position of the Euro Summit (including the Heads of the 27 Member States of the EU and the President of the Commission), meeting at least twice a year to discuss economic policy governance issues, with particular emphasis on fiscal sustainability, financial market stability and competitiveness.

4.5. HARD COORDINATION IN THE SHADOW OF THE CRISIS

Fiscal rules are usually analyzed through the Kopits-Symansky criteria (1998), according to which an ideal fiscal policy rule has to fulfill eight criteria: to be well-defined, transparent, simple, flexible, adequately relative to the fiscal and economic policy goals, enforceable, consistent and underpinned by structural reforms. Buti, Eijffinger and Franco (2003), in an early assessment of the fiscal rules of EU (mainly those included in the Stability and Growth Pact), supported that according to the Kopits-Symansky criteria the EU fiscal rules fare considerably well and tried

to counter the six main lines of criticism for the SGP (that it reduces budgetary flexibility, that it works asymmetrically, that it does not sanction politically-motivated fiscal policies, that it discourages public investment, that it disregards the aggregate fiscal stance and that it focuses on short-term commitment and disregards structural reform). And although economic theory supported the arguments of Buti and his co-authors, the evidence from the years that followed came to discredit them radically.

Here the point of interest is not the assessment of the new fiscal rules on their own but to examine of whether they represent a move from “softer” to “harder” fiscal policy coordination in the Euro Area firstly and the European Union secondly. This will be done through employing the concept of “legalization”, introduced in Abbott and Snidal (2000) and Abbott *et al.* (2002) and described as the move from soft to hard law in international or multinational agreements, with the degree of change being the result of changes in three dimensions of governance: obligation, delegation and precision. The continuum is defined by “hard” law, meaning legally binding obligations that are precise and that delegate authority for interpreting and implementing the law, and by “soft” law, meaning that legal arrangements are weakened along one or more of the dimensions of obligation, delegation and precision.

Prior to the Euro Area crisis, the institutional arrangements for multilateral fiscal and budgetary surveillance through the SGP were built based on “soft” law. There were certain circumstances under which “soft” law is preferable (Abbott and Snidal, 2000) and these were at the significant degree the circumstances under which the Member-States of the EU and the Euro Area decided to coordinate their fiscal and budgetary policies through “soft” methods. It is considered that: a) soft law reduces negotiating costs, making an agreement less costly and, therefore, more possible, b) soft law reduces sovereign costs, as it leaves the tasks of policy implementation at the national level, c) in case of considerable uncertainty soft law may be the proper method of legalization, especially when uncertainty is generated by ambiguous provisions of legal arrangements or changing conditions, and d) soft law is a tool of compromise, offering opportunities for learning and further negotiations (de Haan, Berger and Jansen 2004). An important point is that substitutions and complementarities develop between the three dimensions, resulting to the possibility for non-uniform moves from “soft” to “hard” (and vice versa) in all three dimensions.

Although Abbott *et al.* introduced the framework of legalization and the three dimensions of governance study international legal agreements, it can also be used in studying fiscal policy coordination, which is a sub-area of economic governance. It allows for taking into account broader changes in the dimensions of fiscal governance than merely the hardening of rules and obligations (for an

application of the concept of legalization into the study of fiscal rules in the EU and the SGP in particular see Amtenbrink and de Haan 2003 and Hodson and Maher 2004 and for an application of the same concept for the 2005 reform of the SGP see Schelkle 2007). Hereby, the same framework will be used to study the three main novelties introduced, that constitute the new framework for fiscal surveillance in the EU: the European Semester, the Six-Pack and the Fiscal Compact.

Table 3: Dimensions of Governance in the new framework for fiscal policy coordination and surveillance in the European Monetary Union/Eurozone

	European Semester	EU Economic Governance Six-Pack	Fiscal Compact (Treaty on Stability, Coordination and Governance in the Economic and Monetary Union)
Obligation	Low to Medium: There are no sanctions inherent to the process of the European Semester, recommendations are made by the Commission towards the Council and peer-pressure is used	Medium to High: Two-step approach in enforcement, including deposits and financial sanctions. Reverse QMV increases the likelihood for sanctions.	Medium to High: Rules for balanced budgets must be introduced into the national legal systems, along with a “debt brake”/“golden rule”, automatic actions for correcting deviations from the MTO
Delegation	Medium to High: Strong role of the Commission in multilateral surveillance, enhanced role of the ECOFIN and the Council	Medium to High: Stronger role of the Commission in both fiscal and macroeconomic policy surveillance, both consultative and recommending preemptive and corrective action	Medium to High: Stronger role for the Commission, increased role of the ECOFIN and Euro Group in coordination, power for the European CoJ in imposing financial sanctions
Precision	Medium to High: Indicator-based fiscal/macro-economic surveillance, linked to Annual Growth Surveys and rules of the SGP and Fiscal Compact	Medium to High: Indicator-based rules, same as the SGP, detailed for surveillance of macroeconomic imbalances	Medium to High: Indicator-based rules, same as the SGP, specific rules for structural deficits, specifications for correction mechanisms

Following, an early assessment of the new framework for fiscal and budgetary coordination and surveillance in the Euro Area primarily (but also the EU at some degree) will be given, using the three dimensions of governance summarized in

table 3. The analysis was based in interviews with policymakers from the Commission and from the Ministries of Finance of two Member-States (Greece and France) and in critical reading of the legal documents adopted and the relevant information material.

A significant effort has been made towards “harder” coordination in fiscal governance in the Euro Area, mainly through the fiscal-related parts of the Economic Governance Six-Pack and the Fiscal Compact, while the European Semester is an attempt to coordinate economic policies, including fiscal policies of course. The problem that had to be tackled was relevant to the dimension of *obligation*, meaning the discipline imposed by fiscal rules and the mechanisms for enforcement (or, in fact, the lack of them in the particular case of the SGP). In the European Semester, that is the main instrument for coordination of fiscal and economic policies there is no *stricto sensu* obligation (low to medium), as there are no provisions for sanctions and fines and the methods used for coordination and discipline are rather “soft” ones: Euro Area-specific and country-specific recommendations made by the Commission towards the Council and guidelines for specific policies issued by the Council towards Member-States, while peer-pressure is used to make the Member-States conform to the recommended policy directions (especially during summits of the Council or of the Councils of Ministers). However, obligation is introduced through the Economic Governance Six-Pack and the Fiscal Compact. The Six-Pack introduced a two-step approach in enforcing decisions in the case of continuing deviations in fiscal and macroeconomic targets, first through a non-interest bearing deposit and second through a fine if the progress of the Member-State towards the target (especially the deficit and debt thresholds) is not sufficient. The same approach is used not only for the Excessive Deficit, but also for the Macroeconomic Imbalances Procedure. Most importantly, the Six-Pack introduces the Reverse Qualified Majority Voting system for approving sanctions for Member-States. The previous voting system (Qualified Majority Voting) needed a qualified majority to vote in order for a sanction to be imposed, permitting to the Member-States to form coalitions and avoid voting for sanction-based enforcement. With the new system, a qualified majority is needed to vote against a sanction, making the formation of blocking coalitions more difficult. In that way, the chances for a sanction recommendation to be blocked are diminishing, although decisions are still made within the ECOFIN, where Ministers of Finance represent national interests and still may try to coordinate against a sanction. Considering the previous problems created by the lack of enforcement of the SGP provisions and the inertia in imposing sanctions, the new arrangements need time to show if they can enhance fiscal coordination and discipline, although early assessments support that they are in the positive direction (Von Hagen, 2011).

The Fiscal Compact goes a step beyond that and introduces the “debt brake” or “golden rule for debt”, which does not only have to be implemented and respected by the Member-States but also has to be introduced in the national legal systems, at statutory or preferable constitutional level. This provision actually makes balanced budgets obligatory and gives increased role to the European Court of Justice, as it undertakes that task to verify if the Member-States have transposed the brake and to recommend sanctions for Member-States failing to comply. In addition, automatic correction mechanisms for deviations from the Medium-Term Objectives are introduced. All these measures represent a serious attempt by the Euro Area policymakers to improve the performance of the new fiscal coordination framework in the “obligation” dimension.

In the dimension of *delegation*, the new framework introduces significant changes, with greater emphasis on the Euro Area/EU level and a stronger role for the European Commission. While the reform of the SGP in 2005 strengthened the role of the Member-States and the intergovernmental approach in decision-making, the new framework restores the balance between the community approach (used mainly by the Commission) and the intergovernmental approach (dominant in the European Council and the Council of Ministers). In the European Semester, the Commission has an important role at defining goals and strategies for the overall Euro Area and country-specific plans and recommendations, while it also gets involved in surveillance and implementation through guidance and technical support. Furthermore, the Council and the ECOFIN are now the principal bodies where coordination of fiscal and economic policies takes place, giving specific directions and guidelines for Member-States and narrowing the limits for national-based economic policy discretion. The Six-Pack also makes stronger the role of the Commission in fiscal and macroeconomic policies, permitting it to be more active both in providing guidance to Member-States and in recommending enforcement measures through the preventive and corrective arms of the SGP. The Fiscal Compact not only strengthens the role of the Commission in coordinating fiscal policies, overseeing the implementation and recommending sanctions, but also introduces a significant role of another institution at the EU-level, the European Court of Justice. The new framework for fiscal coordination and surveillance has clearly better performance in the dimension of delegation, with more authorities and powers transferred at the Euro Area/EU-level and less freedom for Member-States in determining their policies.

Developments in the third dimension of governance, the one of *precision*, also point towards the direction of “harder” coordination in the area of fiscal policy, with the new rules more sharp and permitting less discretion in their interpretation from the Member-States. There has been a considerable effort to connect all rules with numerical indicators, in order to identify the performance more easily and assess it more properly. Numerical rules and thresholds are operationalized

(e.g. the pace at which the debt and/or the deficit as a percentage of the GDP must be decreased annually, the structural deficit etc.) and greater emphasis is placed in the rules of the SGP for the deficit and debt levels. The European Semester begins with the Commission publishing the Annual Growth Survey, where the economic and fiscal performance of the EU as a whole and of the Member-States separately is quantified, and, according to this, recommendations for action that would lead to specific performance levels in specific indicators are issued. The Six-Pack introduces a series of indicators concerning macroeconomic imbalances, carefully computed and specified in order to take into account the variance of economic performance between Member-States, while the Fiscal Compact presents specific numerical requirements for the fiscal and structural deficits, while making the SGP rules more sharp. The Fiscal Compact also operationalized the automation correction mechanisms triggered in the case of persistent deviations from the MTOs. Despite criticism about the calculation of the structural component of the deficit and of the 1/20 rule and about the specification of other numerical indicators (see De Grauwe 2011b for some arguments against the Fiscal Compact, important material and opinions concerning the precision of the new rules were also obtained through the interviews), the overall impression is that the new framework for fiscal surveillance in the Euro Area and the EU and its three main components have significantly more precision in the rules, improving the performance in that dimension.

Of course, as already mentioned, there is still need for more time to assess properly the new framework and its performance on the three dimensions of governance introduced by Abbott *et al.*

4.6. CONCLUSIONS

The new framework for fiscal policy coordination and budgetary surveillance in the Euro Area and, in general, the European Union, consisting of the European Semester (as a coordination process) and of the Economic Governance Six-Pack and the Fiscal Compact (as legal arrangements including fiscal rules and instruments for their implementation and enforcement), is an ambitious attempt by EU policymakers to address the pre-existing fault lines that led to the ongoing sovereign debt crisis. In the current article, the concept of legalization and the three dimensions of governance (obligation, delegation and precision) were employed to study the new framework and what I consider to be a move from “softer” to “harder” policy coordination. The analysis shows that such a move has definitely taken place, strengthening the performance of the new framework in all three of the dimensions of governance, in comparison to the 2005 revision of the SGP, where there was a move towards “softer” coordination, with medium to low

scores in all dimensions, according to Schelkle (2007) who also used the concept of the three dimensions of governance.

Apart from the time needed to assess more properly the new framework, there are also other points that need further research. First of all, whether the new rules will be properly enforced, despite the satisfactory provisions included. Second, whether the new framework can show positive results in the short term, given the ongoing crisis and the serious deterioration of public finances and national economies. Third, how can the new rules be imposed in Member-States that are working under EC/ECB/IMF conditionality programs and have specific rules to achieve each year. Fourth, how the new fiscal coordination and surveillance framework will affect economic growth and economic performance indicators. The examination of some of these questions or other, also relevant, ones would be valuable to our understanding and evaluation of the new fiscal framework.

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5. FISCAL COMPOSITION AND LONG-TERM GROWTH¹

António Afonso and João Tovar Jalles

Abstract

We assess the fiscal composition-growth nexus, using a large country panel, accounting for the usually encountered econometric pitfalls. Our results show that revenues have no significant impact on growth whereas expenditures have negative effects. The same is true for the OECD with the addition that government revenue has a negative impact on growth. Taxes on income are usually detrimental to growth, as well as public wages, interest payments, subsidies and government consumption have a negative effect on growth. Social spending is detrimental to growth; spending on education and health boosts growth; and there is weak evidence supporting causality running from expenditures and revenues to output.

JEL: C23, E62, H50.

Keywords: budget deficit, budget decomposition, panel analysis, panel causality.



“...history makes clear that countries that continually spend beyond their means suffer slower growth in incomes and living standards and are prone to greater economic and financial instability. Conversely, good fiscal management is a cornerstone of sustainable growth and prosperity.”
Ben Bernanke, Annual Meeting of the Rhode Island Public Expenditure Council, October 4, 2010.

5.1. INTRODUCTION

According to conventional wisdom, in most countries (particularly developing ones), larger budget deficits have coincided in the past with less efficient government spending, large bureaucracies, and other counterproductive economic policies. Hence, among the factors that determine economic growth, government spending and fiscal policies in general are of particular interest. Such fiscal-growth nexus is particularly important in situations of economic downturns, where tax revenues tend to flee rather quickly and the spending side of the budget

¹ The authors are grateful to comments from participants in an ECB seminar. Most of the research was conducted while João Tovar Jalles was visiting the ECB whose hospitality was greatly appreciated. The opinions expressed herein are those of the authors and do not necessarily reflect those of the ECB, the Eurosystem, or the OECD.

adjusts slowly, notably in view of the effect of automatic stabilisers and of possible counter-cyclical discretionary fiscal policies, which implies the building up of larger budget deficits and possible increased fiscal sustainability problems.

Although large fiscal imbalances can impose an unwarranted burden on the economy, not all government spending is created equal. Therefore, and in order to inform notably policy decision making, the effects on economic activity and long-term growth of several spending and revenue budgetary components need to be assessed, which is the main objective of this paper.

The empirical analysis of the impact of fiscal components on long-run growth include the early works by Feder (1983), Landau (1983), Ram (1986), Grier and Tullock (1989), Romer (1990), Barro (1990, 1991), Derajavan *et al.* (1996) and Sala-i-Martin (1997). Most of these studies used cross-section data to link measures of government spending with economic growth rates. However, traditional OLS regression analysis is not sufficient to determine the direction of causality. When economic growth is regressed on government spending, researchers tend to interpret this as an eventual confirmation of causality from the latter to the former. Nevertheless, a significant coefficient can be equally compatible with the Keynesian view (causality from government expenditure to growth), Wagner's Law (from growth to spending) and/or a bi-directional causality between the two variables.

In this study we use a large panel of developed and developing countries for the period 1970-2008. In the empirical estimations of growth specifications we address several of the econometric caveats that usually plague such analyses: outliers, simultaneity, endogeneity, cross-sectional dependence, causality, nonlinearities and threshold effects. Specifically, we examine: which budgetary components have a stronger influence in affecting (positively or negatively) per capita GDP growth rates; the change in coefficient signs (and magnitudes) with different budget deficit ratios thresholds; differences between country groups; the direction of causality; evidence favouring Keynesian (or non-Keynesian) effects of fiscal components or supporting the existence of Wagner's Law?

Therefore, the main contributions of this paper include: i) a detailed assessment of the fiscal decomposition-growth nexus with a diversified variety of methods, providing sensitivity and robustness; ii) the split between economic and functional government expenditure categories; iii) panel Granger causality tests.

In a nutshell, our results comprise notably: i) for the full sample revenues have no significant impact on growth whereas government expenditures have significant negative effects; ii) the same is true for the OECD sub-sample with the addition that total government revenues have a negative impact on growth; iii) taxes on income are usually detrimental to growth; iv) public wages, interest payments,

subsidies and government consumption have a negative effect on output growth; v) expenditures on social security and welfare are detrimental to growth; vi) both government spending on education and health boosts growth; vii) there is weak evidence supporting causality running for expenditures or revenues to GDP per capita; viii) there is evidence supporting Wagner's Law.

The paper is organised as follows. Section 5.2. surveys the literature on the effects of fiscal policy and budget composition on economic growth. Section 5.3. describes the analytical and econometric methodology. Section 5.4. presents the data and discusses our main results. The last section concludes.

5.2. LITERATURE

The nexus between fiscal policy and growth has been a subject of several previous studies (see Zagler and Durnecker, 2003, for a survey). Likewise, Gemmell (2004) has summarised several empirical work and explains that it is important to distinguish between productive and non-productive expenditure, and that results depend on whether the simultaneous effects of different revenue and expenditure categories as well as deficit decisions have been taken into account.

Some pioneer theoretical contributions, underlying our empirical analysis, are notably Modigliani (1961) and Diamond (1965). For instance, with an endogenous growth model, Cashin (1994) reports that increased government spending on productive items generate positive externalities, raising private investment and economic growth. Nevertheless, Slemrod *et al.* (1995) did not find conclusive correlations between taxes and the level of per capita income in their theoretical model. This supports the inconclusive results found across the literature and the debatable nature of the objective impact of fiscal policy on economic growth.

Empirical studies using the economic decomposition of budgetary items usually find evidence of a negative relationship between government expenditures and growth, such as Barro's (1997) seminal contribution in which he found a significantly negative effect on growth from the ratio of government consumption to GDP. Easterly and Rebelo (1993) take 100 countries from 1970 to 1988 and find that i) there is a strong association between the development level and the fiscal structure in poor countries relying heavily on international trade taxes, while income taxes are only important in advanced countries; ii) while the effects of taxation are difficult to isolate empirically.

Lee (1995) found that government consumption was associated with slower growth for a sample of 89 developed and developing countries for the period 1960-1985. With opposing results, Slemrod *et al.* (1995) report a positive correlation between government expenditure to GDP ratio and the level of real GDP

per capita across countries and no relationship for OECD countries alone. Engen and Skinner (1992) mention that a balanced-budget increase in government spending reduces output growth in a sample of 107 countries from 1970 to 1985. Landau (1983) and Grier and Tullock (1989) analyse a sample of 104 and 115 countries, respectively, and find that the growth of government consumption is negatively correlated with growth, including the OECD.

For 28 OECD countries Afonso and Furceri (2010) report that social contributions, government consumption and subsidies have a sizeable negative and statistically significant effect on growth. Romero-Avila and Strauch (2008) conclude for the EU15 countries that the expenditure side of the budget appears to affect long-run growth over the business cycle. Fölster and Henrekson (1999) report a tendency towards a negative growth effect of large public expenditures, which is robust across different econometric specifications. Conte and Darrat (1988) study OECD countries between 1960 and 1984 and argue that government growth has had mixed effects on growth.

Hakro (2009) finds a positive relationship between government expenditure and GDP per capita growth for 21 Asian countries, while Bairam (1990) using a sample of 20 African countries from 1960 to 1985, finds that the effects of government expenditure cannot be generalized.

It is interesting to notice that when it comes to public investment one would expect it to boost growth. However, in Afonso and Furceri (2010) government investment has a sizeable negative and statistically significant effect on growth. Devarajan *et al.* (1996) found that for a sample of 43 developing countries increases in the share of public investment expenditure (including transportation and communication) have significant negative effects on growth. Prichett (1996) suggests the so-called “white-elephant” hypothesis in which public investment in developing countries is often used for unproductive projects. Nelson and Singh (1994) looking at 70 developing countries for two distinct time periods (1970-79; 1980-89) and uncover mixed effects of public investment on growth.

On the one hand, higher public investment raises the national rate of capital accumulation above the level chosen (in a presumed rational fashion) by private sector agents. Therefore, public capital spending may crowd out private expenditures on capital goods on an ex-ante basis as individuals seek to re-establish an optimal inter-temporal allocation of resources. On the other hand, public capital – particularly infrastructure capital as highways, water systems, sewers and airports – is likely to bear a complementary relationship with private capital in the private production technology. Thus, higher public investment may raise the marginal productivity of private capital and thereby crowd-in private investment (see Afonso and St. Aubyn, 2009).

Slemrod *et al.* (1995) found a positive correlation between the tax revenue-to-GDP ratio and the level of real GDP per capita across countries, particularly when developing countries were included in the sample. Plosser (1992) found a significant negative correlation between the level of taxes on income and profits (as a share of GDP) and growth of real per capita GDP. Koester and Kormendi (1989) in a cross-country analysis of 63 countries in the 1970s suggest that apparent negative effects of taxes on growth disappear upon controlling for potential endogeneity and the relation between growth and income per capita.

Regarding the functional decomposition of spending, Afonso and Alegre (2011), for a Euro-area panel between 1970 and 2006, find a significant dependence of productivity on public expenditure on education, as well as a relevant role of social security and health for economic growth and the labour market. Folster and Henrekson (2001) report a robust negative relationship between social expenditures and economic growth. Baum and Lin (1993) taking a heterogeneous sample of 47 countries find that the growth rate of educational expenditures has a significant positive impact on growth. The growth rate of welfare expenditures has a negative and insignificant impact on growth. Differently, Landau (1986) reports that government educational expenditure has noticeably reduced economic growth.

5.3. METHODOLOGY

5.3.1. Analytical framework

In the context of a neoclassical growth model the underlying basic aggregate production function can be written as $Y = F(L, K)$, with Y being the real aggregated output; L the labour force or population; and K capital (physical and human).

Nevertheless, the standard growth model is based on a conditional convergence equation that relates real growth of per capita GDP to the initial level of income per capita², investment-to-GDP ratio (a proxy for physical capital), a measure of human capital or educational attainment and the population growth rate, augmented with government expenditures and revenues components³. As a result, the aggregate production function is $Y = F(L, K, G)$ being G the relevant fiscal variable. Therefore the empirical specification can be written as follows:

$$y_{it} - y_{it-1} = \alpha_{it} + \beta_0 y_{io} + \beta_1 x_{it}^j + \gamma G_{it} + \eta_t + \nu_i + \varepsilon_{it} \quad (1)$$

² The initial level of income per capita is a robust and significant variable for growth (in terms of conditional or beta convergence).

³ Based on the theoretical underpinnings from Landau (1983), Kormendi and Meguire (1985) or Ram (1986).

where i ($i = 1, \dots, N$) denotes the country, t ($t = 1, \dots, T$) indicates the period, $y_{it} - y_{it-1}$ represents the growth rate of real GDP per capita; y_{i0} is the value of real GDP per capita at the beginning of each 5 year period⁴ x_{it}^j $j = 1, 2$ is a vector of control variables (x_{it}^1 comprises of population growth, investment, education and trade openness – used in table 1; x_{it}^2 includes x_{it}^1 – apart from trade openness – and adds labour force participation and the unemployment rate)⁵; G_{it} is a fiscal policy-related variable, either total government revenues or expenditures (or their respective sub-components⁶); v_i , η_t correspond to the country-specific and time effects, respectively. Finally, ε_{it} is a column vector of some unobserved zero mean white noise-type satisfying the standard assumptions. α , β_0 , β_1 and γ are unknown parameters to be estimated. In addition, and in order to assess an eventual non-linear relationship, a squared term can also be included for the relevant fiscal variable.

5.3.2. Econometric approaches

5.3.2.1. Panel Techniques

Cross-country regressions are usually based, in this context, on average values of fiscal variables and growth over long time periods. For instance, for long time spans, the level of government spending is likely to be influenced by demographics, particularly by an increasing share of elderly people. Therefore, a simultaneity issue arises, and errors in the growth variable will affect GDP, demographics and taxes or government spending as ratios, which are then correlated with the error term in the growth regression. Additional questions are endogeneity, both in terms of government spending and tax policies, and inefficiency due to the discarding of information on within-country variation.

Resorting to panel data can overcome (some of) these problems, and has other advantages. We run within fixed-effects as a benchmark model Given that technological change occurs over time, a time index is a logical way to control for the effect of technological progress on the evolution of per capita GDP growth. However, the effect of technological change on output growth would likely not be well captured by a simple time trend that assumes a constant effect over time⁷. Therefore, non-linear effects of technological change on output growth are

⁴ Using cumulative 5-year non-overlapping averages to smooth the effects of short-run fluctuations

⁵ For more details refer to Section 5.4.1 (“Data and Descriptive Statistics”).

⁶ On the revenue side we have (all in % GDP): tax revenues, domestic taxes on goods and services, taxes on income, profits and capital gains, taxes on property, taxes on payroll or work force, and social security contributions. On the expenditure side we have (all in % GDP): compensation of employees, interest payments, subsidies, public final consumption expenditure as well as a functional decomposition comprising of public spending on education, health, and social security and welfare.

⁷ Indeed, a Lowess smoothing of per capita GDP against government expenditure and revenue (not shown) suggests that there are some non-linear relationships.

allowed for by using individual year indicator dummies in most estimated panel models.

Another contribution in our study is the use of two robust estimators: the Method of Moments (MM) (Yokai, 1987) and the Least Absolute Deviation (LAD) to deal with outliers.

5.3.2.2. Bias and endogeneity

One needs to address the potential endogeneity problem of right-hand side regressors and while country-specific fixed effects might capture some of the omitted variables (if we miss out an important variable it not only means our model is poorly specified it also means that any estimated parameters are likely to be biased)⁸, it does not solve the problem and we may get biased coefficient estimates. Moreover, panel data estimations may yield biased coefficient estimates when lagged dependent variables are included. In our case, initial income (or lagged income when using annual observations) is a regressor which is also present in the dependent variable, the rate growth of per capita GDP. Therefore, we also use the bias-corrected least-squares dummy variable (LSDV-C) estimator by Bruno (2005).

Moreover, we use a panel Instrumental Variable-Generalised Least Squares (IV-GLS) approach, which is then complemented by estimating the main equations using Generalised Methods of Moments (GMM). The first-differenced GMM estimate can be poorly behaved if the time series are persistent. This problem can get very serious in practice and authors like Bond *et al.* (2001) suggest the use of a more efficient GMM estimator, the system estimator, to exploit stationarity restrictions.

Although stationarity averages of investment rates and population growth rates are quite consistent with the Solow growth model, constant means of the per capita GDP series are clearly not. Fortunately, also here, the inclusion of the time dummies solves the problem without violating the validity of the additional moment restrictions used by the system GMM estimator. In the type of convergence regressions to be analysed, the succession of time dummies can be interpreted as the evolution of common TFP over time⁹.

⁸ If the variables are uncorrelated with the omitted variables, then our results may be unbiased. Thus, by not using predictors that might be correlated with a possible important omitted variable, we may reduce the bias. Therefore, if we put a predictor that is correlated with an omitted variable into our model, we generate endogeneity bias. On the other hand, the more variables that we have in our model, the less likely it is that we are omitting something.

⁹ Since the empirical model assumes that production technology is homogeneous across countries there is nothing inherently inconsistent with the assumption that TFP growth is the same across countries. The period covered by the data includes a number of characteristic slumps (e.g. the two oil crises in the 1970s), but nevertheless one is able to identify a generally upward movement of TFP, particularly in the 1990s.

Hence, we estimate the growth specifications by system-GMM (SYS-GMM) which jointly estimates the equations in first differences, using as instruments lagged levels of the dependent and independent variables, and in levels, using as instruments the first differences of the regressors. Regarding the information on the choice of lagged levels (differences) used as instruments in the difference (level) equation, as work by Roodman (2009) has indicated, when it comes to moment conditions more is not always better¹⁰.

5.3.2.3. Panel Granger causality

We also perform a panel version of a Granger-causality test between per capita GDP (and TFP) and fiscal variables, similarly to Huang and Temple (2005)¹¹.

Since causality can run in either direction, one cannot take government expenditures and government revenues as strictly exogenous. Alternatively, we run partial adjustment specifications which allow feedback by means of sequential moment conditions to identify the model (see Arellano, 2003). The standard approach in the literature would be to specify an AR(1) model as follows:

$$y_{it} = \alpha_1 y_{it-1} + \beta_1 x_{it-1} + \eta_i + \phi_t + v_{it}, \quad (2)$$

$$i = 1, 2, \dots, N; t = 1, 2, \dots, T$$

where in our case y_{it} is real per capita GDP and x_{it} will be independent government expenditures and revenues (deflated and in per capita terms). The reverse relationship is also explored to test notably the hypothesis of the Wagner's Law holding for the full sample and OECD sub-sample.

The model in (3) allows for unobserved heterogeneity through the individual effect η that captures the joint effect of time-invariant omitted variables. ϕ_t is a common time effect, while v_{it} is the disturbance term. We also assume that x_{it} is potentially correlated with η_i and may be correlated with v_{it} , but is uncorrelated with future shocks $v_{it+1}, v_{it+2}, \dots$. The model can be estimated by first-differencing (3) to get rid of the individual effects, and then using lagged levels of y_{it} and x_{it} dated $t-2$ (and earlier) as instruments. However, a more efficient GMM estimator can be employed by using more of the available moment conditions, as suggested by Arellano and Bond (1991), who proposed the use of all available lagged levels of y_{it} and x_{it} dated $t-2$ (and earlier). We name this estimator DIF-GMM. In this context, we also use Hansen J's test to assess the model specification and overidentifying restrictions.

¹⁰ The GMM estimators are likely to suffer from "overfitting bias" once the number of instruments approaches (or exceeds) the number of groups/countries. In the present case, the choice of lags was directed by checking the validity of different sets of instruments and we rely on comparisons of first stage R-squares.

¹¹ These authors applied the same technique to study the trade-finance relationship in a panel of heterogeneous countries.

As there are a number of limitations of DIF-GMM estimation¹², under the assumptions set in Arellano and Bover (1995), the system-GMM estimator can be used to alleviate the weak instruments problem. In our setting, the SYS-GMM uses the standard moment conditions, while SYS-GMM1 (modified 1) only uses the lagged first-differences of y_{it} dated $t-2$ (and earlier) as instruments in levels and SYS-GMM2 (modified 2) only uses lagged first-differences of x_{it} dated $t-2$ (and earlier) as instruments in levels.

In the AR(1) model, one hypothesis of economic interest is the null $\beta_1 = 0$ – this can be interpreted as a panel data test for Granger causality. Even though a Wald-type test of this restriction (a standard t-ratio) could be used, we make use of an alternative methodology. Specifically, we estimate both the unrestricted and the restricted models using the same moment conditions, and then compare their (two-step) Hansen J statistics using an incremental Hansen test defined as:

$$D_{RU} = n(J(\tilde{\gamma}) - J(\hat{\gamma})) \quad (3)$$

where $J(\tilde{\gamma})$ is the minimized GMM criterion for the restricted model, $J(\hat{\gamma})$ for the unrestricted model, and n is the number of observations¹³. The intuition is that, if the parameter restriction ($\beta_1 = 0$) is valid, the moment conditions should keep their validity even in the restricted model¹⁴.

There are some additional issues of interpretation worth discussing in the context of the use of the above model. One may be interested in the stability of the estimated model. If our model is stable, we can compute a point estimate for the long-run effect of x_{it} on y_{it} :

$$\beta_{LR} = \beta_1 / (1 - \alpha_1), \quad (4)$$

and we can estimate an approximate standard error for this long-run effect using the Delta Method.

Lastly, we can test for unobserved heterogeneity. In the absence of individual effects, the following additional moment conditions become valid, corresponding to the use of lagged-levels as instruments in the levels equation:

$$\begin{aligned} E[y_{it-1}(y_{it} - \alpha_1 y_{it-1} - \beta_1 x_{it-1} - \phi_t)] &= 0 \\ E[x_{it-1}(y_{it} - \alpha_1 y_{it-1} - \beta_1 x_{it-1} - \phi_t)] &= 0. \end{aligned} \quad (5)$$

$$t = 2, \dots, 8$$

¹² For instance, the lagged levels of the series may be weak instruments for first differences, especially when they are highly persistent, or the variance of the individual effects is high relative to the variance of the transient shocks.

¹³ Under the null, GRAPHIC is asymptotically distributed as GRAPHIC where r is the number of restrictions.

¹⁴ For more details see Bond and Windmeijer (2005).

The validity of these additional set of moment conditions (that can be tested using an incremental Hansen test relative to difference or system GMM), can be evaluated with a test for the presence of unobserved heterogeneity (where the null is no heterogeneity). The motivation for using this test is that, if individual effects are absent, the pooled OLS will be a consistent estimator, despite not fully efficient given the presence of heteroskedasticity.

5.3.2.4. Cross-sectional dependence

We are aware of the potential issue (in particular, bias in coefficient estimates) induced by a significant cross-sectional dependence (within similar groups of countries in our sample) in the error term of the model. As put forward by Eberhardt *et al.* (2010), the so-called unobserved common factor technique relies on both latent factors in the error term and regressors to take into account the existence of cross-sectional dependence. Developed with the panel-date/time-series econometric literature over the course of the past few years, this method has been largely employed in macroeconomic panel data exercises (see, e.g., Pesaran (2004, 2006), Coakley *et al.* (2006), Pesaran and Tosetti (2007), Bai (2009), Kapetanios *et al.* (2009), Afonso and Rault (2010) and Eberhardt and Teal (2011 and references therein)). This common factor methodology takes cross-sectional dependence as the outcome of unobserved time-varying omitted common variables or shocks which influence each cross-sectional element in a different way. Cross-sectional dependence in the error term of the estimated model results then in inconsistent coefficient estimates if independent variables are correlated with the unspecified common variables or shocks¹⁵.

With this in mind, we test for the presence of cross-sectional dependence Pesaran's (2004) CD test statistic based on a standard normal distribution. We then run some of the most important regression equations with Driscoll-Kraay (1998) robust standard errors¹⁶. Given the particular nature of the dependent variable and the possibility of error dependence we also rely on the Pesaran (2006) common correlated effects pooled (CCEP) estimator. This is a generalization of the fixed effects estimator that allows for the possibility of cross section correlation. Including the (weighted) cross sectional averages of the dependent variable and individual specific regressors is suggested by Pesaran (2006, 2007, 2009) as an effective way to filter out the impacts of common factors, which could be common technological shocks or macroeconomic shocks, causing between group error dependence.

¹⁵ There are different ways to account for such error cross-sectional dependences (see, e.g., Sarafidis and Wansbeck (2010) for an overview).

¹⁶ This non-parametric technique assumes the error structure to be heteroskedastic, autocorrelated up to some lag and possibly correlated between the groups.

5.4. EMPIRICAL ANALYSIS

5.4.1. Data and descriptive analysis

The dataset was collected from several sources (see the Appendix for definitions, acronyms and sources). Our main dependent variable is real GDP per capita retrieved from the World Bank's World Development Indicators (WDI).

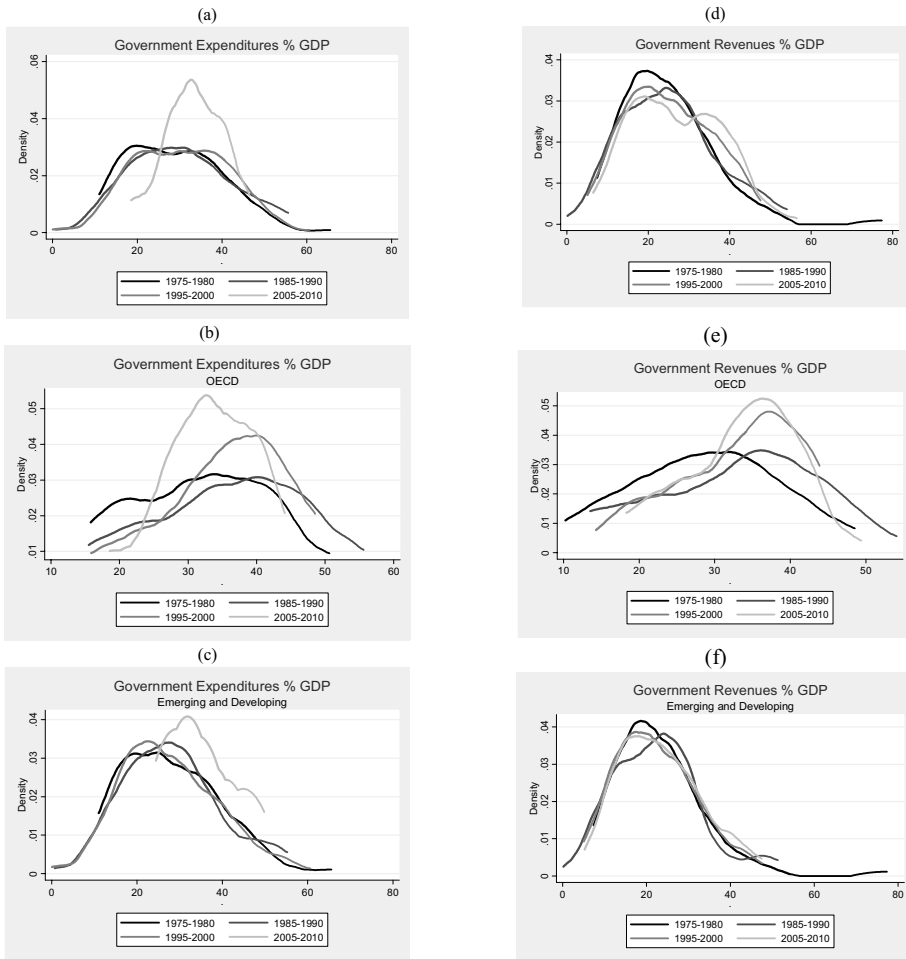
Fiscal variables come from the WDI, the IMF's International Financial Statistics (IFS) and Easterly's (2001) data. They comprise the Budget Balance (% GDP) and the Central Government Debt (% GDP) – the latter retrieved from the IMF's historical debt database due to Abas *et al.* (2010). On the government revenue side we have, as % of GDP: Total Government Revenue, Tax Revenue, Taxes on Goods and Services, Taxes on Payroll or work force, Taxes on Income, Profits and Capital Gains, Taxes on Property, and Social Contributions. On the government expenditure side we consider, as a % of GDP: Total Government Expenditure, Compensation of Employees, Interest Payments, Subsidies, Public Final Consumption Expenditure, and a functional decomposition comprising of Spending on Education, Spending on Health, and Spending on Social Security and Welfare.

With respect to human capital proxies we mainly rely on the average years of schooling for the population over 25 years old from the international data on educational attainment by Barro and Lee (2010), but we also take the literacy rate (% of people ages 15 to 24), primary school enrolment (% gross), primary school duration (years), secondary school enrolment (% gross), secondary school duration (years), tertiary school enrolment (% gross) and tertiary school duration (years) from the WDI, for robustness purposes.

As for other controls and regressors, most come from either the WDI or from the IMF's IFS, as follows: land area (in square kilometres), population, real interest rate (%), interest rate spread (lending rate minus deposit rate), imports and exports of goods and services (BoP, current USD), labour participation rate (% of total labour force), labour force, unemployment, (% of total labour force), fertility rate (births per woman), urban population (% of total), short-term debt (% of exports of goods and services), terms of trade adjustment (constant LCU), real effective exchange rate index (2000=100).

It is also interesting to see how these three aggregates evolved over time. For this purpose we plot the Kernel density estimates (figure 1). We see that government spending and revenue have increased throughout time, which implies an increase of the size of the government notably when trying to provide the additional services related to the welfare state. This result is particularly clear for the case of government spending, in all country sub-groups.

Figure 1: Kernel Density estimates Expenditures and Revenues (% GDP)



Source: Authors' estimates.

5.4.2. Preliminary Results

According notably to Gupta *et al.* (2005) the composition of public outlays has a bearing on the nexus between budget deficits and growth. Table 1 summarizes the results of a series of panel regressions of per capita GDP growth on four variables: total government expenditures (% GDP), total government revenues (% GDP) and their growth rates, using 5-year averages. When expenditure is included alone in the equation, the correlation between government size and growth is negative and significant at the 1 percent level. Government revenue appears with a negative, though insignificant, coefficient when included alone (specification 3).

However, initial government revenues are strongly correlated with initial income per capita (specification 11), a variable which is itself negatively correlated with growth (specification 1). Hence, total government revenue could be capturing part of the effect of initial income when we omit this variable from the equation. Even after controlling for initial income, the coefficient of total government revenue remains negative and insignificant. The increase in government revenues, rather than its absolute size, seems to boost growth (specifications 5 and 9). If instead of fixed-effects we accounted for endogeneity problems and ran an IV-GLS regression results don't change.

Table 1: Baseline cross-country growth equations, 5-year averages

Dependent Variable	gdpvgr										
	FE (within)										
Estimation	ALL										
Sample	1	2	3	4	5	6	7	8	9	10	11
inigtppc	-2.78*** (0.459)					-3.69*** (0.603)	-2.65*** (0.502)	-3.29*** (0.650)	-1.98*** (0.443)	-1.09 (1.847)	3.39** (1.309)
torgovexp_gdp		-0.06** (0.023)				-0.07*** (0.022)		-0.07** (0.027)			
torgovrev_gdp			-0.04 (0.038)				-0.02 (0.043)		-0.01 (0.040)		
torgovexpgr				1.39 (7.249)				-4.75 (7.903)			
torgovrevgr					27.01*** (7.427)				28.47*** (6.610)		
gfct_gdp						0.14*** (0.040)	0.18*** (0.045)	0.14*** (0.051)	0.16*** (0.047)		
Obs.	1,395	561	812	446	664	539	783	435	649	392	607
R-squared	0.08	0.01	0.00	0.00	0.06	0.19	0.13	0.16	0.17	0.00	0.03

Note: The models are estimated by Within Fixed Effects (FE-within). The dependent variable is either real GDPpc growth (gdpvgr), the initial level of government expenditure (%GDP) or the initial level of government revenues (%GDP), as identified in the first row. Robust heteroskedastic-consistent standard errors are reported in parenthesis below each coefficient estimate. Time fixed effects were included, but are not reported. Also a constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.

Results for the OECD sub-sample (available from the authors) show that both expenditures and revenues appear with statistically significant negative coefficients in almost all regressions. Moreover, and even if both variables are strongly correlated with initial income per capita, after controlling for initial income, we still get the same result. The coefficients of total government revenue and expenditure are negative and significant. Contrary to the full sample case, government revenue growth is detrimental to economic growth. The same is true for spending growth (previously insignificant for the full sample)¹⁷.

Taking the “standard” regressors usually present in growth regressions – initial per capita GDP, population growth, trade openness, education and private investment – we explore how sensitive are total government expenditures and revenues when included together with this variable set. Table 2 shows that total government expenditures have a negative and statistically significant effect on output growth for the entire sample as well as for the OECD and emerging economies sub-groups when fixed-effects estimation is carried out. For emerging countries, government revenues have a detrimental effect to growth¹⁸. Making use of outlier-robust LAD and MM techniques does not alter our results¹⁹, nor if one controls for endogeneity issues with panel IV-GLS, DIFF-GMM and SYS-GMM. Therefore, the statistically significant negative coefficient of total government expenditures is robust across econometric specifications, whereas less clear results (insignificance) are attributed to the effects of government revenues on output growth. As an additional robustness exercise, conducting the same analysis with annual data instead doesn’t alter qualitatively our previous findings.

¹⁷ An IV-GLS estimation does not alter the main findings.

¹⁸ Running an IV-GLS estimator strenghtens our results and increases the magnitude of the coefficient estimates.

¹⁹ Given that outliers do not seem to strongly affect the total number of observations nor the coefficient estimates, for the remainder of the paper we shall focus solely on fixed-effects and on endogeneity-related econometric techniques (mostly panel IV-GLS and GMM).

Table 2: Total General Government Revenue and Expenditure and Growth, 5-year averages

Dependent Variable: Real GDPpc growth	Fixed-Effects (within)																
	Emerging								All								
	All	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Sample																	
Spec.																	
imigdpcc	-4.96*** (0.768)	-6.00*** (0.820)	-2.33*** (0.439)	-2.45*** (0.343)	-3.87*** (1.308)	-7.15*** (1.535)	-4.22*** (0.733)	-4.94*** (0.805)	-0.68*** (0.097)	-0.35* (0.180)	-5.17*** (0.577)	-5.40*** (0.611)	-4.61*** (1.373)	-8.66*** (1.446)	-0.71*** (0.222)	-0.07 (0.289)	
popgr	-0.48* (0.267)	-0.31 (0.192)	-0.91** (0.339)	-1.27*** (0.359)	-1.00** (0.463)	-1.68** (0.716)	-0.56*** (0.208)	-0.45*** (0.164)	-0.87*** (0.155)	-0.55** (0.227)	-0.46* (0.274)	-0.23 (0.300)	-0.30 (0.429)	0.01 (0.206)	-0.36** (0.153)	-0.33 (0.231)	
trade_gdp	0.04*** (0.012)	0.05*** (0.013)	0.04** (0.014)	0.02*** (0.009)	0.02 (0.022)	-0.00 (0.038)	0.04*** (0.012)	0.04*** (0.011)	0.01*** (0.002)	0.01*** (0.002)	0.04*** (0.010)	0.05*** (0.009)	0.12*** (0.025)	0.09*** (0.022)	0.01* (0.006)	0.01 (0.005)	
gfcf_gdp	0.16*** (0.045)	0.11*** (0.039)	0.13** (0.052)	0.11** (0.046)	0.30*** (0.108)	0.32** (0.120)	0.15*** (0.044)	0.10*** (0.037)	0.15*** (0.028)	0.15*** (0.044)	0.14*** (0.029)	0.13*** (0.032)	0.10 (0.071)	0.01 (0.076)	0.30*** (0.043)	0.25*** (0.039)	
education	0.04*** (0.010)	0.04*** (0.010)	0.02** (0.006)	0.02** (0.006)	0.05** (0.020)	0.04 (0.030)	0.04*** (0.009)	0.03*** (0.010)	0.03*** (0.006)	0.02*** (0.007)	0.05*** (0.014)	0.03** (0.014)	0.01 (0.027)	0.06*** (0.021)	0.04*** (0.010)	0.02 (0.011)	
tongovrev_gdp	-0.03 (0.040)		-0.03 (0.035)		-0.18*** (0.041)		-0.02 (0.033)		-0.05*** (0.015)		-0.02 (0.027)		-0.06 (0.067)		-0.03 (0.032)		
tongovexp_gdp		-0.08*** (0.024)		-0.12*** (0.022)		-0.26*** (0.086)		-0.08*** (0.023)		-0.05*** (0.014)		-0.07** (0.029)		-0.10*** (0.036)		-0.07*** (0.023)	
Obs.	746	515	202	191	173	113	732	504	746	515	733	503	564	389	746	515	
R-squared	0.23	0.30	0.27	0.38	0.32	0.35	0.20	0.24									
Hansen (p-value)																	
AB AR(1) (p-value)																	
AB AR(2) (p-value)																	

Note: The models are estimated by OLS (OLS-pooled), OLS with Least Absolute Deviation robust version (OLS-LAD), MM estimator a la Yohai (1987) which efficiently makes uses of both the S and Huber-type M estimators using iteratively reweighted least squares (IRWLS), Bias-Corrected Least Squares Dummy Variable (LSDV-C), Within Fixed Effects (FE-within), Two-Step robust Difference GMM (DIFF-GMM) and Two-Step robust System GMM (SYS-GMM). For the latter two methods lagged regressors are used as suitable instruments. The dependent variable is real GDPpc growth. Robust heteroskedastic-consistent standard errors are reported in parenthesis below each coefficient estimate. The Hansen test evaluates the validity of the instrument set, i.e., tests for over-identifying restrictions. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order (the null is no autocorrelation), respectively. A constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.

5.4.3. Budgetary economic decomposition

In order to assess the impact of different budgetary sub-components on output growth, we estimate equation (1) where the vector of controls variables now includes labour force participation rate, population growth, education, and private investment. We know that a typical business cycle correlation might imply that when growth falls, government expenditure increases and tax revenues would typically decrease. Furthermore, an expansionary fiscal policy can stimulate aggregate demand and thus growth. To check the importance of these correlations a control variable unemployment has been included in the model, because it is the variable that mostly varies with the business cycle.

In table 3 (panel A) we include in the estimation process each different sub-component of government revenues and expenditures, one at a time.

Table 3: Growth equations with Budgetary Economic Decomposition when fiscal variables are introduced one at a time in the benchmark equations, 5-year averages

Dependent Variable: Real GDPpc growth	Fixed Effects (within)					
Sample	All	OECD	Emerg	All	OECD	Emerg
	Panel A1			Panel B1		
<i>Spec.</i>	1	2	3	4	5	6
<i>Revenue Variables</i>						
taxrev_gdp	0.06 (0.127)	0.01 (0.192)	0.03 (0.211)			
domtaxesgs_gdp	0.39*** (0.117)	0.01 (0.242)	0.39* (0.210)	0.50*** (0.163)	-0.28 (0.489)	
taxesincome_gdp	-0.07 (0.060)	-0.06 (0.091)	-0.81** (0.378)	-0.40* (0.205)	-0.22 (0.355)	-2.24 (1.425)
taxproperty_gdp	-0.52 (0.693)	-0.31 (0.505)	0.08 (1.972)	-0.85 (0.760)	0.67 (0.541)	
taxpayroll_gdp	0.65 (1.089)	0.88 (0.538)	10.30*** (1.841)	-0.05 (0.763)	0.50 (0.766)	-12.96 (8.861)
taxsscgovrev_gdp	0.03 (0.044)	-0.01 (0.069)	0.20 (0.182)	0.11 (0.173)	-0.02 (0.218)	2.57** (1.050)
		Panel A2		Panel B2		
<i>Expenditure Variables</i>						
govexpwages_gdp	-0.03 (0.159)	-0.57*** (0.153)	0.15 (0.225)	-0.23 (0.177)	-0.18 (0.197)	-0.20 (0.218)
intpay_gdp	-0.00 (0.003)	-0.26** (0.127)	-0.01 (0.010)	0.08 (0.051)	0.55 (0.390)	-0.12 (0.422)
subs_gdp	0.00 (0.001)	-0.08*** (0.019)	-0.00 (0.003)	-0.04** (0.019)	-0.11** (0.042)	0.17** (0.064)
govcons_gdp	-0.19*** (0.051)	-0.45*** (0.147)	0.02 (0.142)	-0.28*** (0.084)	-0.34 (0.220)	-0.22 (0.134)
pubinv_gdp	-0.25*** (0.080)	0.69 (0.748)	-0.38** (0.169)	-0.28* (0.139)	-0.46** (0.199)	-0.68*** (0.176)

Note: The models are estimated by Within Fixed Effects (FE-within). The dependent variable is real GDPpc growth. Different individual regressions using the set of regressors and controls present in table 6 were performed and only coefficients of interest are reported for economy of space. Revenue and expenditure variables were included individually in each regression in Panel A. Simultaneously inclusion of different budgetary

components was performed in Panel B. Full results are available from the authors upon request. Robust heteroskedastic-consistent standard errors are reported in parenthesis below each coefficient estimate. Time fixed effects were included, but are not reported. Also a constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.

Inspecting first the revenues' (panel A1) we observe that each component does not significantly affect growth in OECD countries. However, domestic taxes on goods and services have a positive effect on output growth for the full sample and emerging economies sub-group, but not for the OECD. This may seem counter-intuitive, but Helms (1985) and Mofidi and Stone (1990) found that taxes spent on publicly provided productive inputs tend to enhance growth²⁰. For the emerging economies group, taxes on income, profits and capital gains have a statistically significant negative impact on growth, whereas taxes on payroll or workforce has a reverse effect²¹.

Turning to the expenditure side (panel A2), final government consumption has a significantly negative effect on output growth for the full and OECD samples. Indeed, economic theory suggests a variety of explanations for the negative relationship between government spending and growth. First, government spending can crowd out private spending²². Second, the level of government spending may proxy other government intrusions into the workings of the private sector, especially regulations which restrain economic growth and efficiency. Empirically, our results are in line with the works by Landau (1983, 1986), Grier and Tullock (1989), Barro (1991), Barro and Sala-i-Martin (1995), who have found a negative effect of government consumption on growth.

Still in table 3 (panel A), for the OECD sub-group, apart from public investment, which appears with a positive but insignificant coefficient, all remaining spending components adversely affect growth, in particular expenditures with wages and consumption spending. For the full sample and emerging economies sub-group, public investment appears with a significantly negative coefficient. Possibly inefficient and bureaucratic public sectors may generate lobbying, rent-seeking and other non-productive outcomes and activities that erode potentially the positive contribution coming from such investment. This is also in line with the literature reviewed before (notably Devarajan *et al.*, 1996, and Prichett, 1996).

In addition, we observe that interest payments and subsidies have a negative effect on GDP per capita growth, the latter eventually due to the fact that it

²⁰ Theoretically, in Barro-style models, increases in taxes can enhance, have no effect or impede growth depending, in particular, on the initial level of taxes as well as how revenues are spent.

²¹ Most growth models predict that taxes on investment and income have a detrimental effect on growth. These taxes affect the growth rate through a direct channel, reducing the private returns to accumulation. On empirical grounds, the effects of taxes on growth are not so clear and most research has focused on OECD countries.

²² In theory, government expenditure can be allocated to growth enhancing infrastructure and education but outlays also go for redistribution or government-mandated consumption, which does not improve productivity.

creates deadweight loss inefficiencies when distorting the market from its own natural equilibrium²³.

As a next step we include all components of each budgetary block simultaneously in regression (1). Table 3, Panel B, reports the results for both the revenue and expenditure blocks. As when included individually, domestic taxes on goods and services appear with a statistically significant positive coefficient in the growth regression. Regarding taxes on income, profits and capital gains, the negative significance is absent in the emerging economies sub-group, but it is present for the full sample. As regards the OECD sub-group, revenue variables are never significant in per capita GDP growth equations.

Taking account of endogeneity problems (with a corresponding panel IV-GLS approach – not shown) increases the significance level in most coefficients, in particular the basic set of controls (negative effect of unemployment for both the full and OECD samples; negative effect of population growth. Most revenues' coefficients for the OECD sub-group remain insignificant²⁴.

Regarding the expenditure items in Panel B2, on average, the R-squares are somewhat higher than when disaggregated revenues are included in the regressions. Overall, evidence suggests a higher importance attributed to government expenditures than to revenues. Apart from expected signs on the basic set of controls as already discussed, a closer inspection indicates that wage spending keeps its negative impact on growth equations, similarly as to when it is included individually in the regression, although not statistically significant. Government final consumption expenditure is detrimental to growth. As with the case of government revenues, when endogeneity is taken into account, most coefficients increase their significance levels with “right” sign estimates. Moreover, R-squares increase from FE to IV-GLS estimation in every specification.

5.4.4. Budgetary functional decomposition

Government spending can play an essential role in economic development by maintaining law and order, providing economic infrastructure, harmonizing conflicts between private and social interests, increasing labour productivity through education and health and enhancing export industries. Hence, in terms of the functional decomposition of government expenditures, we differentiate the

²³ As a sensitivity exercise (not shown) we have repeated the analysis without labour force participation and unemployment. A few differences are worth mentioning. On the revenue side the statistical significance is lower, particularly with respect to domestic taxes on goods and services, which are no longer significant in any regression. Taxes on income become statistically significant and negative in specification 1, thereby adversely affecting output growth. On the expenditure side results are kept qualitatively unchanged.

²⁴ Alternatively, running system-GMM for the full sample (not shown) removes any statistical significance out of the revenue's categories, confirming Easterly and Rebelo's (1993) claim that taxes are difficult to isolate empirically.

effects from spending on education, health, and social security (and welfare), which constitute the main items of government spending.

In table 4, Panel A, each of the above spending categories is included in the regression one at a time. For reasons of parsimony we do not report the full set of coefficient estimates. Regarding social security spending, it has a statistically negative effect on growth in the OECD sub-group. This is in accordance with e.g. Landau (1983, 1986), Barro (1991) and Grier and Tullock (1989) who found a negative relationship between social expenditures and growth.

In Panel B, the three variables of interest are included simultaneously in each regression. In Panel B, the same conclusions apply with the addition that government expenditure on education now affects positively growth in the emerging economies sub-group. It has been argued that investment in human capital like education (Barro and Sala-i-Martin, 1995) and health (Devarajan *et al.*, 1996) has positive effects on growth.

Table 4: Growth equations with functional spending: fiscal variables are introduced simultaneously (Panel A) and one at a time (Panel B), benchmark equations, 5-year averages

Dependent Variable: Real GDPpc growth	Fixed Effects (within)			
	Sample	All	OECD	Emerg
<i>Spec.</i>	1	2	3	
Panel A				
govexpedu_gdp	0.29 (0.358)	0.11 (0.306)	-0.44 (0.724)	
govexphea_gdp	-0.30 (0.302)	-0.26 (0.286)	2.55 (2.117)	
govexpss_gdp	-0.10 (0.115)	-0.42*** (0.093)	0.49 (0.283)	
Obs.	223	96	56	
R-squared	0.24	0.32	0.67	
Panel B				
govexpedu_gdp	0.04 (0.169)	-0.00 (0.128)	0.62* (0.332)	
govexphea_gdp	-0.24 (0.334)	-0.30 (0.387)	1.18 (1.812)	
govexpss_gdp	-0.09 (0.119)	-0.42*** (0.087)	0.06 (0.200)	

*Note: The models are estimated by Within Fixed Effects (FE-within). The dependent variable is real GDPpc growth. Different individual regressions using the set of regressors and controls present in table 14b. (in bold) were performed and only coefficients of interested are reported for economy of space. Expenditure components (education, health and social security) were included individually in each regression. Full results are available from the authors upon request. Robust heteroskedastic-consistent standard errors are reported in parenthesis below each coefficient estimate. Time fixed effects were included, but are not reported. Also a constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.*

5.4.5. Cross-sectional dependence

As discussed in Section 5.3. it is natural to suspect about the existence of cross-sectional dependence across homogeneous groups of economies. Therefore, we use Pesaran's CD test²⁵ for the OECD sub-samples and we find a statistic of 15.26, corresponding to a p-value of zero (the null hypothesis is cross-sectional independence).

In table 5 we run benchmark type growth regressions for this OECD sample using both a Driscoll-Kraay robust estimation approach and the Pesaran's Common Correlated Effects Pooled Estimator (CCEP)²⁶. Similarly to our earlier results we find negative and statistically significant coefficients for the effect of total government expenditures and revenues on output growth (the latter only true when running the Driscoll-Kraay regression). We find a negative effect of revenues' growth rate, confirming previous results. As for specifications 5 and 10 both government spending on education and health yield insignificant coefficients, though social security spending yields a statistically negative coefficient – reinforcing our previous results.

²⁵ A standard growth equation including a basic set of controls and the debt ratio is estimated with within fixed effects.

²⁶ We restrict ourselves to the examination of seven main variables of interest: total government expenditures and revenues (% GDP), their respective growth rates, and the functional decomposition of government expenditures (education, health, and social security and welfare).

Table 5: Growth equations with Government Expenditures and Revenues – accounting for Cross-Sectional Dependence, 5 year averages data – OECD

Dependent Variable: Real GDPpc growth	Discoll Kraay Robust Estimation									
	1	2	3	4	5	6	7	8	9	10
Model	CCEP									
Sample	OECD									
inigdppc	-0.81*** (0.221)	-0.77*** (0.251)	-0.12 (0.249)	-0.65*** (0.169)	-0.54* (0.267)	-2.45*** (0.522)	-2.53*** (0.555)	-2.12*** (0.719)	-2.83*** (0.509)	-2.47*** (0.802)
popgr	-0.46* (0.245)	-0.23 (0.187)	0.39** (0.159)	0.02 (0.167)	-0.14 (0.183)	-1.27*** (0.285)	-0.91*** (0.296)	-0.05 (0.384)	-0.83*** (0.291)	-0.18 (0.415)
gfcf_gdp	0.01* (0.004)	0.01** (0.003)	-0.00 (0.004)	0.01 (0.006)	0.02** (0.006)	0.02** (0.009)	0.02** (0.009)	0.01 (0.011)	0.02* (0.009)	0.03** (0.013)
openness	0.09*** (0.022)	0.11*** (0.029)	0.20*** (0.029)	0.13*** (0.029)	0.10*** (0.032)	0.11*** (0.038)	0.13*** (0.040)	0.26*** (0.049)	0.14*** (0.039)	0.16*** (0.056)
education	0.01*** (0.003)	0.01*** (0.003)	0.01*** (0.002)	0.01*** (0.003)	0.02*** (0.004)	0.02*** (0.008)	0.04*** (0.009)	0.04*** (0.013)	0.04*** (0.008)	0.06*** (0.015)
totgovexp_gdp	-0.06*** (0.012)					-0.12*** (0.024)				
totgovrev_gdp		-0.04*** (0.010)					-0.03 (0.033)			
totgovrevgr			-35.41*** (6.733)					-35.49*** (9.042)		
totgovexpgr				17.45* (9.007)					15.19 (9.498)	
govexpedu_gdp					0.00 (0.035)					-0.31 (0.193)
govexphea_gdp					-0.05 (0.036)					-0.19 (0.155)
govexpss_gdp					-0.10*** (0.018)					-0.14* (0.078)
Obs.	191	202	142	195	133	191	202	142	195	133
R-squared	0.28	0.27	0.31	0.23	0.26	0.38	0.27	0.40	0.29	0.39

Note: The models are estimated with either Driscoll Kraay robust estimator or the Pesaran's Common Correlated Effects Pooled estimator (CCEPE) to correct for the existence of cross-sectional dependence in the OECD. The dependent variable is real GDPpc growth. Standard errors are reported in parenthesis below each coefficient estimate. A constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.

5.4.6. Non-linearities in budgetary decomposition

An additional exercise is to further explore possible effects coming from non-linearities in the context of the budgetary decomposition. The results in the previous sections suggest that the reduction of budget deficits can be conducive to higher growth. Of interest is whether these results hold for all countries (and sub-groups) in the sample(s), in particular, for countries that have already achieved a modicum of macroeconomic (fiscal) stability²⁷. Therefore, we split the sample(s) into countries labelled “above” or “below”, based on a given fiscal threshold. Specifically, an “above” type country is defined as a country that maintained on average (over time) a budget deficit below 3% of GDP. Conversely, a “below” type country is such that it maintained an average budget deficit above 3% of GDP²⁸. In table 6 we report the results with the 3% deficit threshold²⁹. First, both the unemployment rate and the dependency ratio appear with a negative and statistically high coefficient in several regressions.

²⁷ On the same line see Adam and Bevan (2001) and Gupta *et al.* (2005).

²⁸ The 3% value is an ad-hoc number stemming from the European Union Stability and Growth Pact (SGP) rationale. For the OECD sub-group, countries classified as being “above” average, lower deficits, are: Australia, Canada, Czech Republic, Denmark, Finland, France, Germany, Iceland, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Slovakia Spain, Switzerland, UK and US. The “below” average ones, higher deficits, are: Austria, Greece, Hungary, Ireland, Italy, Japan, Mexico, Portugal, Sweden and Turkey.

²⁹ Needless to say that some of these results require care in interpretation given the truncated nature of the resulting sample and reduced number of available observations.

Dependent Variable: Real GDP/pc growth	Fixed Effects (within)																	
	All			OECD			Emerg			All			OECD			Emerg		
	>3%	<3%	1	>3%	<3%	2	>3%	<3%	3	>3%	<3%	4	>3%	<3%	5	>3%	<3%	6
Sample																		
Spec.																		
subs_gdp																		
govcons_gdp																		
pubinv_gdp																		
Observations	202	346	66	109	50	98	48	48	20	23	26	34	47	58	47	68	21	30
R-squared	0.27	0.29	0.25	0.27	0.48	0.39	0.57	0.78	0.99	0.95	0.83	0.90	0.61	0.75	0.66	0.45	0.99	0.87

Note: The models are estimated by Within Fixed Effects (FE-within). The dependent variable is real GDPpc growth. "Above" and "below" performers are classified as those having maintained an average (over the country's time span) budget deficit below 3% or over 3%, respectively. Robust heteroskedastic-consistent standard errors are reported in parenthesis below each coefficient estimate. Time fixed effects were included, but are not reported. Also a constant term has been estimated but it is not reported for reasons of parsimony. *, **, *** denote significance at 10, 5 and 1% levels.

In the fixed-effects specifications 7-12 for the revenue panel both in the full sample and in the emerging economies sub-group, some points are worthwhile emphasizing. Apart from retaining the positive coefficient on domestic taxes on goods and services that we have commented on before, the case of the below 3% threshold, for the full sample, now registers a statistically positive coefficient on the contributions to social security, which previously were insignificant (but positive still) in table 3. For the case above 3%, the emerging economies sub-group retain the statistically negative impact of social security contributions allocated in table 3 for the entire emerging group (though now with an increased magnitude of the estimate). For this group of countries, taxes on income, profits and capital gains is detrimental to growth in the below 3% deficit set of economies.

Furthermore, for the OECD sub-sample, coefficient estimates which were entirely insignificant in table 3 now appear with statistically meaningful coefficients. Moreover, it is interesting to observe that depending whether we take the below or above 3% threshold set of economies, coefficient signs may be reversed (e.g., negative impact of taxes on income, profits and capital gains as well as taxes on payroll or workforce for the above 3% group, but positive ones for the below 3% group). For instance, this can imply that with higher fiscal imbalances, additional taxes on income depress growth.

Third, for the expenditure set of regressions, results are less controversial or dubious in their “expected” or “right” coefficient signs. As before, we have negative effects of government spending on wages, final consumption and public investment (the latter notably for the emerging economies sample, regardless of the deficit threshold).

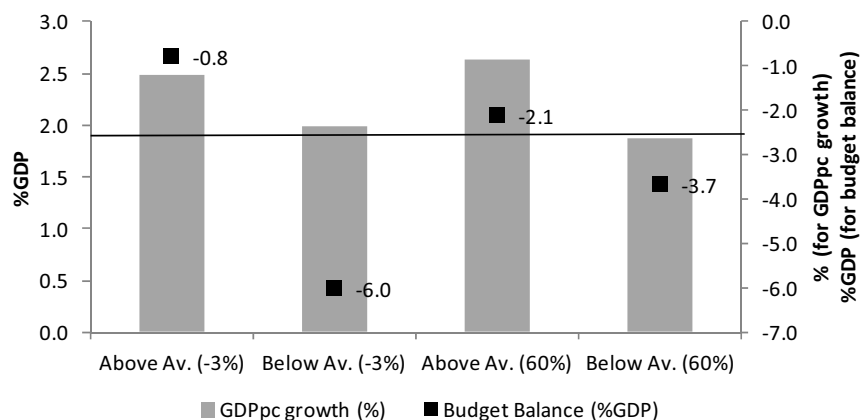
As a robustness exercise we have conducted a sensitivity analysis based on the exclusion of labour force participation, unemployment and dependency ratio (not shown). Whereas coefficients, magnitudes and statistical significance levels in the expenditure-based regressions are kept unchanged, the same does not apply to specifications 7-12, concerning revenues. In particular, we lose significance in all revenue components for the OECD below 3% sub-group. For the OECD above 3% case, domestic taxes on goods and services have a statistically negative coefficient and taxes on property a statistically positive coefficient, both of which were absent before (we lose significance on the remaining variables) though. All in all, results with revenue components are sensitive to the inclusion/exclusion of particular controls, and hence should be interpreted with care.

Finally, we have redefined our deficit threshold such that now instead of averaging over the countries time span, we take each 5-year average period to assess/determine the above and below 3% classification. Moreover, as before but now based on the new criterion, we did the analysis with the labour force participa-

tion, unemployment and dependency ratio excluded from the set of regressors. Reporting all these would lead us far off-track. A typical result is the confirmation that government expenditures' components are generally detrimental to growth irrespectively of the country group and deficit threshold classification. As for revenues' components, results are mixed, unclear or contradictory depending on the set of regressors included, geographical sample and deficit rule used.

In addition, figure 2 summarizes the relationship between output growth and the budget balance ratio according to the 3% fiscal thresholds classification. The pattern arising is that countries with average lower budget deficits are associated with higher GDP real growth rates.

Figure 2: "Above" and "Below" Average Performers, GDP growth per capita and the budget balance



Source: Authors' estimates.

To gain further perspective on the relationship between fiscal variables and economic performance we briefly review some country-specific details related to the regression results reported before. The main purpose of this exercise is to see if any definite trend could be observed with respect to government debt and budget deficits and the level of economic performance of the so-called "above-average performers" and "below-average performers" (countries).

For the entire time span we identified "above-average" and "below-average" performing countries on the basis of the difference between their actual and predicted values of the per capita GDP growth rates. In line with Nelson and Singh (1994) countries whose actual growth rates exceeded their predicted growth rates by 1% or more were classified as "above-average performers", and countries that fell short of the predicted growth by a similar percentage (or more) were categorized as "below-average performers". The list of countries in both categories is

reported in table 8 where we estimated the regression using total government expenditures as the included fiscal variable for the full sample³⁰.

Table 7: “Above” and “below” Growth Performers and Budget Deficits: full sample (expenditures’ equation)

	“Residual” GDP growth rate	Budget deficit (-) or Surplus (+) (%GDP)
Below average		
Guinea-Bissau	-3.2	-0.3
Guyana	-2.7	-23.9
Congo, Dem. Rep.	-2.0	-5.9
Australia	-1.9	-0.8
Jamaica	-1.6	-10.0
Haiti	-1.6	-2.9
Kuwait	-1.6	0.4
Switzerland	-1.4	-0.4
Suriname	-1.2	-8.3
Peru	-1.2	-2.4
Bahamas, The	-1.1	-1.6
Bolivia	-1.1	-1.7
Above average		
Korea, Rep.	2.0	-0.2
Pakistan	1.9	-6.4
Israel	1.8	-8.1
Dominican Republic	1.8	-0.7
Malta	1.5	-2.4
Cyprus	1.4	-5.4
Malaysia	1.4	-4.3
Thailand	1.2	-1.4
Ireland	1.2	-4.9
Luxembourg	1.1	2.0
Morocco	1.1	-5.7
Turkey	1.1	-4.2
Panama	1.0	-3.0
Syrian Arab Republic	1.0	-3.3
Egypt, Arab Rep.	1.0	-7.6
Mauritania	1.0	-5.4
Rwanda	1.0	-2.9

Note: see text for definition of “above” and “below” performers. Countries that do not fall in either of the two groups are excluded. Gross domestic product residuals are based on an OLS regression of GDPpc growth rate on initial GDPpc, population growth, secondary school enrolment, private investment, openness and government expenditures (%GDP). The residual is computed as actual minus predicted. A complete list of all countries in the dataset with residuals and deficits is available upon request. Positive (negative) residuals imply that actual growth is above (below) the predicted growth via equation (7).

³⁰ For robustness we re-estimated with total government revenues to assess whether the list of countries falling in each category changed or was the same. Results (not shown) did not change significantly.

Table 7 shows the residual of the per capita GDP growth rate estimation and budget balance ratio for these groupings of countries. Of interest is whether there is any clear-cut connection between these aggregates that is evident from these results. In particular, we want to assess if we can conclude that the above-average performers (higher residuals in this case) have had necessarily lower budget deficits and that the below-average performers generally experienced larger deficits.

From table 7 we see, for example, that there are below-average countries (negative residuals) with low budget deficits. Conversely in the above-average category we find countries such as Morocco or Israel both with substantial budget deficits. If one isolates the group of OECD countries (not shown) we also have a mixed picture with Greece falling in the above-average category but showing a budget deficit of 8.1% of GDP. On the other hand, Australia appears in the below-average category although it had a budget balance deficit of only 0.8% GDP.

Therefore, it is not obvious to find a definite connection, between the level of economic achievement and the magnitude of budgetary deficits. It is evident that “above” average performers must have had more favourable conditions contributing to a high rate of output growth for a given level of investment than the “below” average countries.

5.4.7. Panel Granger-causality tests

It is also important to understand whether expenditures (revenues) Granger cause per capita GDP, or the reverse applies or even if one finds two-way bidirectional causality. In previous studies, Hakro (2009) finds evidence suggesting that government expenditures are growth inducing, and a larger size of the government will certainly create opportunities of employment and hence growth, and subsequently higher income per capita. In a related sample Kumar (2009) infers instead that Wagner’s Law does hold³¹. Yuk (2005) takes a long term perspective on UK time series and, although support for Wagner’s Law is sensitive to the choice of the sample period, there is evidence that GDP growth Granger-causes the share of government spending in GDP. Loizides and Vamvoukas (2004) using a bivariate ECM conclude that government size Granger causes economic growth in all countries in the short and long run; economic growth Granger causes increases in the relative size of government in Greece, and when inflation is included, in the UK.

We find little evidence of robust Granger causality from per capita GDP to government expenditure³² across econometric specifications, with only one model

³¹ A stylised fact of public economics about the long-run tendency for public expenditure to grow relative to some national income aggregate such as GDP.

³² Both total government expenditures and revenues (% GDP) were converted to nominal levels, deflated using the CPI and scaled by population. Hence, we have real GDP per capita and either real total government expenditures or revenues in per capita terms as well (so that both variables of interest are comparable).

indicating a negative short and long-run effect of total government expenditure on output growth.

However, there is stronger evidence supporting the reverse relationship, that is, from GDP to expenditures, therefore favouring the idea of Wagner's Law. In particular, there are significant short and long-run effects, we reject the null of no Granger-causality using our two-step Hansen incremental test, and diagnostics are well behaved (table 8).

Table 8: Panel Granger-Causality - Total Government Expenditures and GDPpc (full sample)

Dep.Var. totgovexppc	OLS levels	Within Group (FE)	DIF-GMM	SYS-GMM	SYS-GMM-1	SYS-GMM-2
Model	(1)	(2)	(3)	(4)	(5)	(6)
Instrument set	none	none	Full	Full	Reduced	Reduced
Lag1 totgovexppc	0.04 (0.201)	-0.98** (0.395)	-1.63*** (0.476)	-0.14 (0.127)	-0.12 (0.073)	-1.68*** (0.166)
Lag1 GDPpc	2.43** (0.950)	32.76*** (8.946)	25.28 (24.939)	6.45* (3.635)	9.49*** (2.941)	12.29** (6.223)
Obs.	320	320	226	320	320	320
R-squared	0.01	0.19				
AB AR(1) (p-value)			0.26	0.29	0.29	0.25
AB AR(2) (p-value)			0.65	0.31	0.31	0.60
Hansen p-value			0.01	0.03	0.28	0.31
Granger causality p-value	0.01	0.00	1.00	0.13	0.00	0.00
Unobs. Heterogeneity				0.00	0.00	0.00
LR effect point estimate (standard error)	2.51* (1.287)	16.54*** (3.053)	9.62 (10.053)	5.67 (3.649)	8.47*** (2.682)	4.59** (2.166)

*Note: Our five-year averages dataset was used for the purpose of assessing Granger causality. Year dummies are included in all models (coefficients not reported). Figures in parenthesis below point estimates are standard-errors. The GMM results reported here are two-step estimates with heteroskedasticity-consistent standard errors. The Hansen test is used to assess the overidentifying restrictions; the test uses the minimized value of the corresponding two-step GMM estimator. The difference Hansen test is used to test the additional moment conditions used by the system GMM estimators in which SYS GMM uses the standard moment conditions, while SYS GMM-1 only uses the lagged first-differences of totgovexp_gdp dated t-2 (and earlier) as instruments in levels and SYS-2 only uses lagged first-differences of GDPpc dated t-2 (and earlier) as instruments in levels. The heterogeneity test is used to test the null that there are no individual effects (see text). The Granger causality test examines the null hypothesis that totgovexp_gdp is not Granger-caused by GDPpc; the test statistic is criterion based, using restricted and unrestricted models (see main text for details). The LR effect is the point estimate of the long-run effect of GDPpc on totgovexp_gdp. Its standard error is approximated using the delta method. *, **, *** denote significance at 10, 5 and 1% levels.*

Redoing the analysis for the OECD sub-sample (not shown), we get slightly stronger results favouring Granger causality from government spending to GDP for a positive short-run effect in 3 out of 6 models. Nevertheless, there does not seem to be a significant long-run effect. For the OECD the reverse relationship still holds with evidence of Granger-causality from GDP to government spending,

as well as positive and significant short and long-run effects in both the pooled OLS and FE models.

5.5. CONCLUSIONS

We have used a panel of 155 developed and developing countries for the period 1970-2008, in order to assess the potential linkage between fiscal policy developments and economic growth. More specifically, we focused on a number of econometric issues that can have an important bearing on the results, notably simultaneity, endogeneity, causality, the relevance of nonlinearities, cross-section dependence, and threshold effects.

Our evidence also suggests that for the full sample revenues have no significant impact on growth (though their growth rate has a positive impact) whereas government expenditures appear with highly significant negative signs. The same is true for the OECD group with the addition that now total government revenues have a negative impact on growth (however, when included together with other regressors it loses significance).

If we decompose revenues, our empirical evidence is weak and unclear as to concrete effects, with the more general conclusion that taxes on income are usually detrimental to growth. Regarding expenditures, results are more robust and consistent across samples and econometric specifications; in particular public wages, interest payments, subsidies and government consumption are found to negatively affect output growth. Concerning the functional classification of government spending, expenditures on social security and welfare are detrimental to growth, whereas both government spending on education and health boosts growth. Most results are confirmed even after we address cross-sectional dependence.

Granger causality tests find relatively weak evidence supporting causality running for expenditures or revenues to GDP per capita, but the reverse appears to be consistently stronger notably for spending, that is, evidence of the Wagner Law. For the OECD these effects are usually more pronounced.

Interestingly, and depending whether we take the below or above 3% threshold budget deficit set of economies, we observe a negative impact, on growth, of taxes on income, profits and capital gains as well as taxes on payroll or workforce for the above 3% group, but a positive one for the below 3% group of countries.

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APPENDIX – SAMPLE, VARIABLES AND SOURCES

Countries in the dataset (155)

Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, The, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Cayman Islands, Chad, Chile, China, Colombia, Comoros, Congo, Dem. Rep., Congo, Rep., Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, Arab Rep., El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Islamic Rep., Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Korea, Rep., Kuwait, Kyrgyz Republic, Lao, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russian , Federation, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, Somalia, South Africa, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Rep., Zambia, Zimbabwe.

Variable	Definition/Description	Acronym	Source
real GDP per capita		<i>Gdppc</i>	World Bank's World Development Indicators (WDI)
gross fixed capital formation (% GDP)		<i>Gfcf_gdp</i>	WDI
public investment (% GDP)		<i>Pubinv_gdp</i>	WDI
Government budget surplus or deficit (% of GDP)	The government budget surplus or deficit as a percentage of GDP.	<i>Govbal_gdp</i>	WDI, IMF IFS, Easterly (2001)
Total Government Revenue (% GDP)		<i>Totgovrev_gdp</i>	WDI, IMF IFS, Easterly (2001)
Tax revenue (% GDP)		<i>Taxrev_gdp</i>	WDI, IMF IFS, Easterly (2001)
Domestic taxes on goods and services (% GDP)	This includes VAT, excises, profits of fiscal monopoly etc.	<i>Domtaxesgs_gdp</i>	WDI, IMF IFS, Easterly (2001)
Taxes on payroll or work force (% of GDP)	This category consists of taxes that are collected from employers or the self-employed and that are not earmarked for social security schemes.	<i>Taxpayrool_gdp</i>	WDI, IMF IFS, Easterly (2001)
Taxes on income, profits and capital gains (% GDP)		<i>Taxincome_gdp</i>	WDI, IMF IFS, Easterly (2001)
Taxes on property (% of GDP)	Taxes on the use, ownership, or transfer of wealth	<i>Taxproperty_gdp</i>	WDI, IMF IFS, Easterly (2001)
Tax and social security contributions government revenue (% of GDP)	Total government revenue from taxes and social security contributions	<i>Taxssgovrev_gdp</i>	WDI, IMF IFS, Easterly (2001)
Total Government Expenditure (% GDP)		<i>Totgovexp_gdp</i>	WDI, IMF IFS, Easterly (2001)
Compensation of employees (% GDP)		<i>Govexpwages_gdp</i>	WDI, IMF IFS, Easterly (2001)
Interest Payments (% GDP)		<i>Impay_gdp</i>	WDI, IMF IFS, Easterly (2001)
Subsidies (% GDP)		<i>Subs_gdp</i>	WDI, IMF IFS, Easterly (2001)
Public Final Consumption Expenditure (% GDP)		<i>Govcons_gdp</i>	WDI, IMF IFS, Easterly (2001)
Public spending on Education (% GDP)		<i>Govexpedu_gdp</i>	WDI, IMF IFS, Easterly (2001)
Public spending on Health (% GDP)		<i>Govexphea_gdp</i>	WDI, IMF IFS, Easterly (2001)
Public spending on Social Security and Welfare related (% GDP)		<i>Govexpss_gdp</i>	WDI, IMF IFS, Easterly (2001)
School attainment	average years of schooling in the population over 25 years old from the international data on educational attainment	<i>Edu</i>	Barro and Lee (2010)
literacy rate (% of people ages 15 to 24)		<i>Literates</i>	WDI
primary school enrolment (% gross)		<i>Primary_enrol</i>	WDI
primary school duration (years)		<i>Primary_dur</i>	WDI
secondary school enrolment (% gross)		<i>Secondary_enrol</i>	WDI

Variable	Definition/Description	Acronym	Source
secondary school duration (years)		<i>Secondary_dur</i>	WDI
tertiary school enrolment (% gross)		<i>Tertiary_enrol</i>	WDI
tertiary school duration (years)		<i>Tertiary_dur</i>	WDI
land area (in square kilometres)		<i>Land_area</i>	WDI
population		<i>Pop</i>	WDI
imports and exports of good and services (BoP, current USD)		<i>Imp_exp</i>	WDI
labour participation rate (% of total)		<i>Lfp</i>	WDI
labour force		<i>Laborf</i>	WDI
unemployment, total (% of total labour force)		<i>Unemp</i>	WDI
fertility rate (births per woman)		<i>Fertility</i>	WDI
age dependency ratio (% of working age population)		<i>Depratio_wa</i>	WDI
urban population (% of total)		<i>Urban_pop</i>	WDI
Short-term debt (% of exports of goods and services)		<i>Short_debt_gdp</i>	WDI
terms of trade adjustment (constant LCU)		<i>Terms_trade</i>	WDI
real effective exchange rate index (2000=100)		<i>Reer</i>	WDI

6. CURING AND PREVENTING EUROAREA'S SOVEREIGN DEBT CRISES: SOME ISSUES AND A RECIPE

Franco Bruni

6.1. INTRODUCTION

The sovereign debt crisis that has now been troubling the euro area for nearly three years originated as part of the scenario of the global financial turbulence that started in the summer of 2007, but it is characterised by specific causes and peculiar problems. The efforts to diagnose its causes, as well as to cure it and to prevent future difficulties of the same kind and severity, require careful consideration of the features of the institutions of the European Union, of the organisation of the financial sector of the euro area and of the economic policies of the member countries.

In order to offer a contribution to these efforts, the paper discusses a group of issues, organising the arguments by crossing two criteria: using as a scheme a “recipe” for cures and prevention of euro sovereign crises, with seven ingredients; and devoting special consideration to the Italian case.

Italy's role in the sovereign debt crisis has been crucial and special: its analysis can be instructive, for several reasons. The main reason is that the Italian sovereign problem is by far the most “systemic”, compared with those that trouble the other peripheral euro countries. It is systemic because the illiquidity or the insolvency of the very large stock of Italian public debt are an enormous danger for all the euro area (an even for major countries outside Europe). But its systemic nature derives also from the opposite causality: Italy's debt is a wide sail, ready to suffer any serious turbulence affecting the sea of global capital markets, as soon as risk aversion increases, even if the country's fiscal behaviour is kept well disciplined and in spite of the fact that Italy has a proportionally smaller public deficit than other European problem countries and a considerable amount of private saving and wealth.

Italy's case study is interesting also because the country's fiscal discipline is deeply interconnected, more than elsewhere, with structural problems of productivity and competitiveness. As a consequence, the only way to seriously alleviate the sovereign debt problem in the short term is to increase the credibility of national policymakers as well as of European institutions that assist the country over the medium-long run with structural issues. The role of credibility (and therefore the

potential disasters springing from multiple equilibria), which only in part depends on the short term strength and speed of macroeconomic adjustments, is such that Italy has relied a lot on the benefits coming from a sudden change of government, in November 2011, bringing to power a rather peculiar cabinet of non elected “technicians”, as they have been called.

The following sections are devoted to the seven ingredients of the recipe: two of them refer to adjustment policies and are dealt in section 6.2.; section 6.3. discusses three ingredients for appropriate financing of disequilibria; section 6.4. is about two ingredients consisting in orderly default procedures for sovereigns and banks. The paper argues that all the ingredients are necessary and complement each-other. The case of Italy is used as the main example in the reasoning. Section 6.5. concludes with a comment on the irreversibility of the euro, as stated at the beginning of August 2012 by the President of the ECB.

6.2. ADJUSTMENT

6.2.1. The ingredients

The first ingredient, for the cure and the prevention of sovereign debt crises, is the presence of adequate *domestic rules and incentives to adjust fiscal disequilibria*. In building a framework for stability it is impossible to disregard the domestic stimulus to adjustment efforts, rooted in the political and institutional mechanisms of each country, as well as in the public opinion and in the economic culture of the population. External discipline and international rules cannot be effective and reach sustainable results if they are not perceived as coherent with national interests. When left alone, external discipline tends to prefer short-term non structural measures to reassure foreign creditors; moreover it can endanger other aspects of the international relations of a country and threaten the democratic legitimacy of its economic governance.

On the other hand, the separate consideration of individual national interests cannot result in stability and growth of a highly interdependent world. International interdependencies are particularly strong inside the euro area. Massive external economies and diseconomies are not accounted for when domestic decisions are taken by private or public agents; their impact tends to come back in a second round, after it has affected other countries, and then bounces again abroad, and so on. Therefore interdependencies do not allow to consider the global or regional interest as the sum of individual national interests, to be pursued in isolation or “exchanging favours” between countries with a “zero sum game” approach. In an interdependent world the concept of national interest must be reinterpreted, otherwise it becomes meaningless and even impossible to compute.

Fiscal adjustments to improve stability and growth must take into account the inadequate internalization of economic interdependencies. They must therefore rely on international coordination and, in the case of the highly integrated EU and the euro area, they must also be guided by a substantial dose of *supranational centralisation of economic policy decisions, which is therefore the second ingredient* for curing and preventing sovereign debt crises.

Supranational decisions and constraints have an additional function, besides taking care of interdependencies: they often favour the achievement of national interest, *strictu sensu*, as they avoid distortions caused by the capture of deliberations by special interests and by time inconsistencies in the national political decision process. European competition policy, for instance, is also a defence of consumers at the national level from domestic monopolies which would be more powerful without a supranational enshrining of anti-trust rules. As far as public finance disequilibria and their adjustments are concerned, a crucial role of supranational (supposedly virtuous) coordination is the defence of the interest of (national!) “future generations” that are under-represented in the national decision process.

Finally, the second ingredient is required as a complement to the fifth one, solidarity, that will be discussed later. Without supranational control, solidarity is a source of moral hazard and international support for national adjustment processes, as well as member states' mutual insurance against shocks, disequilibria and instability, is unacceptable for European citizens.

External discipline is often considered an unwarranted interference with national decisions, lacking democratic accountability, even if this criticism should not concern the initiatives of European authorities which receive their legitimacy from the member countries that they coordinate and discipline. Italy has a long history of external macroeconomic discipline, dating back to the fixed exchange rates of Bretton Woods and then to the international help received during the '70s, the struggles to comply with the EMS rules in the '80s, the management of the serious exchange rate crisis of 1992-95, the admission to the euro area followed by the first years of implementation of the Stability and Growth Pact. All in all, the experience can be judged positive: both the governments and the electorate have a long tradition of acceptance of the fact that external pressures are needed to remedy the weaknesses of the internal incentives to sound policymaking.

However, in 2011 the reactions to “Europe's” requests of policy measures were unusually controversial and bitter. Even Mario Monti, three months before his internationally highly appreciated appointment as premier of the country, wrote a newspaper article¹ highlighting the limits of the quality and of the effectiveness of policies dictated by a “foreign Podestà” like in the “seigniories” of the Middle

¹ *Corriere della Sera* 7 agosto, 2011.

Ages². One of the main causes of the problem was the institutional disorder that characterised the enactment of European macroeconomic discipline in the hardships of the sovereign debt crisis. The action of the Commission was weak and ineffective, its relationship with the agonising Berlusconi's government was vain and its legitimate voice was badly mixed up with the pronouncements of the self-appointed and hardly convincing leadership of Sarkozy and Merkel. In such a confusing situation the stepping in of the ECB as an additional unauthorised "foreign Podestà" was badly received when a confidential, unusual and anomalous letter was made public by a newspaper³: signed by the president of the ECB and by the governor of the Bank of Italy, the letter was setting detailed conditions for the central bank support to Italy's sovereign securities.

After becoming prime minister Mario Monti rushed to stress that the adjustments and the reforms were not imposed from abroad as they coincided with national interest and that the recommendations of the Commission and of the Council were coming from institutions with powers delegated by member countries, including Italy. Moreover Monti exploited the strong adjustment measures that his government immediately adopted to gain new influence in the European coordination process. But also along 2012, the Italian case has been looking as a instructive example of the difficulty of stirring the indispensable mixture of the first and the second ingredients of the recipe for stability: domestic incentives and international pressures to adjust and reform unsustainably unbalanced macroeconomies.

For an easier mixture, obviously, the quality and the right speed of the adjustment plans matter a lot. Again, a discussion of Italy's plans can be instructive.

6.2.2. The optimal speed and quality of the adjustment: the Italian case

During the spring of 2011 the Italian fiscal adjustment was shaped with the Economic and Financial Document, following the procedures of the new version of the Stability and Growth Pact and jointly with the presentation of the National Reform Programme. As shown in table 1, a balanced budget was planned for 2014 with restrictive measures to be enacted in 2013-4. The Commission and the

² Domenico Manegoldo di Tettuccio, from Brescia (a foreigner for Genoans) was the first "podestà" called in Genoa, in 1190, to settle internal fights, which he did in a rather bloody fashion. In the following two centuries Genoa had 78 foreign "podestà", before the establishment of Simon Boccanegra as a "doge perpetuo"; see F. BRUNI, *L'Italia nella crisi finanziaria e la denazionalizzazione della politica economica* in BONVICINI and COLOMBO (eds.): "La politica estera dell'Italia", edizione 2012, Il Mulino, Bologna 2012, 27-52.

³ The letter, dated 5 August, should have remained confidential; it was "searched and obtained in indirect ways" by the *Corriere della Sera* and published, the 29 September, both in its original English version and in an Italian translation (www.corriere.it/economia/11_settembre_29/sensini_documento_bce_e68f29d6-ea58-11e0-ae06-4da866778017.shtml).

Council expressed their opinion in July. They did not object to the 2014 target for balancing the budget; their recommendation concentrated on the fact that corrective measures were insufficiently defined: “back up the targets for 2013-4 ... with concrete measures by October 2011”⁴. This official opinion has to be kept in mind in discussing the sudden acceleration of the adjustment plan that followed the speculative attacks on Italy's sovereign debt in August. Until July, while the quality of the adjustment appeared weak, the quantity and the timing were widely considered sufficient.

The later part of the summer 2011 exacerbated two problems: the contagion effects from the Greek crisis and the lack of credibility of the Italian government. The latter was also accused by domestic critics of unhealthy cunning in having postponed the restrictive measures until after the 2013 elections. The ECB resumed its interventions under the Securities Market Programme and robust purchases of Italian treasury bonds were accompanied by a letter signed by Trichet and the Governor of the Bank of Italy containing a detailed list of measures to be considered “essential”⁵, including the requirement to bring the balancing of the budget forward to 2013. The adjustment plan had to be precipitously corrected, also to take into account the worsening GDP forecasts. With successive, controversial announcements, decisions were taken to quicken the adjustment and balance the budget in 2013. They were summarised (see the figures in table 1) in an official revision of the Economic and Financial Document dated September 22.

But the new plan turned out to be insufficient to calm the markets, due to the worsening of the turbulence in the euro area and an extremely confused political situation in Italy, also preventing a constructive discussion with the Commission, as the country's premier was at odds with his finance minister. The sovereign spread with the Bunds skyrocketed and from 20 September to 7 October all the three major rating agencies downgraded the Italian sovereign risk. The consequent higher prospective cost of the Italian debt caused a further worsening of Italy's fiscal scenario; the adjustment path of the deficit/GDP ratio was also endangered by a new deterioration of global GDP forecasts. The political crisis precipitated and a new government of “independent technicians”, chaired by Mario Monti, was appointed in November with the support of a large bipolar majority in the Parliament.

After three weeks a government's decree adopted a package of severe fiscal measures. As far as the aggregate size and the timing of the adjustment are concerned, the package stuck to the previous government's commitment with the EU. In par-

⁴ Council recommendation of July 12, 2011, *Official Journal of the European Union*, 21 July 2011, p. 6-7.

⁵ The letter (see footnote 4 above) was dated August 5 and was confidential but was later published by the daily *Corriere della Sera*, causing several criticisms for the unconventional interference of the central bank.

Table 1. Italy's fiscal adjustment plans

Adjustment plan	2011	2012	2013	2014
Spring 2011				
GDP forecast	1.1	1.3	1.5	1.6
Unadjusted deficit	- 3.9	- 2.7	- 2.7	- 2.5
Planned adjustment	0	0	+ 1.2	+ 2.3
Target deficit	- 3.9	- 2.7	- 1.5	- 0.2
September 2011				
GDP forecast	0.7	0.6	0.9	1.2
Unadjusted deficit	- 4.1	- 3.3	- 2.2	- 1.0
Planned adjustment	+ 0.2	+ 1.7	+ 2.1	+ 1.2
Target deficit	- 3.9	- 1.6	- 0.1	+ 0.2
December 2011				
GDP forecast	0.6	- 0.4	0.3	1.0
Unadjusted deficit	- 3.9	- 2.5	- 1.3	- 1.1
Planned adjustment	0	+ 1.3	+ 1.3	+ 1.3
Target deficit	- 3.9	- 1.2	0	+ 0.3
April 2012				
GDP forecast	0.4	- 1.2	0.5	1.0
Unadjusted deficit	- 3.9	- 1.7	- 0.5	- 0.1
Planned adjustment	0	0	0	0
Target deficit	- 3.9	- 1.7	- 0.5	- 0.1
September 2012				
GDP forecast	0.4	- 2.4	- 0.2	1.1
Unadjusted deficit	- 3.9	- 2.6	- 1.6	- 1.5
Planned adjustment	0	0	- 0.2	0
Target deficit	- 3.9	- 2.6	- 1.8	- 1.5

All the figures are expressed as percentages of GDP. Deficits have a minus sign, surpluses and restrictive adjustments a plus. Unadjusted deficit are calculated as if previously planned adjustments were successfully completed.

Author's calculations based on Italian governmental documents.

ticular, the balanced budget was set for 2013. The decision to pursue basically the previous deficit/GDP targets (see table 1) in spite of significantly worse GDP forecasts was highly pro-cyclical. The reason behind the decision was probably the belief that a revision of the targets would have made more difficult the rebuilding of Italy's credibility on the markets. To enhance credibility, the quality of the measures was changed, making them much more concrete: for instance, with significant immediate tax increases and no accounting for the highly probable proceeds from the reduction of tax evasion. Moreover it was prudently assumed that the marginal interest cost of debt refinancing would have stayed for long as high

as when the government was appointed⁶. The fact that the December scenario was based on higher interest rates than the September plan implied a higher than usual elasticity of the estimated deficits with respect to forecasted GDP: as shown in table 2, Monti's December plan shows an 0.74 average (2012-14) elasticity, while 0.44 was the average value in the September plan of the previous government; and Monti's self-correction, in April 2012, uses more traditional values of the elasticity, averaging 0.54⁷. The short term provisions of the December 2011 plan consisted mainly in increases of various taxes but the most radical, politically costly but credibility-enhancing measure was a deep reform of the pension system with substantial structural decrease in public transfers in the medium to long term.

During the first part of 2012 some improvement of the attitude of the markets towards Italian sovereign debt went together with a new (the third in less than a year!) significant worsening of the GDP forecasts, especially for the current year. In preparing the new Stability Programme of Italy, issued according to the rules of the European Semester as part of the spring 2012 Economic and Financial Document, Monti's government did not react to the worse GDP forecasts with further pro-cyclical deficit cuts. In fact in the revised figures the targeted deficit/GDP ratios looked somewhat less ambitious than in the December plan.

But precisely during the spring of 2012 the world-wide issue of pro-cyclicality of fiscal adjustments was creating new panic on the markets. This fact had a negative impact also on Italy's sovereign risk measures. The issue was complicated by a rather impressionistic international discussion of the Treaty labelled "Fiscal Compact", widely perceived to be more rigid and pro-cyclical than its proposed text really was. The controversial contrasting of growth with fiscal rigor became mistakenly overwhelming.

In the case of Italy the issue was further confused by a misunderstanding of the relationship between the stock and the flow adjustment requirements of the debt to GDP ratio. The "six-pack" rule requires the country to decrease the ratio each year by at least 1/20 of the difference between its excessive value and the Maas-

⁶ However the higher marginal rates used had limited proportional impacts on the deficit forecasts, in the short term, due to the maturity structure of the public debt.

⁷ The elasticity resulting from the April 2012 plan depends, to be sure, on the fact that the plan went back to lower interest rate forecasts. In the plan's words: "subsequent to December, Italy witnessed a further deterioration of economic conditions, but also a significant reduction in yields of government securities. Considering this... the Government substantially confirms the path to financial turnaround, as traced at year end" (*Economic and Financial Document 2012: Italy's Stability Programme*, p. 2, available at www.tesoro.it/en/doc-finanza-pubblica/def/2012-2012/documenti/PdS_2012_eng_xissn_on-line_PROTETTO.pdf). The elasticity of the primary surplus with respect to GDP implied by the plan was, on the contrary, unusually high, as shown in Figure 2, probably reflecting a very prudent assessment of the impact of the measures adopted by both the previous and the current government. This type of analysis of the GDP-elasticity of the deficit looks as a useful tool also because it shows the importance, for highly indebted public sector like Italy's, of the varying interest rate scenarios on the targeted adjustments of the primary balance. A new increase of the forecasted marginal cost of refinancing appears from the calculations reported in table 2, to be the reason of the relatively high average elasticity of the September 2012 Economic and Financial Document.

Table 2. The elasticity of Italy's adjustment plans with respect to GDP forecasts

September 2011	2012	2013	2014	average
(i) Forecasted unadjusted deficit minus previous target	0.6	0.7	0.8	
(ii) % cumulated reduction of the GDP forecasted level	1.1	1.7	2.1	
(iii) "elasticity" = (i)/(ii)	0.54	0.41	0.38	0.44 (0.38)
December 2011				
(i) Forecasted unadjusted deficit minus previous target	0.9	1.2	1.3	
(ii) % cumulated reduction of the GDP forecasted level	1.1	1.7	1.9	
(iii) "elasticity" = (i)/(ii)	0.82	0.71	0.68	0.74 (0.35)
April 2012				
(i) Forecasted unadjusted deficit minus previous target	0.5	0.5	0.4	
(ii) % cumulated reduction of the GDP forecasted level	1.0	0.8	0.8	
(iii) "elasticity" = (i)/(ii)	0.50	0.63	0.50	0.54 (1.2)
September 2012				
(i) Forecasted unadjusted deficit minus previous target	0.9	1.1	1.4	
(ii) % cumulated reduction of the GDP forecasted level	1.2	1.9	1.8	
(iii) "elasticity" = (i)/(ii)	0.75	0.58	0.78	0.70 (0.53)

The table derives from table 1 the absolute difference between the estimated unadjusted deficits, as a percentage of GDP, and the target percentage deficits of the previous adjustment. Dividing this difference, indicated with (i), by the percentage revision of the forecasted level of GDP, indicated with (ii) (by chance the percentage revisions of each year's GDP forecasts have been rather similar in the September and in the December 2011 adjustment plans), one obtains the relevant "elasticity" of each year adopted in the successive plans. The average elasticity is reported below for each adjustment plan together with (in parenthesis) the value of the average elasticity that would result by subtracting from (i) the change in the forecasted interest payments of the public sector in percentage of GDP, that is the elasticity of the primary balance with respect to GDP.

tricht's 60% limit. This reduction was often presented as an element of additional fiscal restriction, going beyond the balanced budget constraint. This reading of the rule is obviously mistaken: balancing the budget allows any *nominal* GDP growth to result in a decrease of the debt/GDP ratio. As Italy's debt/GDP ratio was a little higher than 120%, with zero deficit a yearly nominal growth (including its inflation component) of around 2.5% would have been sufficient to comply with the 1/20 rule. A different issue is the difficulty of keeping the deficit at zero: in particular when, for a constant primary surplus, real interest rates increase or, for a constant real interest rate, the primary surplus decreases reflecting the bad cycle. But the official forecasts and the sensitivity analysis, as presented in Italy's Stability Programme in April 2012 (see figure 1), are favourable: based on the medium term adjustment and on long term forecasting techniques agreed at the EU level, the debt/GDP ratio will converge to 60% in less than 20 years even if the real interest rates were to double or the primary surplus shrink by 1/3 of its value in the baseline scenario.

A clear strategy to avoid pro-cyclical adjustments was even more evident in the official revision of the Economic and Financial Document issued by the Government on the 20th of September 2012. As shown in table 1, a new, very serious worsening of the GDP forecast was not matched by more restrictive targets of deficit reduction, resulting in a significant worsening of target deficit/GDP ratios. The decision to do so is coherent with the fact that EU fiscal discipline, including the rules of the “Fiscal Compact”, is formulated in terms of cyclically adjusted structural deficits and Italy’s adjusted deficit disappears in 2013 even in the revised Document. The Document, to be sure, seems to avoid an explicit correction also of that part of the increased deficits which isn’t due to the lower expected national income but results from a higher expected interest cost of debt. Table 2 shows that the higher costs of refinancing can explain a new increase of the elasticity of the forecasted deficits with respect to the forecasted GDP. As a consequence, any future structural improvement of the euro area systemic problems that exaggerate sovereign risk premia and their international differences⁸, will result in Italy over-performing its adjustment of the deficit in comparison with what planned in September 2012.

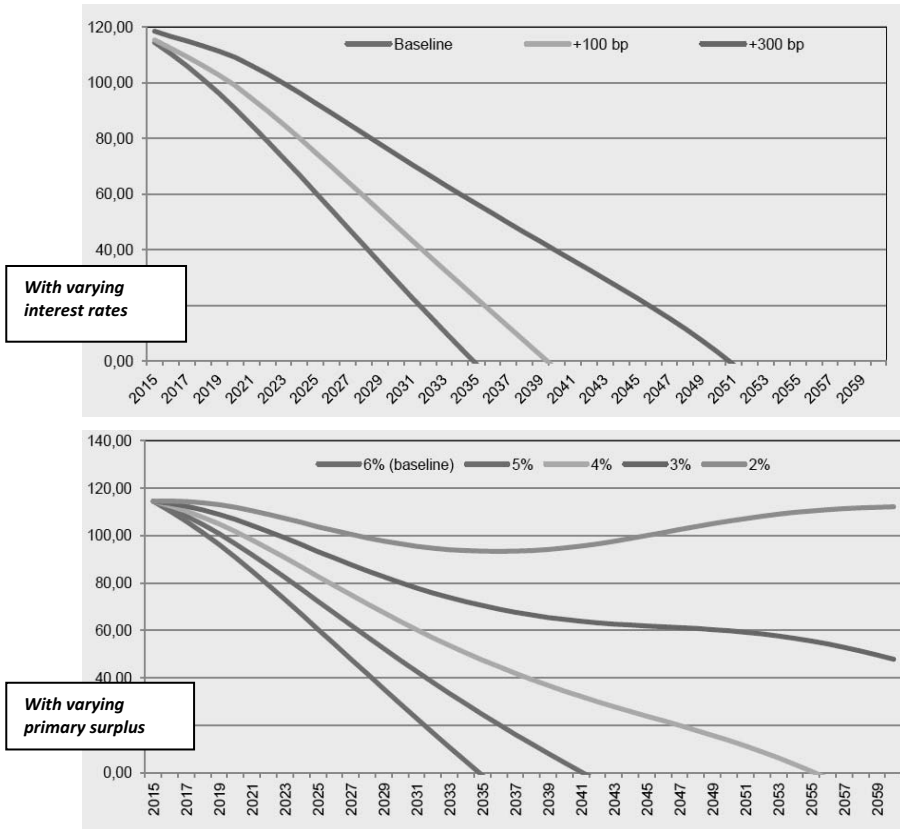
Abstracting now from the specific case of Italy, what is a reasonable “theory” of the optimal speed of adjustment of excessive sovereign deficits and debts?

Once the path of adjustment of the public budget is designed in a cyclically adjusted way, avoiding the vicious circle between fiscal restriction and the slow-down of GDP, the optimal speed along the path is mainly determined by the technically and socially feasible speed of the structural reforms and the reorganisations of the public administrations that must substantiate the adjustment. No other criterion can decide the right rhythm of a sustainable and efficiency-enhancing re-equilibrium of the public sector financial balance.

However, the optimal speed is somewhat higher than this benchmark speed based on the structural reform process. The reason is that when the plan of reforms and adjustment measures starts, it cannot be fully specified and credible for the markets that must keep providing the financing of the deficit during the adjustment period. Therefore, in order to minimise the sovereign risk premium of the adjusting country, the fiscal restrictions, temporarily devoid of detailed connections with the reform path, must proceed somewhat faster than structural reforms, particularly so during a first phase of the path. To obtain this provisional extra speed it is intuitively easier and less distorting to resort more to temporary extra taxes (net of transfers) than to extra expenditure cuts, as public expenditure is more rigid and sticky and as the optimal path of expenditure cuts is more tightly connected that tax changes to the structural reform plan. The earlier portion of

⁸ See the following sections of this paper, in particular sections 6.3.2. and 6.5.

Figure 1: Italy's public debt/GDP ratio : forecast and sensitivity analysis



Source: Italy's Stability Programme, April 2012.

the time profile of fiscal adjustments has therefore good reasons to be biased towards tax increases, even when the optimal mix of the overall long-term adjustment is highly biased towards lowering public expenditure⁹.

Opposite conclusions can be drawn from the literature on non Keynesian effects that render fiscal restraints expansionary and from macro models and estimates where sustainable fiscal consolidations are shown to be easier to obtain by limiting tax increases in favour of immediate substantial reductions of public expenditures. Purely macro and aggregate theories of fiscal policy can look unconvincing: the effects of changing taxes and public expenditures should take into

⁹ Accelerations of privatization plans can also be designed, sometimes, to use the anticipated proceeds for a faster lowering of the public debt; but this turns out to be sub-optimal if the deterioration of the general quality of the accelerated privatization program (taking into account also its impact on the competitiveness of the economy, on private sector productivity and on the incentives to proceed with structural reforms to reduce the deficit) turns out to be larger than the sustainable benefits for the sovereign risk premium.

account the microeconomics of the public sector and their structural impact on the whole economic system. Recent research has also de-emphasised the super-role of expectations on which the non-Keynesian effects are based and has shown¹⁰ that fiscal multipliers are positive and much larger during recessions than in the upward phase of the cycle: during recessions fiscal consolidations must therefore be very gradual; moreover, in a depressed economy with financially constrained agents and where monetary expansions are unable to compensate fiscal restrictions, fiscal restrictions should initially rely more on tax increases than on expenditure cuts.

The role of tax increases in the first phase of a fiscal consolidation was crucial as well as controversial in the case of Italy, with the Monti government immediate tax rising decisions only gradually followed by a rational “spending review” and a gradual plan of expenditure-reducing reforms. The debate is still difficult and fierce and the Italian sovereign risk premium, besides being influenced by euro-systemic factors and contagions, is determined by the credibility of the speed and of the mix of adjustment measures as they are decided and implemented.

Early in July of 2012 the Council¹¹ has adopted the Commission recommendation to extend the deadline for the correction of the excessive deficit in Spain by one year, due to a further deepening of the economic crisis. An extension was already been granted in December 2009 due to the “steeper than expected decline in economic activity”. An extension has also been asked by Greece and might be considered for some of the other numerous countries subjected to the excessive deficit procedure. The unsustainable and counterproductive social and political impact of the tentative implementation of too rapid fiscal corrections becomes increasingly manifest in Greece, Portugal and Spain. At the beginning of autumn 2012, the general picture resembles to one where a basic mistake was made by European authorities in prescribing an exaggerated speed of adjustment of budgetary disequilibria during the global financial crisis¹². Myopic speeds of fiscal consolidations can be as damaging as myopic debt-financed unsustainable expansions. Probably, it would have been better to pay more attention to the quality of the adjustment measures, and to their effective implementation, than to print on useless papers excessively severe numbers also worsening the credibility of the whole exercise in the mind of the markets.

But slower adjustments require financing.

¹⁰ See N. BATINI, G. CALLEGARI and G. MELINA, *Successful austerity in the United States, Europe and Japan*, IMF working paper WP/12/190, July 2012, and the literature review and bibliography that goes with the authors' econometric analysis.

¹¹ www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ecofin/131676.pdf.

¹² This message is implicit in the previously cited IMF working paper by Batini *et al.*

6.3. FINANCING AND SOLIDARITY

6.3.1. The ingredients

In order to allow adjustment plans to be of good quality and to proceed at a sustainable and correct speed, macroeconomic unbalances must be temporarily financed in such a way as to “buy” the time required for real reforms. To precipitate myopically the measures of adjustment can aggravate sovereign risks and worsen the real distortions that cause them: therefore finance is required to allow the right gradualism which, as argued above, coincides with the quickest possible rhythm of the phasing-in of the structural reforms that make the adjustment concrete and sustainable.

Two types of financing are required by the public finances of a euro area country overburdened by debt. They constitute *the third and fourth ingredients* of the recipe proposed in this paper:

- collateralized *short-term financing by the central bank*, and;
- *medium-long term financing jointly provided*, through various technical channels, *by the governments* of member countries, conditioned by the adoption of economic policies and measures agreed with the Commission.

Short-term support from the central bank is crucial: (i) to counter problems of illiquidity, when insolvency issues are still far away, looking to the systemic illiquidity risk well beyond the individual problem-country, in a macro-prudential perspective which implies, by symmetry, an early restriction of liquidity in the starting period of a credit boom; (ii) to kill destabilising short-term speculation and dominate market panics, without suffocating the price-pressures originated by the longer-term views that the market holds when considering the fundamentals of the debtor country; (iii) to insure the orderly functioning of the payments system and the smooth and homogeneous transmission of monetary policy during the crisis; (iv) to bridge the gap between the time when an unsustainable serious unbalance is unveiled and the time when the governments’ medium-long term financing is available. Good collateral must be provided to the central bank against this short-term support, the cost of which should be in line with the central bank judgment of the quality of that collateral as well as with the key interest rate that characterises the current stance of monetary policy.

All in all, these functions and characteristics of the central bank’s action in a sovereign crisis are not far from those of the classical Bagehot-type “lending of last resort” (LOLR), even if the ECB would create liquidity and offer its lending facilities directly on the secondary market for sovereign securities besides channelling its help via its natural counterpart, the banking system. On the contrary, the expression LOLR is seriously misunderstood when it is used to mean, more

or less explicitly, that the central bank must appear to the markets as the residual final debtor behind sovereign debts. There is nothing “normal”, as some say, in a country where the central bank is perceived as the LOLR in this latter sense: on the contrary, such a perception is incompatible with the monetary constitution and culture of the EU, is an indicator of more or less absolute fiscal dominance, with no true monetary anchor and no central bank independence. To the extent that this is the situation in the US and that their sovereign securities enjoy the alleged never-ending support of the Fed, the EU would lose its institutional identity if it were to imitate this kind of American “normality”.

As to the long term financing by governments, intermediated by a suitable common “fund”, the orthodox model is the IMF conditional credit. But special schemes, tailored to the European needs, can be set up, as the bilateral intergovernmental lines of credit that have been arranged for Greece, the European Financial Stability Facility, the European Stability Mechanism and various types of so called “eurobonds”¹³ that have been proposed or imagined since the beginning of the crisis.

In order to understand the conceptual problem behind long term governmental “mutual” financing, the nature of the credit risk which is associated with it must be made explicit. In principle this credit risk can be minimised with at least three techniques: by monitoring the implementation of the economic policies that make up the conditionality attached to the financing plan; by obtaining good guarantees as collateral; by “seniority”, that is by making official public lenders highly privileged with respect to private creditors. But it is precisely this potential lack of risk that weakens the effectiveness of the fourth ingredient of the stability recipe and requires a *fifth ingredient*, which cannot but consist in an adequate degree of “solidarity”. Without solidarity, long-term financing looks simply as an extended remedy to a long lasting liquidity problem; to the extent that there is a true solvency problem, solidarity is required: creditor countries must be explicitly ready to lose part of what they lend. The logic of the principle of solidarity is rooted in international interdependencies and in the fact that financial and economic stability is a collective international good, particularly so in a single currency area.

The precise form with which solidarity is associated to a system of mutual medium-long term sovereign credit support, as well as the dose of the ingredient of solidarity in the recipe, can be very different. After all, even a small bilateral loan of the German government to the Greek government, guaranteed by Greek sovereign securities, contains the principle of solidarity, to the extent that German taxpayers’ funds are at risk: the German acrobatic distinction between a forbid-

¹³ The issue of “eurobonds” can be arranged in different ways; some of them appear equivalent to conditional credit extended by a common fund “owned” by European governments.

den (by the Treaty and/or by the German constitution) “solidaristic” bail-out from a self-interested support “to save the common currency”, looks more apparent than real. On the other hand, macroeconomic solidarity cannot be soundly and legitimately based on “generosity”: it can only be justified by public interests and international interdependencies.

It is crucial to acknowledge that it is impossible to guarantee the financial stability of the euro area without approving of the principle of solidarity, i.e. without being available to lose, that is to transfer unilaterally, at least a well defined and limited part of a member country’s resources to another country of the euro area which is in trouble in refinancing and repaying its international debts. This impossibility derives from two factors. First, the only way to prevent national governments to have a degree of autonomy sufficient to allow the wrongdoing required to put themselves in serious financial trouble would imply an unrealistically high degree of political unification and centralisation of Europe: moreover this unified Europe, by definition, would imply a maximum degree of intra-European solidarity. Second, the other ingredients cannot be available in the quantity and quality required to do away with solidarity.

But also the relationship of solidarity with the other ingredients is one of complementariness. The most important example is its relationship with the second ingredient: centrally dictated adjustment and fiscal discipline is a complement of solidarity because it avoids solidarity resulting in moral hazard. But the reverse is also true: without solidarity, which involves every country in other countries’ health, central discipline would have one less reason to be imposed.

While solidarity can be available in a continuum, so to speak, of different forms and doses, there is an important “discontinuity” when it takes the strong shape of a “joint and several” guarantee, such that all the guarantors are jointly obliged with all the others and the guaranteed can levy the execution of the guarantee on any guarantor. In the case of European sovereign debts the “joint and several” clause means that all the countries are jointly responsible for the repayment of the sovereign debts of every one of them, at least in certain specified circumstances. A simple and limited type of this strong solidarity is for a country to pay in its share of the capital of a fund that will then lend to countries in difficulty. The amount of solidarity embedded in each euro paid into the fund is obviously larger the less is the seniority recognised to the credits of the fund with respect to private credits. A substantial increase in solidarity¹⁴ is associated, for example, with the political understanding recently reached by the Eurogroup¹⁵ to transfer to the future ESM “without gaining seniority status” the financial assistance to be provided to Spanish financial institutions by the ESFS.

¹⁴ Not only the elimination of an obstacle to private financing flows.

¹⁵ www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ecofin/131648.pdf.

6.3.2. ESM and the Italian debt problem

The ESM project has been evolving along 2011-12, with several successive changes to the proposed text of the Treaty. The discussions around the project have turned a lot on the question of its size: will the fund be sufficiently large to substantially improve the view of the markets and to provide the amount of money required to stop the potential default (with or without the abandonment of the euro) of more than one member country of the euro area?

Italy is particularly interested in this issue. First, indirectly: if the ESM can calm the crisis in Greece, Portugal and Spain, Italy will suffer a smaller contagion and benefit more from the difficult policies with which it has been able to cure its unbalances. But in case its unbalances turn out to be insufficiently adjusted, Italy's interest in the capacity of the ESM is more direct: is the fund adequate to help a sovereign debtor as large as Italy?

Other issues besides the size are worth discussing when considering the ESM. For instance, the role of "private sector involvement" (PSI) in the ESM-guided crisis management procedures, which seemed much more clear in the very first version of the project (the "Term Sheet" that appeared as an Annex to the conclusions of the European Council of 24/25 March 2011) than in later formulations of the Treaty¹⁶. But there is a fundamental weakness of the ESM concept which cannot receive a better illustration than the one provided by the case of Italy. This feature of the mechanism is the inadequacy of its powers and autonomy to combat certain types of systemic risk. This is a consequence of the bilateral nature of the ESM interventions that are directed to individual countries and subject to "strict conditionality", which prevents the possibility to act quite independently from a specific request of a problem country, to calm a systemic shock that can hit the European sovereign market in very different ways, as a consequence of events taking place in countries that do not coincide with those that suffer most from the shock or even in countries outside the euro area.

Consider the case of Italy and suppose that its government is able to fix in a credible way its public deficit and its medium-term growth potential. In spite of the adoption of the best possible mix of policies, Italy's public debt to GDP ratio will remain very high for many years. As the country's sovereign securities are spread in the international financial market, every time a substantial decrease in risk aversion takes place at the global level, Italian securities suffer and are potential victims of speculative attacks. This is not a short-term problem due to destabilising market manipulation by unprincipled speculators: it is a medium-long-term "rational" weakness than cannot be attributed to the inadequacy of the country's adjustment policies. Suppose a large French bank becomes seriously

¹⁶ On PSI and ESM see section 6.4.2. below.

illiquid or insolvent: the shock hits, at least, the whole euro area and Italy's public debt cannot but be seriously involved in the problem, without any responsibility of Italy's economic policies. The same would happen following, say, a financial disaster in the US or a sudden very hard landing of Chinese growth. This type of problem is the heart of the "systemic" profile of financial turbulences that is probably the most important "discovery" of macroeconomics and finance brought by the consideration of the post 2007 crisis. Being overexposed to systemic risks in the euro area adds a number of basis points to the sovereign risk premium of the country that should be dealt with under the joint responsibility of all the member countries. All of them, in various ways, will also benefit from the reduction of the risk premium.

But the ESM cannot effectively deal with this problem. According to the "concept" of the mechanism, the Italian government should take the initiative to ask the support of the fund and "sign" some special covenants to comply with the basic idea of "strict conditionality". This procedure, a part from the "stigma" problem that would unfairly burden Italy with serious prejudice for its access to private financing¹⁷, doesn't make any sense: the ESM should be able to react immediately to the systemic turbulences, with autonomously decided timely interventions on the sovereign (as well as non-sovereign) securities of Italy and of any other country affected by the systemic shock. A different matter is the type of intervention, which is allowed by the ESM concept, required by the country where the problem is rooted and where the policies are out of order.

To be able to act effectively, autonomously, on its own initiative, against all kinds of systemic problems, the ESM should have a much less intergovernmental nature, an independence and a managerial governance similar to those of the ECB. The latter will end up being involved in the management of the systemic crisis if the ESM cannot proceed¹⁸: but the involvement of the central bank can easily be driven beyond the short-term and beyond the limits of its mission and of its accountability. The ESM was invented to dispense the ECB from performing functions that should be funded by governments, based on the consciousness of their interdependencies that generate systemic risks and require solidarity. But the ESM was conceived under the obsession of the idea that "strict conditionality" is needed to make sure that problems are solved by correcting the behaviour of the "bad guy". There are always bad guys around but systemic turbulences call for more than shooting at them. Strict conditionality does not help when a complex set of financial inter-linkages propagates the shocks until very far from where the misbehaving policymakers are located.

¹⁷ Dangerous delays in the management of the European sovereign crisis were repeatedly caused by the stigma problem, combined with the fear to "be governed from foreigners", inducing Greece, Ireland, Portugal and Spain to postpone as much as possible the official request of international support.

¹⁸ Contrary to the principle announced by the ECB in August 2012.

The inability of the ESM to effectively cope with systemic crises in the sovereign securities markets is a serious minus for the whole euro area (and also outside of it) but it is a particularly important problem for the management of the medium-long term adjustment of Italy's macroeconomic unbalances. On the other hand, Italy's problem is particularly useful to understand this limit of the ESM. The possibility to autonomously decide interventions to limit the systemic risk premium paid by "virtuous" sovereigns (i.e. sovereigns that are not originating the risk), with no other conditionality except the requirement to remain virtuous, is, in a way, a special type of "fourth ingredient", a kind of medium-term financing to allow the correct pace and to favour the best possible quality of a country's adjustment.

Italy has been active during the summits of June and July 2012 in pressuring the Eurogroup to allow the ESM to "automatically" purchase sovereign's securities of those member countries that pay an excessive sovereign premium but comply with the various recommendations and commitments defined with the Commission and the Council under the European Semester, the Stability and Growth Pact and the Macroeconomic Imbalances Procedure. A simplified and official definition of a "complying" member country should be provided; considering – for instance – Italy in the second part of 2012, a synthetic judgment should conclude the six Council recommendations formulated in July¹⁹.

But the pressures of Italian diplomacy could not obtain to allow the ESM to conduct also non-bilateral and autonomous interventions, even if a "flexible and efficient use of existing EFSF/ESM instruments" in support of the complying member countries has been promised²⁰. "Flexibility" could mean that the request of the country and the conditionality attached to its support will only require a quick signature of a light-type of MoU. But this concession could turn out to be insufficient to prevent the "spread" of Italy's government bonds to substantially exceed the risk premium caused by Italian fundamentals, reflecting systemic problems associated, in particular, with the potential contagion of Greek and Spanish issues.

The excessive spread could then complicate the adjustment of Italy's public deficit and debt and slow down the country's growth rate by influencing the cost of credit to the private sector. Italy's difficulties in adjusting would then backfire, hitting the whole euro area by increasing the systemic risk all over the place. When systemic risks are not managed with systemic interventions they tend to grow and further invade the system. Other countries could soon discover the seriousness of this problem, including France, which could see its spread over Ger-

¹⁹ See the *Official Journal of the European Union* available at: http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/20_scps/2012/04_council/it_2012-07-10_council_recommendation_en.pdf.

²⁰ As reaffirmed, for instance, in the Eurogroup statement of 9 July.

man bunds jumping up, with markets becoming less forgetful of the impact of systemic risks on French sovereign securities, precisely when Paris were to recognise with more transparency how serious are the needs of reform and adjustment of the country, i.e. precisely when a truly virtuous process were to start to fulfil those needs. A country's isolated action of "putting its house in order" is an insufficient remedy for systemic risk and, paradoxically, the announcement of more rigorous domestic policies can even wake up the markets in evaluating that country's exposure to the riskiness of the system as a whole.

Looking at the time profile of Italy's together with Spain's sovereign spread over German Bunds (see figure 2), the idea that the risk premium contains a large systemic component does look reasonable and coherent with the high correlation of the two. A substantial decrease of Italy's spread followed the appointment of the new government in November 2011 and its first impressive decisions and was prolonged and helped by ECB's LTROs. Spain's spread was also decreasing, while they were both raising when, during the summer, the political situation in Italy brought its spread above Spain's. Between February and March 2012 both spreads increased again and Spain's went back to a higher level than Italy's. Only part of the inversion of Italian sovereigns can be attributed to the obstacles encountered by Monti in enacting domestic adjustments and reform plans. Along 2012 the correlation between the two spreads keeps showing the relevance of contagion and of systemic effects, which become impressive in the second part of July, when Italy's spread increases just after the diplomatic success of the premier in the G20 and Euro summits, the approval by the Parliament of the "fiscal compact" and the promising start of a long-awaited and carefully prepared "spending review" which consolidates the solid and unrivalled primary surplus of Italy's multiannual budget.

The contagion from Spain is evident, but also Spain is obviously victim of the inability of Europe to adequately deal with the systemic risk problem: the jump in its spread on the 20th July is contemporaneous to the approval by the Parliament of a very hard budget cut as well as, by the Eurogroup, of a EUR 100 billion support programme for Spanish banks. Markets were clearly disapproving the fact that the support would not reach the banks directly but would increase the government's debt.

Europe looks too slow to decide to take on its own shoulders the burden of adjusting debts and disequilibria that are also the result of the imprudence of British, French and German bankers, creditors and investors, the lack of European financial supervision, the contagion of the Greek mess, the very controversial and, therefore, badly defined responsibility of the ECB for financial stability, the insufficient size and autonomy of the ESFS and of the coming ESM, and other EU's faults as well. Insisting on an individual-member-state approach to systemic

problems, with a punitive attitude providing help only with much trumpeted “strict conditionality”, is a non-solution and a stimulus to international contagion.

6.4. CRISIS MANAGEMENT

6.4.1. The ingredients

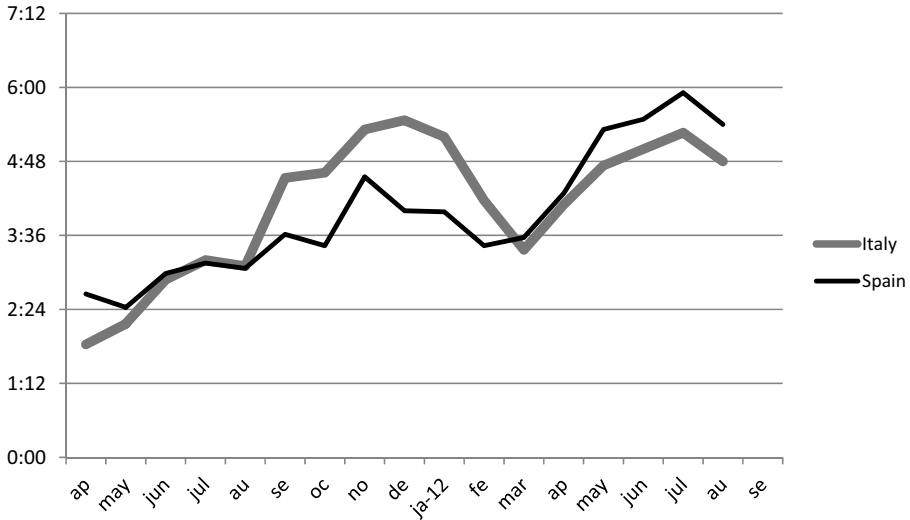
The lasts are not the least : the two final ingredients are crucial for the success of the recipe. They are interconnected because they deal with the two deeply interconnected problems that characterise the troubled scenario of the euro area: the sovereign crisis and the banking crisis. It is well known that sovereigns suffer also because they back the difficulties of overleveraged and imprudently invested banks and that, in turn, banks suffer also because they back sovereigns, having large amounts of governments' debentures in their portfolios. The interconnection greatly complicates the crisis management: it is important to be able to manoeuvre on the two fronts much more independently.

Moreover, on both fronts there is a taboo: “defaults” cannot be even mentioned, as they would produce unmanageable panic and self-fulfilling disasters. Governments and banks are financially sacred entities, apparently, that cannot go bankrupt. In reality, while the default of a country is conceptually different from the default of a private enterprise, the world has a lot of experience with sovereign defaults, even if only in cases of less developed countries with debts denominated in foreign currencies. They usually take the shape of “debt restructurings” and are sometimes kindly renamed “private sector involvements” (PSI); they have often been managed in effective ways by international finance, limiting contagions and the “stigma” effect that usually burdens for some time the defaulting country. As for the banks, the euphemism “resolution” is widely used to indicate special procedures that, taking into account the special nature of the banking firm and the social impact of its business, try to avoid interrupting the most delicate part of their activity. Italy's legislation and practice on bank crisis management and bank resolution are considered among the best²¹.

Let us discuss first the issue of sovereign defaults in the euro area and then look at bank resolutions. In both cases there is an essential ingredient of our recipe: the availability of a precise and effective procedure for dealing with solvency crises. *Our sixth ingredient is therefore a clear set of appropriate rules for euro-sovereign defaults; the seventh is a good European regulation for banks' resolutions.*

²¹ G. BOCCUZZI, *Verso un nuovo assetto della gestione delle crisi bancarie. Il dibattito internazionale e il modello italiano*, “Quaderni di ricerca giuridica”, Banca d'Italia, n. 71, ottobre 2011.

Figure 2: Sovereign 10y spreads over German bunds



Spreads calculated from ECB's data on monthly averages of secondary market yields of government bonds with maturities of close to ten years.

The idea that these things never happen, or can be dealt with as exceptional cases with improvised and ad hoc measures, seriously endangers the quality of crisis management. Hypocrisy and opaqueness cannot nourish a useful and “constructive” ambiguity: the latter can characterise certain aspects of the *specific decisions* of the crisis manager, to limit moral hazard and market panics, but ambiguities must not be such as to conceal the basic rules, *the procedures* and the allocation of *responsibilities* in the process of managing the crisis. On the two fronts the European ambiguity is excessive and non constructive.

The next section deals with sovereigns and the following with banks. In the case of banks though, the ingredient consisting in an effective European resolution procedure is tightly linked to the much more complex and vast requirement that has been named “*banking union*”, currently under discussion and preparation by the European authorities. In a sense, the banking union is an integral part of our seventh ingredient.

6.4.2. Sovereign orderly default procedure

The problem of sovereign defaults in the euro area has two peculiar aspects. First, member countries are “advanced”, instead of “less developed” as was the case in the many defaults happened in the last decades: the possibility of their insolvency has never been contemplated. Second, their debts are mainly denominated in

euro, which, from a certain point of view, is their national currency: as such one could presume that money can be provided without limits to reimburse public debts or, at least, that its potential availability could in part reassure their creditors. But the euro is supranational, created by a common and independent central bank with the mandate to preserve price stability as well as to contribute to certain aspects of financial stability that are relevant for monetary policy and for the soundness of the payments system. The ECB, to be sure, has the statutory prohibition to lend to governments. Therefore, sovereign debts do contain a true risk of default, in case expenditure cuts, tax collections and other forms of refinancing, turn out to be insufficient for their reimbursement.

During the first ten years of life of the euro, markets have overlooked this risk; they then started to take it into account with increasing attention, to the point of making it a major element of portfolio choices and speculations. The mere availability of a national printing press, even in presence of de facto and/or de jure central bank independence, is probably the main explanation of the fact that the cost of the UK debt is lower than that of some less indebted countries belonging to the euro area. Moreover, sovereign defaults in the euro area have been increasingly perceived as a catastrophe, because their risk cannot easily be distinguished from the risk of the end of the European monetary union: analysts now tend to read euro sovereign risk premia as premia for exchange rate risk. Defaulting and abandoning the euro are often considered as inevitably joined disasters. Models of multiple equilibria explain how the expectation of sovereign defaults can be self-fulfilling²². The role of expectations in these models provides the basis for a type of contagion that could progressively transform the default of a single sovereign in a complete break-up of the euro zone.

However, one is not far from truth when saying that the riskless nature of the sovereign debt of an EU country has been considered an implicit “dogma”, and that sovereign defaults have been excluded as a matter of principle, at least until the crises of Greece, Ireland and Portugal have forced the markets and the authorities to bring the dogma into question, even if in a confused, disordered and somewhat hypocrite way. The main consequence of the dogma is that no public, official, orderly sovereign default procedure must be provided in the euro area: the existence of such a procedure would indeed sound as a contradiction of the dogma and may even encourage defaults. Sometimes the arguments in favour of the dogma have something in common with those that were used in the 1990s to combat, unfortunately with success, the IMF proposal of a Sovereign Debt Restructuring Mechanism²³.

²² P. DE GRAUWE, *The Governance of a Fragile Eurozone*, CEPS Working Document, No. 346, May 2011, www.ceps.be/book/governance-fragile-eurozone.

²³ See A.O. KRUEGER, *A new approach to sovereign debt restructuring*, IMF, April 2002 (www.imf.org/external/pubs/ft/exrp/sdrm/eng/sdrm.pdf) and the debate that followed the proposed project.

The necessity of a “private sector involvement” (PSI) in the euro area has been semi-officially mentioned for the first time, with an unexpected violation of the dogma, in an informal meeting (a promenade along the Deauville seafront) of Sarkozy and Merkel on the 26th May 2011; according to some, that mention of the idea triggered the speculative process that aggravated the sovereign debt crisis in July and August, involving Italy in the front line. Later, an effort was done to reassure the markets stating that PSI was intended as an extreme measure to be considered only in the absolutely exceptional case of Greece.

But during the following summer, markets caused the skyrocketing of Italy’s default risk premium. The Italian case is particularly interesting in the discussion of the reaction of Europe to the possibility of sovereign defaults. The possibility of an Italian default had been for some time kept behind the main stage of the crisis, as a tremendous but improbable danger. The size and the wealth of the country, together with its very high debt to GDP ratio, was rendering the dogma of the impossibility of a sovereign default more natural and, at the same time, more indispensable to avoid the panic and the massive contagion due to the very wide international diffusion of Italian treasuries. However, as the refinancing of Italy’s public debt started to become increasingly difficult, it was precisely the Italian case that, paradoxically, obliged European authorities to tackle the dogma in a more explicit way, trying to take general decisions on the potential role of sovereign debt restructuring and PSI in the rules to manage a financial crisis.

As a matter of fact, since 2009 markets have shown disbelief in the dogma, as they have been asking interest rates on government securities that contain very substantial risk premia. These interest rates have exerted a significant “market discipline” on governments’ budgets. The disciplinary action of financial market tends to be discontinuous, myopic and often destabilising. But market discipline still provided a valuable contribution to increase and speed-up fiscal discipline in the euro area where the disequilibria in public finance are often associated with fragile and unstable political situations. The codification of the “dogma”, that is of the principle that euro sovereigns cannot default, would kill myopic and destabilising speculation but would also block any disciplining stimulus coming from government bond markets. An increased moral hazard would result both for governments and for the investors that imprudently buy their debentures. This moral hazard is a first reason to eliminate the dogma.

What is needed is a filter for the disarranged and short-sighted action of the markets; the filter should try to preserve that action’s medium-term disciplinary pressure while avoiding the unjustified transformation of illiquidity in insolvency and moderating short-sighted speculative attacks that have no rational basis in the fundamentals of the situation of a country’s public finances. Such filtering is a difficult and perhaps overambitious task, but it has to be tried, using the

ingredients of the recipe for financial stability that have been illustrated above in discussing the financing of gradual adjustment paths. Also in this case, the ingredients prove to be complements: the existence of the possibility of default needs the assistance of the stabilising action as well as of some short and medium term financial help for the debtors; and conditional, negotiated financial help makes sense only to the extent that a default is possible.

The second reason to avoid the sanctification of the dogma is that, anyway, markets do not find it convincing. Proclaiming that sovereign defaults are excluded by principle, appears foolish to financial operators and causes a loss of credibility for the authorities that affirm the dogma. It means stating that the level of interest rates on government bonds reflect a risk that does not exist, thus insultingly contradicting a strongly held opinion of the markets. It also means thinking that the other ingredients of the recipe suffice to guarantee the solvency of governments; it means relying, in particular, on three of those ingredients: the central control of the adjustment process (the second ingredient), solidarity (the fifth) providing bailouts, and the (unlimited) financing of the central bank (the third). In fact the confused and controversial debate on the possibility of sovereign defaults has been (and still is) revolving around the role of these three ingredients and their capacity to banish the idea of sovereign default. The Italian case has been in the centre of this debate.

Let us first consider the centralisation of fiscal discipline. To the extent that a certain degree of national autonomy will always exist in a "federal" EU, the second ingredient, the strongest possible central discipline, will never be sufficient to completely avoid that the countries, by misbehaving, end up with unsustainable debt positions. Moreover, the central discipline is weaker without the threat of default. The threat of default is credible only if an official orderly default procedure exists. The second and the sixth ingredients are complements, so that the contributions of the former to financial stability decreases if the latter is absent.

Consider now solidarity. It is already very difficult to institutionalise a limited amount of solidarity to be used in special situations for guaranteeing financial stability: it is unthinkable to ask for an amount of solidarity sufficient to completely bailout a not-very-little member country that cannot be denied a dose of autonomy sufficient to self-inflict unsustainable debts. Fiscal solidarity can help to limit the size of the default and make it manageable without unbearable social costs, panic and contagion: it is a complement to an orderly default procedure; but solidarity is a non credible substitute for default. Again, Italy is the crucial example. Even if one can think that the country is too big to be allowed a more or less well regulated default, it is undisputable that Italy is also far too big to bailout if unable to refinance its enormous debt.

This leaves us with the apparently most powerful ingredient to avoid sovereign defaults: the so called “bazooka” of the ECB, sufficiently powerful to destroy any danger of sovereign default. Some think the ECB should be considered the “debtor of last resort” for government securities. On logical and technical grounds this is the only possible way to completely exclude sovereign risk and therefore to avoid setting up an orderly default procedure for sovereigns.

Obviously, being a debtor of last resort destroys the independence of the ECB and it is against the Treaty. It sounds somewhat paradoxical that it is precisely from the ECB that came the strongest opposition to consider the possibility of sovereign defaults and to provide orderly procedure to allow them happening with a minimum of systemic effects. Trichet would become literally furious when the idea was mentioned. The opinion of the bank was that the disciplined adjustment enacted by governments, both autonomously and as a consequence of centrally imposed measures, together with ECB’s action in providing some short-term liquidity as well as with a longer term mutual financial support funded by national governments, should suffice to remedy disequilibria and avoid defaults. Mentioning default procedures, as happened in Deauville, only worsens the situation and creates panics and contagion.

For what has been argued above, this reasoning is unconvincing: the only way to exclude defaults is to oblige the ECB to guarantee the repayment of public debts; with its insistence in opposing the plans for orderly procedures of sovereign defaults and with its wishfully excessive reliance on too precipitous centrally imposed national adjustments and on the financial solidarity of member governments, the ECB ended up favouring the insistence on her role as debtor of the last resort, precisely the role that she cannot have and, very rightly, does not want to play. But playing that role would be the only way to seriously exclude the possibility of sovereign defaults in the euro area.

The quality of crisis management has suffered from the necessity to be pragmatic in finding urgent remedies to emergencies and, in the same time, set up rational and rigorous mechanisms to preserve financial stability in the longer run. In the first half of 2011, when it became evident that even Italy could deeply suffer from the contagion of the Greek problem, a pragmatic idea was ventilated, in the international arena as well as among several academics: Europe should officially distinguish countries with unsustainable debts from countries that, in spite of their difficulties in refinancing, could not be considered at risk of default. Italy is in the second group. The ECB should be ready to purchase on the secondary market the sovereign securities of this group of countries, without hesitations and limits, even pegging a maximum level of their interest rates, to counter destabilising speculation. Only when this support is available in a credible and effective way, the issue of default can be considered for Greece. But even then, the default

should consist in a voluntary, privately arranged procedure, making clear that it is an absolute exception that nobody can dare to consider a precedent for other future defaults in the euro area; the ECB firewall would avoid contagion for Italy and other countries of the second group.

This pragmatic recipe, composed by a private default procedure to be considered “exceptional”, plus an improvised ECB firewall, cannot look but as a confusing and counterproductive idea. It denies the necessity of providing an official, public, supranational, orderly procedure for timely debt restructurings, to be arranged when the dimension of insolvencies is still manageable and the country in difficulty can be re-launched by imposing bearable doses and rhythms of adjustment and structural reforms and by offering adequate international medium-term financing. In the contradictory European crisis management of 2011, the denial of official default procedures came precisely when the door was opened for starting a messy, “privately” arranged Greek default, not so special, however, to avoid the exclusion of the country from private financing. The contradictory nature of this type of pragmatism also resulted from the fact that the role of “debtor of last resort” of the ECB was denied precisely when it was suggested that the bank should play that role, even if in a special and temporary fashion.

Pragmatism must not appear as confusion of principles; “constructive ambiguity” cannot keep consisting in a disorganised mix of unfeasible rhythms of adjustments, unchecked market discipline based on uncontrolled spreads on sovereign securities, threads of unregulated defaults and extreme uncertainty on the type of help that can be provided by the ECB and by intergovernmental funds. Such an ambiguity is not constructive. Using the stick and the carrot in an effective way with countries in need of adjustments and reforms, requires more prudence and clearer rules: probably even the evolution of the Greek crisis would have been more favourable if Europe, and Germany in particular, had been more consistent following a set of sustainable and credible rules for crisis management. Such a set must include also, as a measure of last resort, a procedure to deal in an official and realistic way with the situation of a country that does not succeed in correcting an unsustainable debt and must therefore default.

The “private” default of Greece took place but, as could be expected, was more a source of further uncertainty and confusion than a serious contribution to improve the situation and to offer the right form of European help and assistance to the country. In the meantime, the adoption of a public, official and appropriate debt restructuring procedure, remained a cause of controversy, with the opposition of the ECB, but frequently mentioned as a possibility by the German government, denied sometimes by everybody but, unexpectedly, included in the draft of the document approved by the European Council as early as in March 2011, to

set up the European Stability Mechanism²⁴, initially thought to start in 2013 and then tentatively (but unsuccessfully) anticipated to be set up in the summer of 2012. According to this original project, the ESM should have among its tasks the coordination of sovereign debt restructurings, decided using a “collective action clause” to be compulsorily attached to all new issues of sovereign securities in the euro area.

That the controversy (and the confusion) on this issue is still alive and present can be understood from the fact that, in the revised version of the ESM Treaty, the role of “private sector involvement” is mentioned in a much more hidden form²⁵, nourishing the suspect that an effort has been done, in a non transparent way, to downplay and render more opaque and less binding the official responsibility of the new institution in managing neat and official procedures for sovereign defaults. An effort in this direction, though aimed at avoiding panic and contribute to stability, could backfire on the authorities that suggested it, when a neat crisis management scheme were needed to reassure the markets that unsustainable debts will be dealt with in a realistic fashion.

6.4.3. Euro-rules for bank resolution and the “banking union”

Given the special role of banks in the economic system and the peculiar, unavoidable fragility of their balance sheets, the need to have good rules to resolve failing banks has been always felt, everywhere. In particular, adequate rules are required for international banks as the action of different national authorities must be coordinated and the burden of a potential bailout has to be shared among different countries. The issue was obviously felt as more important and urgent after the explosion of the international financial crisis and the Lehman event. The G20 and the Financial Stability Board (FSB) have been working on the issue with a special focus on the problem of the Systemic International Financial Institutions (SIFIs) and to the proposal of requesting that large banks prepare “living wills” to facilitate their resolution in case of insolvency. When banks are large, the idea of optimising the rules for their resolution is, in a sense, opposite to the idea, which has also been considered by the FSB, of using stricter regulations and supervisions to render nearly impossible the failure of banks that are judged to be “too big to fail”.

²⁴ See Annex II (p. 21) of the *Conclusions* of the European Council of 24/25 March 2011, Brussels 20 April 2011, EUCO 10/1/11, REV1, CO EUR 6, CONCL 3, www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/120296.pdf. See in particular the section devoted to “private sector involvement” starting on p. 29, where the procedure that the ESM should follow to orderly orchestrate the default is somewhat detailed.

²⁵ T/ESM 2012/en, www.european-council.europa.eu/media/582311/05-tesm2.en12.pdf. In fact the wording “private sector involvement” appears in point (12), p. 6 on the introduction following the “whereas”, but is never mentioned again in the proposed text of the articles of the Treaty.

In the EU, the problem of having homogeneous rules for bank resolution has been for long dominated by the specific issue of international banks: how to share the burden of their bailouts, how to regulate the roles of host versus home authorities, how to coordinate their respective national supervisors and governments²⁶. In the background, the main effort was to accelerate the harmonisation of supervision with the Lamfalussy process, since 2001, and, starting from 2011, the creation of the three European Supervisory Authorities (ESAs). But it was soon evident that the powers of the ESAs were insufficient and that the backbone of supervision was still in the hands of national authorities.

Most importantly, the sovereign debt crisis, by increasing the danger of banking crises, produced a situation where the issue of supranational supervision coincides with the need to have European authorities and rules for managing bank resolutions, as you cannot place at the supranational level the responsibility of managing bank crises while leaving the powers of supervision at the national level. In the EU summits and documents of the summer 2012, the idea was labelled “banking union”. Besides EU-wide regulations, a single supervisor and a jointly managed and jointly funded resolution fund (probably managed through the ESM), the project contemplates a European deposit insurance to reimburse deposits, up to a certain amount, of a liquidated bank. The detailed design of the project of the “banking union” was planned to take place with the maximum urgency, to be fairly advanced before autumn 2012 and possibly finalised before the end of the year.

This paper is not the right place to discuss in any detail a project that is in process of being defined²⁷ and the relevance of which goes well beyond the issue of crisis management. It is clear though that a good European bank resolution process, together with all the other elements that can construct a European “banking union”, cannot but be an indispensable ingredient of the recipe presented in the paper. This is fairly obvious but it is made even more clear by the symmetrical facts that many European banks are full of sovereign securities and that several European government debts have been, or could be increased in unsustainable ways by the costs of bailing out failing banks.

The aim of the rest of this section is only to contribute a few sparse and diverse observations on the topic of banking union in its relationship with the recipe against the crisis suggested in this paper.

²⁶ See, for instance the discussion around the famous saying “he who pays the piper calls the tune”, starting from the paper by C.A.E. GOODHART and D. SCHOENMAKER, *Should the functions of monetary policy and banking supervision be separated?*, “Oxford Economic Papers”, 47, 1995; see also the abundant literature that followed, including, for instance, C.A.E. GOODHART and D. SCHOENMAKER, *Fiscal burden sharing in cross border banking crises*, “International Journal of Central Banking”, 5(1), 2009.

²⁷ See *A Roadmap towards a Banking Union*, Communication from the Commission to the European Parliament and the Council, 12 September 2012, http://ec.europa.eu/internal_market/finances/docs/committees/reform/20120912-com-2012-510_en.pdf, and the other official documents that are there cited and commented.

First, the usefulness of the banking union for financial stability is not limited to international banking. European financial problems originate also from the inadequateness of regulation, supervision and crisis management in certain member countries. Competition in policies for financial stability does not work: it is a cause of laxity, inefficiency and protectionisms. The idea of minimum harmonization has also failed in the history of European financial regulation. Creating homogeneity and centralizing powers to prevent and deal with banking crises is also an opportunity to reduce distortions along national frontiers and improve the quality of the governance of financial systems' stability, extending best practices and reducing the risks of capture. In several member countries the crisis has shown the weaknesses of many small and medium size national banks that will benefit from supranational financial stability policies no less than larger international intermediaries. In fact these smaller and regional banks, especially in Germany, seem to be defending the protection they receive by national inefficient and permissive supervision by lobbying against their participation into the proposed banking union.

Second, Italy is among the member countries that will benefit more from the banking union. The reason is twofold. Supervision, regulation and crisis management are of good quality in Italy and Italian banks suffer most from the systemic weaknesses of the European banking system as a whole. Moreover, a large part of the problems of banks in Italy, more than elsewhere, is connected to the amount of Italian treasuries that they hold, also as a consequence of more or less explicit political pressures. By disentangling country and bank risk, the banking union reform would help them a lot. To the extent that the uncoupling of the two risks will reanimate the international circulation of interbank liquidity in the euro area, the cost of bank credit for solid firms in Italy could decrease as soon as the "banking union" disconnects it from the risk premium on sovereigns.

Third, the banking union project, based on a long history of efforts to unify European prudential rules and authorities, was greatly accelerated after the spring of 2012 to remedy the dramatic situation that was labeled "sudden stops", whereby the circulation of interbank liquidity across the national frontiers of the euro area was blocked by country risks and by their implicit transformation into exchange risks, as operators started to seriously fear the breaking of the single currency. The sudden stops caused very large imbalances in "Target 2" – the mechanism of official settlements that functions inside the system of European central banks – which rendered more plausible the idea that the existence of the euro was at risk. Figure 3, taken from an updating of the path-breaking paper on sudden stops²⁸, shows that Italy is among the countries that suffers more from the national

²⁸ S. MERLER and J. PISANI-FERRY, *Capital flight in the euro area: from bad to worse*, Bruegel, 12th July 2012, updating evidence reported in the same authors' *Sudden stops in the euro area*, Bruegel Policy Contribution, 2012/06, February 2012.

Figure 3a: Italy – Composition of cumulative capital inflows

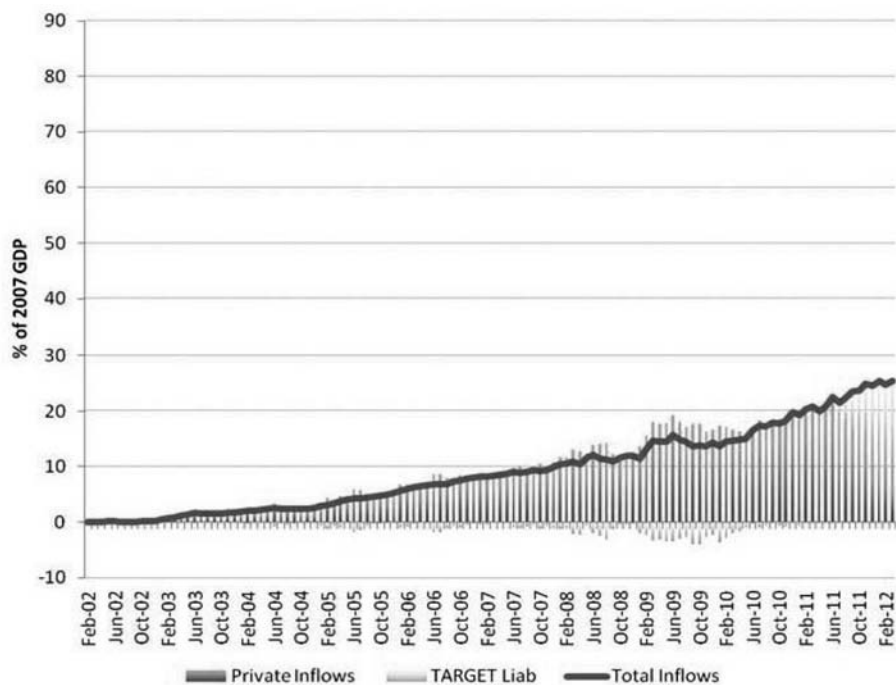
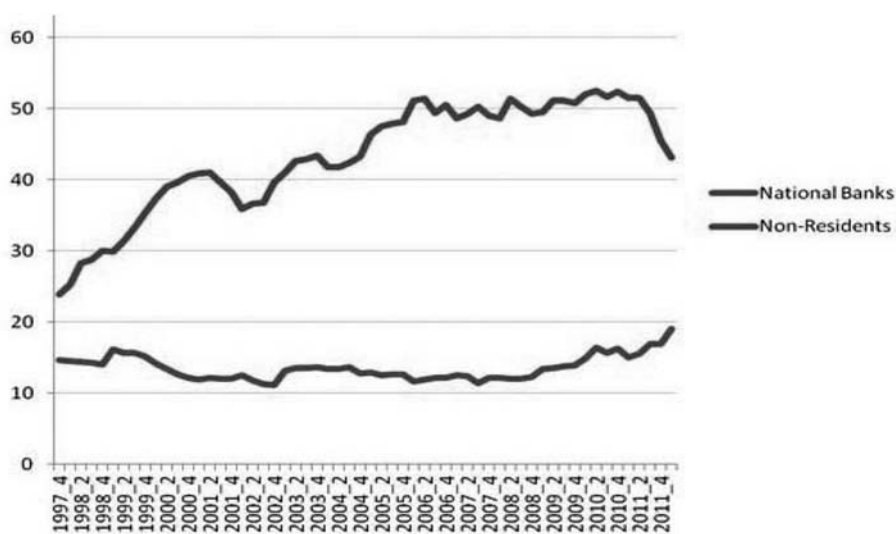


Figure 3b: Share of domestic banks and non-residents in total holdings of government securities



Source: MERLER and PISANI-FERRY, *Sudden stops in the euro area*, Bruegel Policy Contribution, 2012/06, February 2012.

segmentation of the market for liquidity. While it is often said that a monetary union is not sustainable without a sufficient amount of fiscal and economic integration, the major obstacle for the euro area to become a true optimum currency area was probably the lack of a banking union and the lack of intellectual emphasis – as opposed to the overabundant rhetoric on the “original sin” of “creating a currency without the backing of a government” – on the need to unify the banking system as money is mainly made by banks and vice versa.

Forth, the rules for crisis management in the banking union must be rigorous, must seriously punish imprudent shareholders and managers and do not provide easy bailouts nor generate moral hazard for bankers and for their creditors. In this respect, the June 2012 proposal of the Commission for a Directive on recovery and resolution of credit institutions could turn out to be an important building block for the future rules of the banking union²⁹. The planned action to help the recapitalization and the restructuring of Spanish banks, which will probably start before the finalization of the banking union, must function as an crucial exercise to establish the reputation of the crisis management style that, after the start of the banking union, will characterize the European mechanism for resolving and restructuring problem banks, acting directly, without passing through national governments as will happen with Spain. Losses on shareholders and unsecured creditors of Spanish banks must be imposed; during the last decade the European Shadow Financial Regulatory Committee has issued several statements where sound and rigorous principles of crisis management have been suggested: the most recent one is on the Spanish case³⁰.

Prompt corrective action, intervening rather early when objective indicators (such as leverage and risk-weighted capital ratios, that have to be substantially increased) show the deterioration of a bank’s liquidity and/or solvency, must be among the main tools of the preventive arm of European supervision. Uninsured depositors and bondholders must be more or less automatically involved, together with shareholders, in bank resolutions and restructurings, making appropriate use of contingent liabilities and compulsory subordinated debt instruments. The cost of deposit insurance must be charged to the banks in proportion to their riskiness. Instead of the elusive “Tobin tax”, special taxes on certain speculative and risky banking transactions and operations, as well as on the size of the bank, could help funding the deposit insurance, together with fines on banks that do not comply with certain rules.

Fifth, the political importance of the banking union must be stressed. The euro has been accused to represent the “EU of the bankers” and to have an insufficient

²⁹ EU Commission, *Proposal for a Directive of the European Parliament and of the Council establishing a framework for the recovery and resolution of credit institutions and investment firms*, Brussels, COM(2012) 280/3.

³⁰ ESFRFC, *Escalating Crisis in the Eurozone: Time for Urgent Action*, Statement No. 35, Tillburg, 27 June 2012.

background of political unity. But the sacrifice of national autonomy and powers that is needed for building the banking union is formidable, sacrificing some of the most delicate jealousies of national politicians and bureaucrats. This fact has to be emphasized to explain the importance of banking union to the general public and avoid that the measure is considered an unpopular technocratic trick that does not go to the heart of the process of construction of a “political” EU. On the other hand, one must be conscious that going ahead with the project of European banking union is particularly difficult today as it means running “against the wind” of ring-fencing national financial systems, an attitude that is currently prevailing to create the illusion of defending each country’s credit institutions and markets from the turbulences of the crisis.

Sixth, it is easy to argue in many ways that the sub-ingredients of banking union – single supervision, supranational rules and powers of resolution, single deposit insurance – are deeply linked and complementary to the rest of the recipe presented in this paper. In particular, they require a sufficient amount of solidarity among member countries to accept the joint responsibility and the joint risk of managing together, from a supranational level of power and responsibility, their entire banking system. But, after all, this joint management of the banking system can be considered the most immediate and inevitable consequence of the adoption of a single currency, a single monetary policy, a single central bank, a single payments system.

6.5. A CONCLUDING COMMENT ON THE IRREVERSIBILITY OF THE EURO

During the first part of the sovereign crisis of the euro area it was somewhat easy to counter the superficial comments that were saying that the “euro” was in crisis. The problem could be presented as one of excessive debts of the public sector of some countries in the euro area, in certain cases originated as private debts – and, as such, connected to insufficient saving and weak competitiveness – that were later bailed out by governments.

But in the summer of 2012, a larger consensus and better grounded explanations became nearly suddenly available for the idea that an “exchange risk premium” was among the determinants of the very large spreads between sovereign yields. In other words: the relative cost of Spain’s debt, for instance, was also due to the risk that Spain could exit the euro area and depreciate its currency or that a group of countries centered on Germany could abandon the (“southern”) euro and appreciate. Sudden stops in interbank international money and credit flows, by building up growing opposite Target2 unbalances of national central banks, seemed to confirm that the risk of breaking the euro area was a serious one. The

idea was nourished by frequent comments from some academics, journalists and politicians, often presented as obvious sentences (“non converging countries cannot share the same currency”, “Greece cannot but exit the euro area and needs depreciation to recover a minimum of competitiveness”, “Germany cannot keep paying for keeping peripheral countries in the common currency area”, etc.) just waiting to be confirmed by facts.

Explaining spreads with exchange risk was also of help in limiting the accusations that financial markets were unjustifiably irrational and that purely self-fulfilling, ungrounded and myopic speculation on the potential defaults of individual sovereigns was distorting the relative costs of sovereign indebtednesses. Markets were pricing a true risk: the failure of the euro adventure, for lack of fiscal and political integration.

Also the otherwise too vague idea of “systemic risk” was acquiring concreteness as it was interpreted as the risk of the break-up of the euro. Italy’s cost of public debt, for instance, could be considered higher than the level warranted by the country’s own weaknesses; but the reason was not a general unspecified risk that Italy could default on its debt as a consequence of external shocks and mismanaged international interactions: the reason was that, in an insufficiently integrated Europe, the common currency could not survive and Italy was a natural candidate to be in the group of depreciating countries.

The “theory” of spreads based on exchange rate risk was sanctified by Mario Draghi, on 2nd August 2012, in his introductory speech to the press conference following the meeting of the ECB Governing Council, when he said³¹: “the Governing Council extensively discussed the policy options to address the severe malfunctioning in the price formation process in the bond markets of euro area countries. Exceptionally high risk premia are observed in government bond prices in several countries and financial fragmentation hinders the effective working of monetary policy. Risk premia that are related to *fears of the reversibility of the euro*³² are unacceptable, and they need to be addressed in a fundamental manner. *The euro is irreversible*³³”. He then added that the ECB will stand ready to “undertake outright open market operations of a size adequate to reach this objective”. But, in order to intervene to reduce the impact of the risk premia on the spreads “necessary conditions are the adherence of governments to their commitments and the fulfillment by the EFSF/ESM of their role”. Draghi explained further the logic of conditionality in the Q&A part of the conference: “we want to repair monetary policy transmission channels and we clearly see a risk, and I

³¹ www.ecb.int/press/pressconf/2012/html/is120802.en.html.

³² Emphasis in italics not in the original.

³³ Italics are ours.

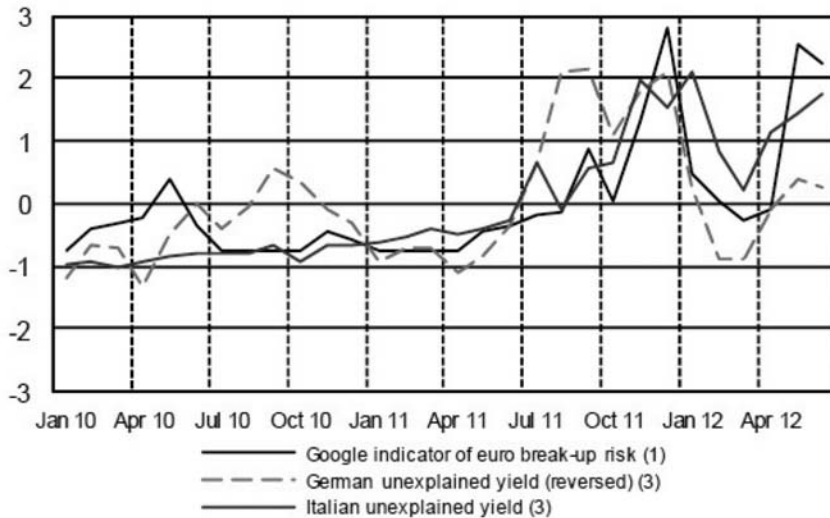
mean the *convertibility premium*³⁴ in some interest rates. But the Governing Council knows that monetary policy would not be enough to achieve these objectives unless there is also action by the governments. If there are substantial and continuing disequilibria and imbalances in current accounts, in fiscal deficits, in prices and in competitiveness, monetary policy cannot fill this vacuum of lack of action. That is why conditionality is essential. But the counterparty in this conditionality is going to be the EFSF. Action by the governments at the euro area level is just as essential for repairing monetary policy transmission channels as is appropriate action on our side. That is the reason for having this conditionality”.

Fighting exchange rate risk premia is therefore part of the mandate of the ECB but, according to the Governing Council, the required action would be inappropriate and ineffective without the parallel adjustment policies of the member countries and the conditional intergovernmental support of the ESM. The measures by Frankfurt are therefore “strictly conditional” on individual countries’ behaviors, which could be considered in contradiction with the fact that the problem is due to the defective functioning of the euro “system” as a whole. But, quite apart from the controversial issue of conditionality, the substance of Draghi’s message is that the systemic nature of part of the exchange risk component of spreads requires systemic action, also from the central bank. This systemic nature also derives, for any member of the euro area, from the potential unmanageable contagion of a unilateral and voluntary abandonment of the euro that any other member country could decide, also in absence of external shocks, purely on the basis of its own problems and national preferences.

It is difficult to separate the exchange risk premium from other sources of risk of default. Some impressive evidence though – including what is reported in figure 4 – has been produced showing the very high correlation between the sovereign spread of Italy and the fears of breaking up of the euro. The abandonment of the euro (as well as of the EU) by a country implies, with very high probability, some substantial default on its sovereign debts. What is insufficiently emphasized though, is that the opposite is not necessarily true: substantial defaults can take place also with the defaulting country keeping the euro, as already happened to Greece, and as could happen more easily if the sixth ingredient of the recipe of this paper were used setting up official, supranational, public, orderly and timely default procedures for sovereigns. Therefore, Draghi’s solemn sentence, “the euro is irreversible”, does not mean that undisciplined countries must be bailed out. It just means that reverting to national currencies is no solution for the euro area tensions and disequilibria.

³⁴ Italics are ours.

Figure 4: Unexplained portions of sovereign German and Italian 10-year yields and euro break-up risk (2)



(1) Monthly data. Index of search volume of euro break-up keywords (“end of euro”, “end of the euro”, “euro break-up”, “euro break up”, “euro breakup” and “euro exit”) typed into Google’s web search engine. Data downloaded on 23 August 2012. – (2) The time series are normalized to have zero mean and unit variance. – (3) Difference between the actual and fitted values of the 10-year government bond yield. Fitted values are obtained by a model that controls for both macroeconomic fundamentals and financial factors. Since July 2011 fitted values are out-of-sample forecasts.

Source: A. DI CESARE, G. GRANDE, M. MANNA and M. TABOGA, *Recent estimates of sovereign risk premia for euro-area countries*, Bank of Italy Occasional papers 128, September 2012.

But is the euro truly irreversible? The irreversibility of the common currency looks as a necessary condition for sustainable financial stability in the euro area³⁵, but it obviously could turn out to be wishful thinking. Our recipe probably needs an 8th ingredient consisting in what can make Draghi’s sentence a solid and uncontroversial reality. This paper would go beyond its modest aim if it tried to seriously pursue this line of reasoning. Political and institutional conditions can be imagined that would obtain the result of a nearly irreversible euro. But it is worth stressing that “cultural” conditions are also needed. The fear of the breaking-up of the euro rests on the idea that there can be incentives to break it, as nominal exchange rates can be manoeuvred to correct macro imbalances, and that their flexibility is an effective economic policy instrument so that the creation of the euro implied the cost of giving up the exchange rate instrument, a cost to be hopefully compensated by larger benefits.

³⁵ It also reinforces the action of the second ingredient of the recipe of this paper: external discipline acts in a more persuasive way if the alternative of exiting the euro can be completely excluded. Recent German disciplining voices directed to Greece seem rather confusing and ineffective when accompanied by the opinion that, to begin with, Greece should not belong to the euro area.

This cost-versus-benefit idea is contained in any standard macro textbook and is a basic tenet of the prevalent optimum currency area theory. But the idea today is probably wrong. In a (financially as well as commercially) highly integrated area, composed by a large majority of relatively small and very open economies, and in a globalised world where interest rates, prices and expectations are less and less sticky, as they increasingly react to expected monetary policies, flexible exchange rates are ineffective policy instruments, unable to influence the terms of trade, as well as the supply of competitive tradable goods, for more than a very short time, while they provide powerful incentives to speculation, thus nourishing all sorts of continuous monetary disorder. Moreover, the autonomy of monetary policy, which class lectures often associate with exchange rate flexibility, becomes closer to an illusion, resulting in weaker monetary discipline, self-neutralising competitive depreciation strategies and dangerous inflationary pressures. Modern macroeconomic theory is increasingly far from possessing a robust theory that proves the existence of reliable, non destabilising and non ephemeral real effects of monetary policy. The fact that price stability is the statutory target of the ECB – together with its implications for financial stability – is also due to the weaknesses that, already two decades ago, characterised more activist monetary theories. These weaknesses are now even more evident. The euro is irreversible also because it has been introduced on the basis of a monetary strategy centred on stability and highly sceptical about the possibility of conveniently manoeuvring real variables using the monetary veil as an instrument.

The stability of the euro area requires these basic ideas to be reappraised and seriously adhered to by its members states, opinion leaders and leading academics. If we seriously think that Greece, by leaving the euro area, would be able to substantially increase its competitiveness and to restart growth-cum-stability, if we believe that Athens would succeed in keeping together a floating exchange rate with an open economy, as well as with a resurging export sector, with sufficient savings protected from the robberies of financial repression, with reasonably stable goods and asset prices, then “Grexit” should happen as soon as possible, benefitting both Greece and the rest of the EU; but, then, the whole idea of the euro area and its strategy pursuing macroeconomic stability should be set aside all over the place. In order to consider the euro truly irreversible we must be convinced that, also for Greece, reverting to the national mint would have only costs, without any appreciable and truly achievable benefit.

It is often stressed that a single currency requires – besides price and wage flexibility and international mobility of goods, services, and factors of production – macroeconomic and structural convergence, international fiscal transfers, centralization of budgetary and other economic policies. The usual discourse goes on stating that, perhaps on the basis of an implicit theory of “endogenous optimal currency area”, the euro area made the unsustainable mistake to try and function

for a long time with an insufficient dose of convergence and centralization. This is in part true and any effort to accelerate economic and political integration will certainly benefit the monetary union. But throwing away the exchange rate instrument and adopting monetary policies lacking the whims of fine tuning and the frivolous ambitions to “stimulate” the growth rate of inefficient economies, is a persuasive idea³⁶ in itself and can benefit European countries also in absence of the much needed acceleration in economic and financial integration. The irreversibility of the euro – together with financial stability of the euro area – cannot but be grounded also in this persuasion.

³⁶ After all, the project of European monetary unification, even if grounded in the general idea of the Union since its postwar beginnings, acquired concreteness after the frustrating experience of floating rates nourishing the macro-monetary mess and the financial protectionisms of the 70s.

7. BANKING WEAKNESS AND SOVEREIGN DEBT BUILD-UP IN THE EURO AREA: IMPLICATIONS FOR DEBT SUSTAINABILITY

André Van Poeck & Maartje Wijffelaars¹

Abstract

The financial crisis has renewed the interest in the relationship between financial sector weakness and sovereign debt sustainability. To assess the direct effect of financial sector weakness on sovereign debt during the recent crisis we decompose the debt build-up of the euro area countries between 2008 and 2011 into the primary deficit, a snowball effect, and stock-flow adjustments. It appears that in some countries the sovereign debt increase was mainly attributable to financial sector bail-outs, but that overall, the indirect effects of the financial crisis have prevailed. To assess the implications of linkages between weak financial institutions and sovereign debt sustainability we simulate – based on a simple model – the effect of a loss of bank equity on the sovereign default probability and on the sovereign interest rate spread. We show that recapitalization can indeed be the proper response by governments to bank equity losses, but that its effects on the sovereign yield spread differ importantly according to whether or not feedback effects from weak government finances to bank balance sheets are taken into account. The existence of an adverse feedback loop between banking and sovereign risk is problematic both with and without recapitalization by governments. This asks for policies to be taken to break the apparent strong linkages in order to prevent ailing financial institutions and sovereigns to end up in a vicious circle.

JEL classification: E43, E62, G01

Keywords: Sovereign Debt, Banking Crises, Debt Sustainability

7.1. INTRODUCTION

The sustainability of government debt in the euro area (EA) is a widely debated topic. Since the start of the global financial crisis in 2007, public deficits and debts have increased significantly. Along with this sharp rise in fiscal imbalances came the question of public debt sustainability of troubled euro countries, as well as worries about the fiscal sustainability and the market's perception of sustainability of euro countries not yet in trouble. Due to the highly integrated financial markets, failure of one country's government to meet its debt obligations, would

¹ The authors like to thank the participants of the session “The sovereign debt crisis and Eurobonds” of the 30th SUERF Colloquium for valuable suggestions and comments, as well as Ann De Schepper (Universiteit Antwerpen) for help with Mathematica.

likely also rapidly lead to substantial problems for foreign banks. In addition, market participants might lose confidence in healthy countries as they fear these contagion effects or believe all euro countries to be alike.

What factors have caused the debt build-up of EA countries between 2008 and 2011? More precisely, to what extent is the debt build-up explained by banking sector rescue packages? To answer these questions we decompose the debt build-up of the EA countries between 2008 and 2011 in financial sector support measures, the primary deficit, the snowball effect, and stock-flow adjustments. This is done in section 7.2. It is shown that the decisive factors differ widely between countries. In several countries, e.g. Ireland, financial sector rescue packages have made the largest contribution to the total debt build-up, whereas in for example Spain, large primary deficits were mostly to blame. Again in others, e.g. Italy, the snowball effect accounted for the largest share. Since governments have also widely granted guarantees to the banking sector, we also provide an overview of contingent public debt in 2011. It is shown that guarantees for financial sector assets and liabilities have been more widespread used in the euro area than direct recapitalization, but that there exists no correlation (neither positive nor negative) between the direct recapitalization and contingent liabilities.

In section 7.3. we focus on the implication of banking sector support for government debt sustainability. We argue that not only direct intervention but also contingent liabilities should be taken into account when examining the sustainability of government debt. In section 7.5. we assess whether there is a case for bank recapitalization by governments. As an introduction to that section we provide in section 7.4. an overview of the channels through which government debt and its sustainability influence banking sector performance and vice versa. We show that there indeed exists a case for bank recapitalization by governments, but that its positive effect on the sovereign yield spread (as compared to the case of non-recapitalization) is (strongly) reduced by feedback effects from weakened governments to banks' balance sheets.

The existence of the adverse feedback loop between weak banks and sovereigns is a reason for great concern as it can lead to those parties ending up in a vicious spiral. In the concluding remarks (section 7.6.) we therefore elaborate on how the link between bank and sovereign weakness can be broken. Several proposals done so far go into the right direction but a full banking union complemented with increased fiscal integration would in our view be the ultimate solution.

7.2. FINANCIAL SECTOR SUPPORT AND PUBLIC DEBT BUILD-UP IN THE EURO AREA

7.2.1. Explicit debt

To analyze the factors that have caused the sovereign debt build-up in the euro area during the recent years and to derive to what extent financial sector rescue packages have contributed to it, first the origination of explicit debt is reviewed. Thereafter contingent liabilities stemming from financial sector crisis support are assessed.

Equation (2.1) is standard and provides the factors that influence the sovereign debt-to-GDP ratio in year t (D_t): the implicit nominal interest rate (r_t) to be paid on the outstanding stock of debt, the debt-to-GDP ratio in the previous period (D_{t-1}), the nominal GDP growth rate (g_t), the primary balance-to-GDP ratio (pb_t), and the stock-flow adjustments-to-GDP ratio (sfa_t).

$$D_t = \frac{1 + r_t}{1 + g_t} D_{t-1} - pb_t + sfa_t \quad (2.1)$$

Stock-flow adjustments (deficit-debt adjustments) capture the elements that alter the government debt-to-GDP ratio, but have no impact on the public deficit. They include the acquisition or sales of assets, e.g. increased liabilities due to bank recapitalizations during the crisis, but also changes in the value of debt in foreign currencies as a result of exchange rate fluctuations, and statistical discrepancies. A change in the debt-to-GDP ratio (ΔD_t) depends on these same components and can be derived from equation (2.1):

$$\Delta D_t = \frac{r_t - g_t}{1 + g_t} D_{t-1} - pb_t + sfa_t \quad (2.2)$$

In this equation

$\frac{r_t - g_t}{1 + g_t} D_{t-1}$ represents the snowball effect,

pb_t the primary balance, and

sfa_t the stock-flow adjustments.

The snowball effect is the change in the debt-to-GDP ratio due to interest payments on outstanding debt and nominal GDP growth, where the first is positively related and the latter is negatively related to the ratio.

The financial sector support measures used by governments during the recent crisis have increased public debt through:

- the *primary balance*, i.e. capital transfers net of remunerations, and/or through
- *stock-flow adjustments*, i.e. financial transactions net of recovery from the financial sector.

The measures used can be categorized as recapitalizations², government guarantees³, loans, asset purchases⁴, exchanges of assets⁵, and debt cancellation. Eurostat provides guidelines on the statistical recording of these measures, and on the classification of temporary special purpose entities (SPEs) set up to provide part of these measures⁶. These guidelines state, among other factors, that both purchases of new equity issued by a financial institution and acquisitions of impaired assets are recorded as financial transactions, increasing stock-flow adjustments, unless the purchase price is clearly above market price. In case of the latter, a capital transfer is recorded for the difference, increasing the governments' deficit. In addition, also loans to financial institutions (FI) are to be booked as financial transactions, unless it is rather evident that the financial institution concerned will not be able to repay the loan. Then again it will be notified as a capital transfer. Besides expenditures and liabilities, financial sector support measures also lead to revenues such as fees; interest; and dividends, which reduce the primary deficit, and to assets such as securities; shares; equity; and loans. Moreover, if the government resells the acquired financial assets again, stock-flow adjustments decrease. For the euro zone as a whole the impact of financial sector bail-out packages on public *deficits* has been relatively small⁷, viz. 0.8 percent of GDP (see appendix A), whereas its impact on government *debt* via stock-flow adjustments has been substantially larger, viz. 4.8 percent of GDP (see appendix A).

Figure 1 shows the accumulated increase in the debt-to-GDP ratios of EA countries for the years 2008 till 2011. The total debt increase has been divided into total financial institutions support, primary deficit excluding financial institu-

² The purchase of new equity instruments issued by a financial institution and of unquoted shares in banks.

³ Financial support in case of the occurrence of a certain event will be discussed in more detail below.

⁴ Also purchases of impaired assets to relieve financial institutions with bad assets.

⁵ Government securities lend or swapped (repurchase agreements) off balance sheet.

⁶ The decision of Eurostat on "The statistical recording of public interventions to support financial institutions and financial markets during the financial crisis" (15th July 2009) can be found on the Eurostat website: http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/documents/FT%20-%20Eurostat%20Decision%20-%209%20July%202009%20_3_%20_final_.pdf.

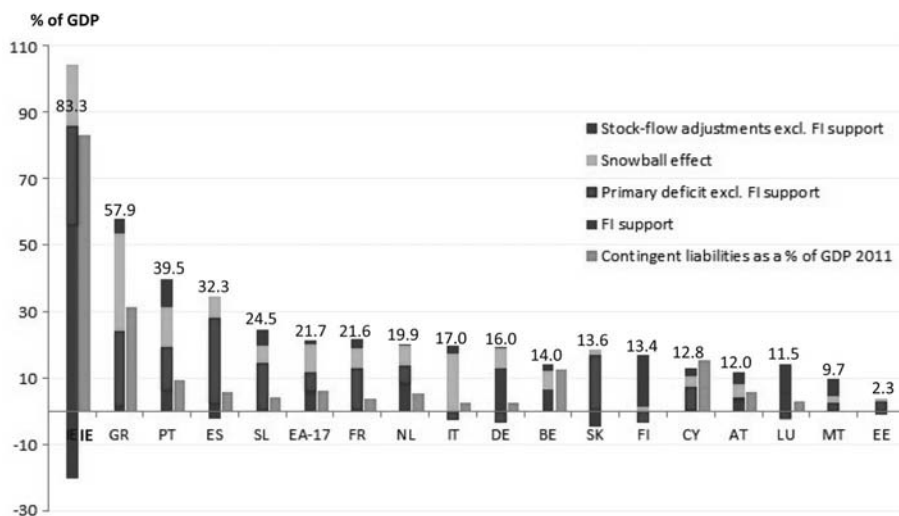
⁷ Only for Ireland changes in public deficits due to financial sector support were substantial, 25.8 pp, followed by Portugal, 1.8 pp, and Germany, 1.5 pp, due to borne losses on assets acquired through the provision of capital. Especially in Ireland the price paid by the government for the equity and other assets of heavily loss-making banks was far above the market price, thereby incorporating huge losses.

EUROPEAN COMMISSION, 2012a, *Eurostat supplementary table for the financial crisis*, Eurostat. (http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turmoil, downloaded 30 May 2012).

tions support, a snowball effect, and stock-flow adjustments excluding financial institutions support. The countries are ranked in downward order for total debt-to-GDP increase over the reference period. The EA average public debt increase equals 21.7 percentage points. At the left end we find Ireland with a total debt-to-GDP increase of 83.4 percentage points and at the right end we find Estonia with a total debt-to-GDP increase of only 2.3 percentage points. For more detailed information on the debt-to-GDP build-up of the PIGS (Portugal, Ireland, Greece, and Spain) during these years see appendix B.

From figure 1 we can calculate the percentage of debt-to-GDP increase stemming from the different factors. For the euro area as a whole about 26 percent of the increase from 2008 until 2011 is due to public financial sector support measures, 29 percent due to primary deficits excluding financial sector support, 38 percent due to the snowball effect, and 6 percent due to stock-flow adjustments other than financial sector support. The contribution of the snowball effect stems from interest payments on outstanding debt, while growth has in fact made a negative contribution to the debt-to-GDP increase, i.e. average nominal GDP growth has been positive in the EA between 2008 and 2011 (Eurostat).

Figure 1: Cumulative change in the debt-to-GDP ratio by component, 2008-2011



FI = financial institution

See appendix A for numerical details

Source: European Commission (2012a), Eurostat supplementary table for the financial crisis, Eurostat. (http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turmoil, downloaded 30-05-2012);

European Commission (2012b), General government data: general government revenue, expenditure, balances and gross debt.

This EA average conceals wide differences among EA countries. The contribution of financial sector bail-outs, for example, ranges from 67 percent (Ireland) to 0 percent (Slovenia, France, Italy, Slovakia, Finland, Cyprus, Malta, and Estonia). Financial sector bail-outs have been a particularly important driver of the change in the debt-to-GDP ratio in Ireland, Germany, the Netherlands, Belgium, and Luxembourg. In Ireland this stems from large capital injections into the country's heavily loss making banks Anglo Irish Bank, Irish Nationwide Building Society, and EBS Building Society. In Germany it is the result of the creation of the Erste Abwicklungsanstalt and FMS Wertmanagement, which were to deal with impaired assets of the WestLB and the nationalized HRE bank respectively; and capital injections in the Commerzbank, KfW, and several Landesbanken. In the Netherlands, the government has acquired equity of Fortis, ABN AMRO, and ING. In Luxembourg and Belgium Fortis also needed support, as did Dexia, the KBC, and insurance company Ethias in the latter. Whereas in Ireland and Germany no State capital related to these financial sector bail-out packages had been redeemed by the end of 2011⁸, in the Netherlands, Luxembourg, and Belgium this is true for only part of the capital involved⁹. Details on the debt-to-GDP changes driven by financial sector support measures can be found in appendix B.

Figure 1 further shows that there was no correlation between the cumulative change in the sovereign debt ratio and the share of financial sector support measures. This implies that the rise in sovereign debt-to-GDP in most EA countries has been mainly triggered by the effect of the financial crisis on GDP and output growth. This fall in output growth led to (relatively) large primary deficits (excluding financial sector support) in Slovakia, Ireland¹⁰, Greece, Slovenia, France, Portugal, and Cyprus. In Spain the large primary deficits were mainly the result of a fall in output growth and rise in unemployment after its housing market bubble burst. The problems with the Cajas (Spanish regional saving banks), due to this burst, and fear for contagion to other banks did, however, lead to funding problems and falling confidence, which both intensified the fall in output demand and growth.

The snowball effect was the largest driver of the debt-to-GDP increase in Greece and Italy, and its contribution was also above EA average in Portugal and Ireland. Even though in Greece and Ireland negative nominal GDP growth has increased the snowball effect, interest payments on the large outstanding stock of debt

⁸ However, in Germany total liabilities stemming from financial sector support were reduced by 1.1 percentage points in 2011, because of an accounting mistake made by the FMS Wertmanagement, the bad bank of HRE. BBC News (28 October 2011), *Germany finds extra 55bn euros after accounting error*, (<http://www.bbc.co.uk/news/business-15503097>, retrieved 12-06-2012)

⁹ Total recovery from the financial sector amounts to 6.4 percent of GDP in the Netherlands, 0.9 percent of GDP in Luxembourg, and only 0.3 percent of GDP in Belgium. For more details on these figures see appendix B.

¹⁰ In case of Ireland demand and growth had already started to decrease at the end of 2008, prior to the problems within its financial sector, due to the burst of its real estate bubble. The financial crisis intensified the fall in output growth.

accounted for the largest share in all four countries¹¹ (see appendix A). Where in Ireland interest payments started to rise during the course of the crisis, in Greece and Italy, but also in Portugal, interest payments were already large at the start of the crisis due to a high debt ratio¹². Finally, in Finland, Luxembourg, and Malta stock-flow adjustments not stemming from financial sector support have contributed the most to the debt-to-GDP build-up between 2008 and 2011. In Luxembourg these stock-flow adjustments mainly stem from portfolio investments by social security funds and in Finland also from investments in securities and lending activities by employment pension institutions (Eurostat, 2012).

Based on the above analysis we can conclude that financial sector bail-outs have not been the main direct driver of sovereign debt build-up during the recent crisis in all countries. Weak financial institutions can have a substantial or even devastating direct impact on government finances, though, with Ireland being the best example of a seemingly strong country put into a heavily troubled situation by its highly leveraged financial sector.

7.2.2. Contingent liabilities

During the financial crisis, governments have, besides explicit liabilities, also accumulated contingent liabilities due to financial sector support. Contingent liabilities are recorded off-balance sheet and only materialize after a certain event has taken place. In the light of the financial crisis, these contingent liabilities consist of guarantees granted on the value of assets and liabilities of financial institutions and on debt issued by special purpose entities (SPEs)¹³, and of securities temporarily lent or swapped under special liquidity schemes. As contingent liabilities are recorded off-balance sheet, the public debt level does not increase when guarantees are granted and securities are lent or swapped. When they are called or when there is irrefutable evidence that they will be, however, guarantees will be recorded as capital transfers thereby increasing public expenditure. Guarantees on the value of assets and liabilities of banks make up for the largest part of the contingent liabilities (excl. deposit guarantees) accrued during the crisis¹⁴.

¹¹ In Italy and Portugal, cumulative nominal GDP growth between 2008 and 2011 has even been positive, making a negative contribution to the snowball effect.

¹² In Belgium interest payments actually were larger than in Ireland and Portugal between 2008 and 2011, but nominal GDP growth has reduced the debt increasing effect of the snowball effect except for the year 2009.

¹³ In addition, the minimum coverage of deposit guarantee schemes was extended to EUR 100 000 per depositor by the 1st of January 2011 and the maximum payout delay period was brought back to 21 days

¹⁴ Of all countries, Ireland has granted the most guarantees on the value of bank assets and liabilities. It has implemented a blanket guarantee under the Credit Institutions Financial Support Scheme (CIFS) for covered liabilities in Bank of Ireland, AIB, Anglo Irish Bank, EBS Building Society, Irish Nationwide Building Society, and Irish Life and Permanent from 30 September 2008 until 29 September 2010. In December 2009 a new Eligible Liabilities Guarantee Scheme (ELG) was set up, which will run until 30 June 2012.

Second comes the value of securities issued under the liquidity schemes¹⁵, and last in line are the guarantees regarding the operations of SPEs¹⁶.

If a financial institution is no longer able to meet its guaranteed liabilities, the government is legally obliged to meet those liabilities. Therefore, the ultimate increase in explicit government debt as a result of crisis support measures to strengthen the financial sector also depends on the future default probability of financial institutions that have obtained guarantees and securities under liquidity schemes.

In figure 1 the total amount of contingent liabilities as a percentage of GDP related to financial sector support is shown beside the total debt increase¹⁷. Contingent liabilities have been more widespread used than explicit recapitalization measures, but there is no correlation (neither positive nor negative) between the use of direct capitalization and contingent liabilities. Even countries that have not or barely engaged in explicit support measure have seen their related contingent liabilities rise. As a matter of fact, only 4 out of 17 countries have not granted guarantees to domestic financial institutions (Slovakia, Finland, Malta, and Estonia). At the other extreme, Ireland's and Greece's debt would substantially increase if their contingent liabilities were to materialize.

Taking into account the contingent liabilities equation (2.2) should be extended to:

$$\Delta D_t = \frac{r_t - g_t}{1 + g_t} D_{t-1} - pb_t + sfa_t + \delta G_t \quad (2.3)$$

With δ being the probability that the guarantees will be called and G the amount of guarantees outstanding.

7.3. FINANCIAL SECTOR SUPPORT AND GOVERNMENT DEBT SUSTAINABILITY

A sovereign's debt is sustainable as long as the issuing government is able to service its debt. This ability depends in the short-run on liquidity needs and in the medium to long-run on its solvency. The government's short-term liquidity needs depend on the difference between its current and future cash and its current and

¹⁵ Of all euro area countries, Greece has issued the most securities under liquidity schemes.

¹⁶ Of all countries, France has granted the most guarantees on the operations of SPEs. Moreover, they have also made up for the most part of France's total contingent liabilities in the wake of the crisis. The SPE is called Société de Financement de L'Economic Française (SFEF). In addition, guarantees granted to the National Asset Management Agency (NAMA) and the Clearingbank in Ireland and Austria respectively, have also increased contingent liabilities in those countries.

¹⁷ Note that figure 1 only presents contingent liabilities related to financial sector crisis support measures.

future cash needs. A sovereign fulfills the liquidity requirement if it is able to raise the required liquidity in the market, such that it is able to service its forthcoming payment obligations. The solvency requirement is fulfilled if the government is able to repay current outstanding and future debt. According to conventional debt sustainability analysis the solvency requirement is met if the intertemporal budget constraint (IBC) is satisfied, i.e. if the net present value of the sovereign's future primary balances net of stock-flow adjustments is at least equal to the outstanding stock of debt¹⁸:

$$D_t = \sum_{i=1}^{\infty} \frac{pb_{t+i}}{(1+r-g)^i} - \frac{sf_{t+i}}{(1+r-g)^i} \quad (3.1)$$

If stock-flow adjustments are expected to be positive and large, as they were for some countries during the Great Recession as a result of financial sector support measures, larger future public balances are obviously required to off-set the consequent debt increase. Furthermore, because of the widespread use of measures that increase contingent liabilities and the substantial debt increase that would result from the materialization of these liabilities it can be argued that they should, in combination with the probability of their materialization, also be part of the sovereign debt sustainability analysis.

The intertemporal budget constraint used in conventional debt sustainability analysis (3.1) should then be adapted to:

$$D_t + \delta G_t = \sum_{i=1}^{\infty} \frac{pb_{t+i}}{(1+r-g)^i} - \frac{sf_{t+i}}{(1+r-g)^i} \quad (3.2)$$

Therefore, it is important to incorporate a strength analysis of the financial sector in sovereign debt sustainability analyses. An example of such an approach is the European Commission's estimation of the direct potential impact of bank losses on government finances based on the SYMBOL model (Systemic Model of Banking Originated Losses) (see European Commission, 2011a). The analysis takes the following steps. First the default probabilities of bank obligors are estimated. Thereafter, these probabilities are used to evaluate the default risk and distribution of losses of individual banks. Subsequently, the probability distribution of losses for the banking sector as a whole is computed both under the condition of no-contagion and contagion effects of defaulting banks to other banks. Finally, the possible cost to public finances is estimated by first projecting the probability that public finances are directly affected by financial institutions' defaults and

¹⁸ The interest-growth rate differential is assumed to be positive. If it would be allowed to be persistently negative, the analysis loses its value since any debt-to-GDP ratio could then be sustained (European Commission, 2011a).

second by assessment of the actual size of funds necessary to recapitalize the institutions. If a bank's obligors default, the bank is expected to first draw upon its own capital to cover these losses. If it lacks sufficient capital the bank will default, and if possible the Deposit Guarantee Scheme and/or bank Resolution Funds are called upon, to compensate covered depositors and prevent contagion and spill-over effects. Ultimately, only unabsorbed losses are passed through to the public finances. To incorporate divergent regulations the final estimations are completed under different conditions related to bank capital setting requirements, the existence of a Deposit Guarantee Scheme and bank Resolution Funds, and the existence of a bail-in setting. Estimations for Germany, Ireland, Portugal, and Sweden show that under the pre-crisis and current regulatory regime, public finances of Ireland and Portugal have a relatively high probability of being hit if the banking sector has to bear losses, whereas Sweden has a relatively low probability. The probability that the government will have to inject capital into the banking sector does however not provide any information on the size of funds to be injected. Therefore, also the size of bank losses to be covered by the sovereigns is estimated for given probabilities of default. Finally, the probability that the countries become high risk countries due to banking sector losses is calculated, by estimating the probability that these losses exceed a certain threshold. This threshold is calculated based on the S2 indicator which measures the adjustment to the structural primary balance needed to fulfill the intertemporal budget constraint. Under the current regulatory regime, Ireland and Portugal have a relatively high and Sweden a relatively low probability to become high risk countries due to banking sector losses.

7.4. INTERRELATIONS BETWEEN BANKING AND SOVEREIGN WEAKNESS

7.4.1. The impact of government debt on banking sector performance

Debt sustainability and sovereign creditworthiness are likely to depend among other things on the size of the public debt¹⁹. There are several possible negative effects of a high sovereign debt on banking weakness.

First, banks' ratings and the conditions at which they can obtain liquidity in the market depend, among other things, on the quality of their assets; this means that if government bonds are part of a bank's assets, the rating of government bonds

¹⁹ The relationship does not have to be linear. The possible existence of a debt threshold beyond which a debt crisis becomes significantly more likely has been the topic of several researches, e.g. Baldacci *et al.* (2011) and European Commission (2011a). See also the model in section 7.5.

influences these assets' quality. In addition, high graded government bonds are accepted by the European Central Bank (ECB) as collateral for the provision of liquidity. Therefore, the rating of banks as well as the total amount of liquidity Eurosystem banks can obtain in the market obviously increases with the rating of the government bonds in their possession; while borrowing rates move in opposite direction. Furthermore, the mark-down on a banks' assets following public downgrades, reduces the capital on banks' balance sheets, thereby reducing their capital ratio and buffer, and weakening their resilience to shocks. A reduced value of both explicit and implicit government guarantees is another channel through which sovereign weakness may be transmitted to the banking system.

Besides the above direct links, high government debt might also indirectly affect a bank's equity value. In a situation with high debt, growth could be hampered through high interest expenditure which crowds out expenditure that could benefit growth. Furthermore, if governments face high debt ratios they eventually have no other option than fiscal consolidation, through either higher taxes; lower public spending; or both, due to which growth likely will fall and in more severe cases might even turn negative. Thereby, non-performing loans rise whereas asset prices fall, both worsening the asset quality and capitalization of banks. In fact, expectations of falling output growth might already be sufficient for banks' market value to drop.

Several studies have tried to grasp whether and how a sovereign's creditworthiness really has an impact on the banking system. Angeloni and Wolff (2012), for example, show that except for Greek debt holdings, it was not as much the holding of debt of a vulnerable country that reduced banks' stock prices between April and December 2011, but the residence of banks in a troubled country. The market value of banks situated within a troubled country has been more negatively influenced than the market value of banks holding government debt of a troubled country. This suggests that the economic and fiscal conditions of the country of bank residence are more important than the origin of a bank's assets, implying that the indirect link is stronger than the direct one. Demirgüç-Kunt and Huizinga (2010) explain the substantial reduction of the market valuation of systemically large banks situated in countries with large fiscal deficits in 2008 by the existence of the direct guarantee channel. They argue that banks became too big to save. In addition, De Bruyckere, Gerhardt, Schepens, and Vander Vennet (2012) also provide evidence for the guarantee channel, as well as for the link running from high government debt to weak bank balance sheets through losses on holdings of sovereign debt.

Other studies have assessed whether public debt has an influence on growth levels, and thus whether there is a basis for the existence of the indirect link. The outcomes are contradictory. Whereas, for example, Cecchetti, Mohanty, and

Zampolli (2011), Kumar and Woo (2010), and Reinhart and Rogoff (2010a), suggest that public debt indeed lowers growth, and the more so for higher debt levels (beyond about 90 percent of GDP); Krugman (2010)²⁰ questions the conclusions of Reinhart and Rogoff (2010a) and Panizza and Presbitero (2012) state that in neither of the previous named papers the causal link running from public debt to GDP can be convincingly confirmed, and their research even points to the non-existence of this causal link.

7.4.2. The impact of banking sector strength on the public fiscal stance

A weak banking sector can increase public deficit and debt both directly and indirectly. The direct link concerns public support to ailing financial institutions. In order to avoid or limit the negative effects of ailing financial institutions on the economy, governments may find it worthwhile to provide capital to banks in need. The trade-off in this situation is between incurring the costs involved with the recapitalization and the costs involved with the consequences of ailing financial institutions (ECB, 2009; European Commission, 2011a; Mody & Sandri, 2011). Public debt will only increase in the wake of bail-outs if the government has to finance these costs by the issuance of new debt (ECB, 2009; European Commission, Eurostat, 2011b).

The indirect link runs through the effects of weak financial institutions on the economy. As already mentioned in paragraph 7.4.1, a deterioration of banks' balance sheets raises their funding problems and worsens funding conditions. This will likely feed through to a rise in private sector borrowing costs and falling investments, with falling output and GDP growth as a result (Mody & Sandri, 2011; Reinhart & Rogoff, 2009; European Commission, 2011a; ECB 2009). Consequently, unemployment, social benefit payments, and fiscal stimulation spending will rise and tax receipts will fall (Reinhart & Rogoff, 2009). Whereas falling GDP growth directly increases the debt-to-GDP ratio, higher expenditure and lower receipts will increase the budget deficit and thereby future debt.

Reinhart and Rogoff (2009) suggest that the rise in sovereign debt in the wake of a financial crisis is mostly due to the consequences of banking sector instability on GDP growth and output contraction. In addition, Reinhart and Rogoff (2010b) found that banking crises²¹ often precede or accompany public debt

²⁰ P. KRUGMAN, August 11, 2010, "Reinhart and Rogoff Are Confusing Me", *New York Times*, (<http://krugman.blogs.nytimes.com/2010/08/11/reinhart-and-rogooff-are-confusing-me/>, retrieved 16 July 2012).

²¹ An event is classified as a banking crisis in case of bank runs that lead to the closure, merging, or takeover by the public sector of financial institution or in case of no bank runs the closure, merging, takeover, or large-scale assistance to one or more (important) financial institutions, that indicates the start of a period with similar outcomes for other financial institutions.

explosion. In fact, both banking crises and surges in public debt significantly increase the likelihood of public default; implying that banking crises both in their own right and through a rise in public debt significantly increase the chance of default. From figure 1 it is clear, however, that also the direct link has been substantial in a number of countries.

As mentioned, the creditworthiness of governments depends on their (perceived) ability to pay back debt, and thus, among other things, on their debt and expected deficit levels, and expected growth. Weak financial institutions and governments might thus actually end up in a vicious spiral: banking sector weakness raises public debt and deficit (Reinhart & Rogoff, 2009, 2010b; Figure 1 ‘*Cumulative change in the debt-to-GDP ratio by component, 2008-2011*’, p. 5), as a consequence governments might be downgraded and growth might slow (Cecchetti *et al.*, 2011; Kumar & Woo, 2010; Reinhart & Rogoff, 2010a), thereby worsening banks’ balance sheets and performance (BIS, 2011; Angeloni & Wolff, 2012), resulting in another increase in sovereign debt and deficit.

7.5. A MODEL OF THE INTERRELATIONS BETWEEN BANKING AND SOVEREIGN WEAKNESS

This section starts with Mody and Sandri’s (2011) model of financial crisis and sovereign default, demonstrating the impact of financial sector strength on sovereign bond yields under certain conditions (section 7.5.1.). We adapt this model taking into account the feedback effects of increased sovereign bond yields on the performance of the financial sector (section 7.5.2.).

7.5.1. Mody and Sandri

The Mody and Sandri two-period model examines the effect of financial shocks on sovereign spreads. It involves a government, risk-neutral investors, and the financial sector. Total outstanding debt-to-GDP in period 2 (D_2) is equal to:

$$D_2 = \frac{B_1(1-r)}{Y_2} \quad (5.1)$$

Where B_1 is the stock of bonds issued in period 1, r is the implicit interest rate to be paid on those bonds, i.e. the rate of return, and Y_2 is the GDP at current market prices in period 2. It is assumed that the debt becomes unsustainable, i.e. the government defaults, if D_2 exceeds a given threshold D .

In turn, GDP in period 2 is determined by the level of productivity in period 1 (A_1), which grows at the economy's potential growth rate (g^p); the capital invested in period 1 (K_1); and a mean-one log-normally distributed exogenous shock in period 2 (ε_2), implying a recession or boom of the economy, with standard deviation (σ)²²,

$$Y_2 = A_1(1 + g^p)K_1\varepsilon_2 \quad (5.2)$$

Combining (3.1) with (3.2) gives us the factors influencing the debt-to-GDP ratio:

$$D_2 = \frac{B_1(1 + r)}{A_1(1 + g^p)K_1\varepsilon_2} \quad (5.3)$$

Thus in case:

$$D_2 = \frac{B_1(1 + r)}{A_1(1 + g^p)K_1\varepsilon_2} > \bar{D} \quad (5.4)$$

the sovereign defaults in period 2. This implies that the larger the level of productivity; its growth rate; capital investment; and a positive shock in period 2, the lower the chance of sovereign default, and vice versa. In addition, obviously, a larger issued stock of bonds and higher interest rate to be paid, increases the probability of default. This probability of sovereign default (Γ) is given by:

$$\Gamma_2 = \text{prob} \left[\frac{B_1(1 + r)}{A_1(1 + g^p)K_1\varepsilon_2} > \bar{D} \right] = \text{prob} \left[\varepsilon_2 < \frac{B_1(1 + r)}{DA_1(1 + g^p)K_1} \right] \quad (5.5)$$

Since investors are assumed to be risk-neutral in this model they will require a risk premium over the risk-free interest rate (i) for holding government bonds, wherefore the arbitrage condition equals:

$$(1 - \Gamma)(1 + r) + \Gamma\mu(1 + r) = (1 + i) \quad (5.6)$$

Where μ is the recovery rate on government bonds in case of default. In table 1 values are given to certain parameters such that the rate of return and spreads can be calculated under different circumstances by combining (5.5) and (5.6).

A final role that has been highlighted is that of the financial sector. The financial sector's equity endowment in a period 1 (E_1) determines together with a given leverage factor (λ) the total capital investment in period 1 (K_1):

$$K_1 = \lambda E_1 \quad (5.7)$$

²² Since a log-normal distribution is truncated at zero, the possibility of having a negative GDP is avoided.

Banks thus use part of their capital to finance investment, which implies that when banks' capital drops, investments fall, and thereby GDP as well (3.2). A fall in GDP automatically leads to an increase in the debt-to-GDP ratio and default probability (5.5). A rise in the probability of default in turn raises the sovereign spread through the arbitrage condition (5.6).

To prevent or minimize the fall in GDP after a negative shock to banking sector capital, governments might feel urged to inject capital in weakly capitalized banks. This would, however, raise the debt level itself, thereby also increasing the debt-to-GDP ratio and thus the default probability and the risk premium to be paid. Therefore, it can be said that in case of ailing financial institutions, the government faces a trade-off: either it prevents a fall in GDP by providing capital which will result in a debt-to-GDP increase through a rise in the debt level, or it does not and accepts the rise in the debt-to-GDP ratio through a fall in GDP.

Calibrations

Table 1. provides the benchmark values as presented by Mody and Sandri. These values set expected GDP in period 2 equal to 100, which allows the stock of debt in the forthcoming figures to be interpreted as a percentage of GDP.

Table 1: The benchmark values

Parameter	Description	Value
σ	Standard deviation of GDP shock	20%
\bar{D}	Default threshold	150%
μ	Default recovery rate	80%
i	Risk-free rate	2%
A	Capital productivity	10%
g	Productivity growth	0%
λ	Financial sector's leverage	10
E_1	Financial sector's equity	100

Expected GDP in period 2: $E(Y_2) = A_1(1 + g)\lambda E_1$

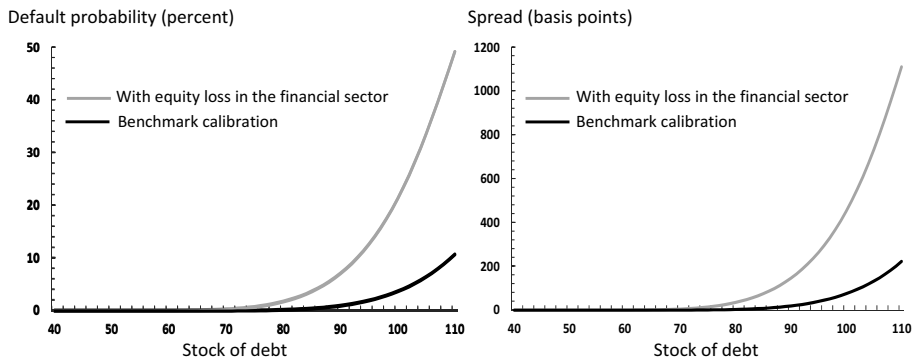
Benchmark situation: $E(Y_2) = 0.1 * (1 + 0) * 10 * 100 = 100$

The benchmark values are used to estimate the relation between government debt and both the interest rate spread and the default probability (the black curves in figure 2.). The outcome of the benchmark calibration is in line with the general intuition and conventional debt analysis: the higher the debt ratio, the larger the default risk and therefore the risk premium demanded, i.e. the larger the interest rate spread. Moreover, both the default probability and spread increase exponen-

tially in the debt stock. This is the result of the spread following the path of the default probability, and the log-normally distributed exogenous shock (ϵ) integrated in the default function. The cumulative distribution function of the shock is exponentially increasing until the debt-to-expected GDP ratio approaches the debt threshold - at ratios close to the threshold, the default probability and spreads only show minor further increases.

Figure 2. also provides an estimation of the interest rate spread and the default probability in case the financial sector experiences a 15 percent equity loss (the grey curves). As mentioned before, a reduction in the capitalization of banks leads to a fall in GDP in the next period and therefore increases the debt-to-GDP ratio in that next period. It can immediately be seen that especially at higher debt ratios this fall in GDP substantially increases the sovereign spread. Where the situation has not changed notable at a debt-to-GDP ratio of 70, spreads have increased by more than 125 basis points at a 90 percent debt ratio and even by more than 350 basis points at a debt ratio of a 100 percent. In addition, also for the default probability, higher debt ratios magnify the impact of the equity loss.

Figure 2.: Relation between the government debt and both the default probability and interest rate spread before and after a 15 percent equity loss in the financial sector

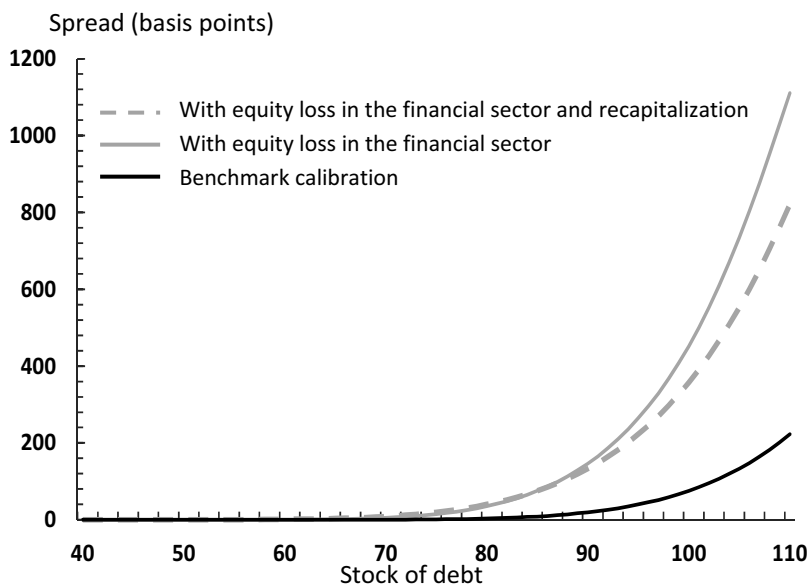


As mentioned in paragraph 5.1., in case of a negative equity shock, the government has to decide whether or not to recapitalize banks in order to limit the fall in GDP, while directly accepting a higher debt level. It is thought that recapitalization might be beneficial in the short run, depending on other economic variables. From figure 3. it indeed appears that from a certain debt ratio, recapitalization of the financial sector can reduce the increase in the sovereign spread²³ (see dashed grey curve). When the debt-to-GDP ratio equals 90 percent for example, the spread increases by 14 basis points less and in case the ratio amounts to

²³ Since default probabilities and interest rate spreads are two sides of the same picture, we only show graphs for the interest rate spread.

100 percent the spread increases even almost by a 100 basis points less. As a matter of fact the turning point, after which recapitalization pays off, lies at a debt ratio of 85 percent. While recognizing this figure partly stems from rather arbitrary values, an explanation for the fact that up until a certain debt ratio the sovereign cannot reduce the rise in the spread by recapitalizing banks following a financial sector equity loss can be found in the relative size of the necessary recapitalization. At all debt ratios the size of the recapitalization necessary to preserve GDP after a financial sector equity loss is the same in percentage points. However, obviously the size of the recapitalization as a percentage of total debt differs with the size of total debt: for lower debt levels the percentage increase in debt will be larger than for higher debt levels. If we return to our simulations, it appears that at debt ratios below 85 percent of GDP the percentage debt increase due to the recapitalization package is larger than the percentage increase in GDP, i.e. the numerator of the debt-to-GDP equation increases by more than the denominator. Therefore, in our simulations, non-recapitalization leads to a lower increase in the interest rate spread than recapitalization at debt ratios below 85 percent of GDP.

Figure 3.: Relation between the government debt and the interest rate spread after a 15 percent equity loss in the financial sector without and with recapitalization by the government



Mody and Sandri did not incorporate feedback effects of the rise in government bond spreads to the banking sector's capital or possibly increased interest rates

on private sector loans. Yet, they do indicate that the incorporation of these feedback effects would in fact increase the influence of financial sector weakness on sovereign spreads. In the following we will still keep capital investments exogenous of interest rates, but we will incorporate the effect of increased bond rates on banks' capitalization.

7.5.2. The model extended with feedback effects

We assume that a fixed share (ρ) of all government bonds issued in the benchmark situation in period 1 (B_{1b} ²⁴) is part of banks' balance sheets and that banks do not acquire more sovereign bonds. We therefore assume that the banks' total equity equals the market value of government bonds issued in the benchmark situation in period 1 (\hat{B}_{1b}) on banks' balance sheets and other equity (\bar{E})²⁵:

$$E_1 = \bar{E} + \rho \hat{B}_{1b} \quad (5.8)$$

The market value of the benchmark bonds can be found as follows:

$$\hat{B}_{1b} = \frac{B_{1b}(1 + r_b)}{1 + r_a} \quad (5.9)$$

Where r_b is the coupon rate of bonds issued in the benchmark situation and r_a is the discount rate, i.e. the rate of return on alternative investments²⁶.

By incorporating feedback effects, the total expected rise in spreads due to a financial sector equity loss in period 1 becomes larger: if the risk premium to be paid rises due to the debt ratio increase following the equity loss, the market value of existing bonds falls. Referring to equation (5.9) the rise in the premium means that r_a becomes larger than r_b , wherefore vB_{1b} falls. As a consequence, banks' capital will drop again, because we assume they hold a certain share of these government bonds (5.8). Subsequently, investments and thereby GDP will fall, wherefore the debt-to-GDP ratio and sovereign spread will rise. Therefore, the incorporation of the feedback effect reduces the possible positive effect on the interest rate spread of bank recapitalization by sovereigns, and increases the impact of low financial sector capitalization on sovereign debt sustainability.

²⁴ B_{1b} differs from B_1 in that B_1 consists of all government bonds issued in period 1, i.e. those in the benchmark situation and those after the financial sector equity shock, and B_{1b} only of those bonds issued in the benchmark situation.

²⁵ For simplicity we assume that all assets are covered by equity.

²⁶ In a situation without financial sector equity loss, the discount rate equals the risk-free interest rate (i). In case the financial sector has suffered from an equity loss, the discount rate equals the resulting interest rate on sovereign bonds, i.e. the risk-free interest rate + the risk premium demanded in the new situation (in the new situation the government has decided whether or not to recapitalize the banks).

Calibrations

Table 2. provides the values for the parameters of our extended model. These values make sure expected GDP in period 2 is still equal to 100, which allows the stock of debt in the forthcoming figures to be interpreted as a percentage of GDP.

Table 2.: Parameters extended model

Parameter	Description	Value
ρ	Share of the benchmark sovereign debt on banks' balance sheets	0.5
\bar{E}	Financial sector's other equity	$100 - \left(0.5 \frac{B_{1b}(1+r_b)}{1+i}\right)$

Expected GDP in period 2: $E(Y_2) = A_1(1+g)\lambda E_1$

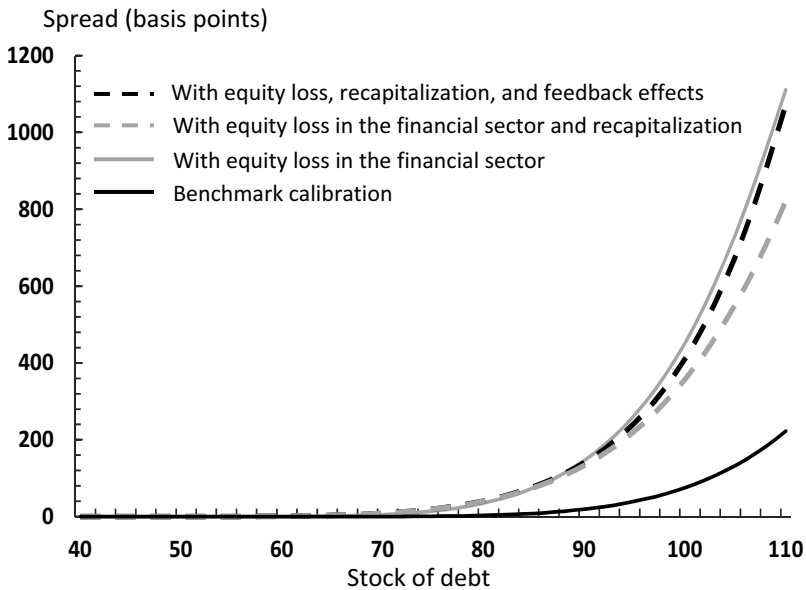
Benchmark situation: $E_1 = \bar{E} + \rho \hat{B}_{1b} = 100 - 0.5 \frac{B_{1b}(1+r_b)}{1+i} + 0.5 \frac{B_{1b}(1+r_b)}{1+i}$,

therefore: $E(Y_2) = 0.1 * (1+0) * 10 * 100 = 100$

We now include the feedback effects from the higher sovereign yield on the capitalization of the financial sector. Since it is assumed that part of the bonds issued in the benchmark situation is possessed by financial institutions and because the increased bond rate stemming from the financial sector equity loss reduces the market value of bonds issued in this benchmark situation, the higher sovereign yield results in yet another decrease in banks' capital. This implies that GDP will fall again leading to another increase in the sovereign spread. The dashed black curve in figure 4. shows the yield spread at different debt ratios after a 15 percent equity shock, recapitalization, and another resulting fall in banks' capital. The incorporation of the feedback effect implies that the positive impact on the sovereign yield spread of bank recapitalization is substantially lower than without the existence of the feedback effect of a higher sovereign yield to banks' capital (see dashed black compared to dashed grey curve).

The above observation does, however, not necessarily imply that the case of bank recapitalization is seriously weakened. The reason is that feedback effects will operate in any scenario. When the government decides not to recapitalize banks in the case of an equity shock the resulting increase in the sovereign debt ratio and market value loss of sovereign bonds will also feedback on the banks, resulting in further capital losses for banks. The above most importantly implies that the negative consequences for sovereign yields of a financial sector equity loss are increased by the existence of the feedback effect. In addition, the existence of the feedback effect somewhat paradoxically strengthens the case for bank recapitalization for governments with a high debt ratio, but lowers it for governments with a low debt ratio.

Figure 4.: Relation between government debt and interest rate spread – different scenarios



7.6. CONCLUSIONS

The adverse feedback loop between bank and sovereign risk has created a downward spiral between sovereigns and banks, and greatly increased the risk of contagion across the euro area. As shown by the analysis, taking into account the feedback effect of increased sovereign spreads on banks' balance sheets greatly diminishes the possible positive effect on sovereign debt sustainability of recapitalization of banks by the government in the aftermath of a banking crisis.

As argued in the BIS 82nd Annual Report, policymakers need to take measures to break the feedback loop between financial sector and sovereign risk (BIS, 2012, p. 62-63). One general key measure is to enforce banks to build capital and liquidity buffers thereby reducing the probability that governments will have to bail them out. Banks should also be discouraged from concentrating their portfolio's too heavily in sovereign bonds. Therefore, the risk weights for government debt held by banks should be based on a realistic assessment of sovereign credit risk.

Another general key measure refers to governments. Governments should build appropriate fiscal buffers, to be able to provide support for the financial system in case it is needed, without endangering their creditworthiness. As was shown by the different simulations in section 7.5., sovereign spreads after equity loss in the

financial sector, only start increasing sharply once the stock of government debt surpasses a certain threshold (85 percent of GDP in the simulations). Therefore, government debt ratios should be brought back to long-term sustainable levels.

At the June 2012 European Summit decisions were taken with an eye on breaking the link between EA banks and their national sovereigns. It was agreed to allow the EA rescue funds to recapitalize banks directly, rather than via their governments. This agreement is made dependent on the establishment of a single supervisory mechanism for EA banks. The latter was also endorsed by the Eurozone countries.

These decisions go into the right direction. Nevertheless important caveats remain. Firstly, they are still in want of national approval. Secondly, the amount of money available to the rescue funds is too small. Finally, recapitalization of banks will no longer increase the debt ratio of their sovereign, but will still affect the debt ratio of all the governments funding the rescue fund.

Therefore we believe that only a full banking union complemented with increased fiscal integration can break the link between banking and sovereign weakness in the EA. This includes a single rule book, supra-national supervision of banks, a European resolution regime and fund, and a uniformed deposit guarantee scheme. The banking union should be set up to avoid bank failures in the first place, and to provide orderly dealing with such failures with minimal disruptions to the economy and costs to tax payers in case they do occur. It goes without saying that this implies loss of national sovereignty in these matters and more political integration.

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APPENDIX A

Table A.1.: Debt build-up of the EA-17 countries between 2008 and 2011

	IE	GR	PT	ES	SL	EA-17	FR	NL	IT	DE	BE	SK	FI	CY	AT	LU	MT	EE
2008-2011 (as a % of GDP)	108.2	165.3	107.8	68.5	47.6	88.0	85.8	65.2	120.1	81.2	98.0	43.3	48.6	71.6	72.2	18.2	72.0	6.0
Gross debt-to-GDPx ratio 2011	83.4	57.9	39.5	32.3	24.5	21.7	21.6	19.9	17.0	16.0	13.9	13.7	13.4	12.8	12.0	11.5	9.9	2.3
Change in the debt ratio ¹																		
<i>Contributions to the change</i>																		
Primary deficit ²	55.7	22.1	15.3	25.8	14.3	7.1	12.8	6.4	-2.7	-2.0	0.0	16.9	-3.5	6.7	1.4	-2.4	2.3	3.0
Primary deficit due to crisis support to FI	25.8	-0.9	1.8	-0.3	-0.2	0.8	-0.2	0.6	0.0	1.5	-0.2	0.0	0.0	-0.4	0.6	0.1	0.0	0.0
Primary deficit excluding FI support	29.9	23.0	13.5	26.1	14.5	6.3	13.2	5.8	-2.7	-3.5	0.2	16.9	-3.5	7.1	0.8	-2.5	2.3	3.0
Snowball effect	18.5	29.4	12.0	6.6	5.2	8.3	5.8	5.9	17.3	6.1	5.5	1.5	1.4	3.3	4.2	-0.2	2.1	0.5
Interest payments	9.9	22.8	12.6	7.7	6.1	11.8	10.3	8.4	19.4	10.7	14.1	5.5	4.7	10.2	10.7	1.6	12.5	0.6
Contribution of nominal GDP growth	8.3	6.6	-0.7	-1.2	-0.8	-3.3	-4.5	-2.5	-2.3	-4.5	-8.7	-4.2	-3.2	-6.7	-6.5	-1.8	-10.4	-0.2
Stock-flow adjustments ³	9.5	6.4	12.3	-0.3	4.9	6.1	3.1	7.7	2.3	11.9	8.5	-4.8	15.4	2.7	6.1	14.0	5.2	-1.2
Crisis support financial sector ⁴	30.0	2.0	4.1	2.2	0.0	4.8	0.0	7.3	0.2	11.4	6.6	0.0	0.0	0.0	2.5	5.7	0.0	0.0
Other stock-flow adjustments	-20.5	4.4	8.3	-2.5	4.9	1.3	3.1	0.4	2.1	0.5	1.9	-4.8	15.4	2.7	3.6	8.3	5.2	-1.2
Aggregate debt increase FI support	55.8	1.1	5.9	1.9	-0.2	5.6	-0.2	7.9	0.2	12.9	6.4	0.0	0.0	-0.3	3.1	5.8	0.0	0.0
Stock-flow adjustment	30.0	2.0	4.1	2.2	0.0	4.8	0.0	7.3	0.2	11.4	6.6	0.0	0.0	0.0	2.5	5.7	0.0	0.0
Increase in the primary deficit	25.8	-0.9	1.8	-0.3	-0.2	0.8	-0.2	0.6	0.0	1.5	-0.2	0.0	0.0	-0.4	0.6	0.1	0.0	0.0
Contingent liabilities FI support 2011 ⁵	83.5	31.5	9.4	5.9	4.4	3.8	6.1	5.5	2.7	2.8	12.7	0.0	0.0	15.6	5.7	3.2	0.0	0.0

FI = Financial Institution

Statistical discrepancies stem from rounding

1. Change between 2008 and 2011. Primary deficit + Snowball effect + stock-flow adjustments.

2. Budget deficit excluding interest payments. A minus sign indicates a surplus

3. Or debt-deficit adjustments. Factors that do not have an impact on government deficit, but that do have an impact on government debt. Stock-flow adjustments include: accumulation of financial assets, changes in the value of debt denominated in foreign currency, and statistical adjustments

4. Deficit-debt adjustment resulting from crisis support to financial institutions. A minus sign indicates recovery from the financial sector

5. The level of contingent liabilities stemming from financial sector crisis support measures as a percentage of GDP in 2011

Source: European Commission (2012a), Eurostat supplementary table for the financial crisis, Eurostat (http://lepp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turnoil, downloaded 30 May 2012); European Commission (2012b), General government data: general government revenue, expenditure, balances and gross debt.

APPENDIX B. THE DEBT BUILD-UP OF THE PIGS AND FINANCIAL SECTOR SUPPORT MEASURES IN OTHER EA COUNTRIES

The PIGS

To get a better knowledge of the main drivers of the debt increase during the Great Recession in the euro area countries, the debt increase of Greece, Portugal, Ireland, and Spain will be decomposed according to the components mentioned in section 7.2.: primary deficit, snowball effect, and stock-flow adjustments. Greece was the first to receive foreign financial support. A three-year lending facility of EUR 110bn was set up in 2010²⁷ by the European Union (EU), ECB, and IMF (the so-called Troika), and a second three-year conditional support package worth EUR 130bn in February 2012²⁸. Ireland was second in line to opt for bail-out support and has obtained a EUR 67.5bn loan agreement with the IMF, the EA (through the EFSF), the EU (through the EFSM), the United Kingdom, Denmark, and Sweden, in November 2010, to be received in tranches²⁹. In addition, the Treasury and National Pension Fund Reserve has added another EUR 17.5bn. Thereafter, in May 2011, Portugal obtained a loan of EUR 78bn to be received in three years from the EU (through the EFSM), the EA (through the EFSF), and the IMF³⁰. And finally, on June 25, 2012 the Spanish government made an official request for support. Spain can, depending on the needs, obtain a loan of maximum 100bn euros to support its banking system³¹.

Besides the assessment of debt growth in these countries, an overview concerning the debt increase in euro area countries stemming from bank bail-outs will be provided. The tables in this section are based on information taken from the pub-

²⁷ Contribution by the euro area: EUR 80bn, IMF: EUR 30bn stand-by arrangement, *European Commission > Economic and Financial affairs > The EU as a borrower > Greek Loan Facility* (http://ec.europa.eu/economy_finance/eu_borrower/greek_loan_facility/index_en.htm, retrieved 22 August 2012).

²⁸ EUR 121.8bn will be provided via the EFSF and EUR 8.2bn by the IMF at the end of 2014. The euro area still needed to disburse EUR 24.4bn from the first program, which will now be disbursed by the EFSF. And the IMF will provide its remaining contribution of EUR 10bn from the first program during the new program as well. *European Financial Stability Facility, Frequently Asked Questions*, p. 18-20 (http://www.efsf.europa.eu/attachments/faq_en.pdf, downloaded 22 August 2012).

²⁹ Contribution by the IMF: EUR 22.5bn, EFSM: EUR 22.5bn, EFSF: EUR 17.7bn, UK: EUR 3.8bn, DK: EUR 0.4bn, SE: EUR 0.6bn, *European Commission > Economic and Financial affairs > The EU as a borrower > Ireland* (http://ec.europa.eu/economy_finance/eu_borrower/ireland/index_en.htm, retrieved 22 August 2012), *European Financial Stability Facility, Frequently Asked Questions*, p. 15-16.

³⁰ Contribution by the IMF, EFSM, and EFSF equals EUR 26bn each. *European Commission > Economic and Financial affairs > The EU as a borrower > Portugal* (http://ec.europa.eu/economy_finance/eu_borrower/portugal/index_en.htm, retrieved 22 August 2012), *European Financial Stability Facility, Frequently Asked Questions*, p. 16-17.

³¹ Currently needs are estimated to be between EUR 51 bn – EUR 62bn, but future assessments will have to determine the ultimate financing needs. *European Financial Stability Facility, Frequently Asked Questions*, p. 20-23.

In addition to Spain, also the Cypriot government has asked for, and be approved, support. The program for Cyprus will entail a comprehensive adjustment program, but the size and details have not yet been agreed upon. *European Financial Stability Facility, Frequently Asked Questions*, p. 23.

lications of the European Commission (2012b) in combination with Eurostat (2012) concerning general government data, stock-flow adjustments, and a table provided on financial sector crisis support measures³².

Greece

Greece had already accumulated an enormous amount of debt relative to GDP before the crisis. In 2007, its debt level amounted to 107.4% of GDP (Eurostat), the largest ratio among euro area countries. After reviewing Eurostat figures of growth and deficits, the debt build-up in the pre-crisis years appears to be the result of weak fiscal policy. During the recent years, debt-to-GDP has increased by the large amount of 57.9 percent of GDP to 165.3 percent of GDP in 2011. Table B.1. shows which factors have contributed to this large increase. The largest contribution stems from the snowball effect which can be separated into the effect of negative nominal GDP growth in 2009-2011 and the increased need for financing which raised the already high interest payments. In addition, primary deficits were large, especially in 2009, partly due to a history of weak fiscal policy and partly due to the effects of negative output and GDP growth on public revenues and expenditures. Finally, also the acquisition of preferred shares from its domestic banks has made a positive, though relatively small, contribution to the total debt-to-GDP increase, as well as other stock-flow adjustments in 2010 and 2011. It should be noted that while banks have not considerably directly influenced the public debt build-up between 2008 and 2011, the weak fiscal position of the Greek government has had a substantial impact on banks holding Greek bonds due to the expectations of a Greek default³³. Furthermore, 2012 is not represented in the table, but it is of interest that in October 2011 partial Greek debt relief by private parties was agreed upon, which took place in 2012. In addition, in May 2012 the four major Greek banks received a capital injection totaling 18bn euros, amounting to 8.4 percent of 2011-GDP or 8.8 percent of expected 2012-GDP. The money comes from the obtained EFSF support.

³² EUROPEAN COMMISSION, 2012, *General government data: general government revenue, expenditure, balances and gross debt*; EUROPEAN COMMISSION, 2012, *Eurostat supplementary table for the financial crisis*, Eurostat (http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turmoil, downloaded 30 May 2012). EUROSTAT, 2012, *Stock-flow adjustment (SFA) for the Member States, the euro area and the EU27 for the period 2007-2011, as reported in the April 2012 EDP notification*.

³³ Angeloni and Wolff (2012) found that the market value of banks holding Greek government debt was affected in the period April-October 2011. In July 2011 the Institute of International Finance proposed a write down on Greek debt. In October 2011 private investors agreed to a 50% write down on Greek debt as part of the second Greek bail-out, starting in 2012. The proposal in July might have led investors to price in a future haircut wherefore the market value of banks holding Greek debt reduced in line with the amount of Greek debt on their balance sheets. By October 2011, the agreed future haircut might have already been priced in, wherefore the holding of Greek debt did not significantly reduce banks' market value anymore after this October.

Table B.1.: Greece

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Gross debt-to-GDP ratio	113.0	129.4	145.0	165.3	
Change in the debt ratio ¹	5.6	16.3	15.6	20.4	57.9
<i>Contributions to the change</i>					
Primary deficit ²	4.8	10.4	4.7	2.2	22.1
Primary deficit due to crisis support to FI	0.0	-0.2	-0.4	-0.3	-0.9
Primary deficit excluding FI support	4.8	10.6	5.1	2.5	23.0
Snow ball effect	0.3	5.8	8.1	15.2	29.4
Interest payments	5.0	5.2	5.7	6.9	22.8
Contribution of nominal GDP growth	-4.7	0.6	2.5	8.2	6.6
Stock-flow adjustments	0.5	0.1	2.8	3.0	6.4
Crisis support to financial sector ³	0.0	1.6	0.0	0.4	2.0
Other stock-flow adjustments	0.5	-1.5	2.8	2.6	4.4
Aggregate debt increase FI support	0.0	1.4	-0.4	0.1	1.1
Stock-flow adjustment	0.0	1.6	0.0	0.4	2.0
Increase in the primary deficit	0.0	-0.2	-0.4	-0.3	-0.9

FI = Financial Institution

Statistical discrepancies stem from rounding

1. Primary deficit + Snowball effect + Stock-flow adjustments
2. Budget deficit excluding interest payments. A minus sign indicates a surplus
3. Deficit-debt adjustment resulting from crisis support to financial institutions. A minus sign indicates recovery from the financial sector.

Portugal

With its debt level at 68.3 percent of GDP in 2007, Portugal had accumulated an amount of debt well above the EA average (51.7 percent of GDP) in the pre-crisis years, as a result of consecutive years of irresponsible deficits as well as stock-flow adjustments (Eurostat). By December 2011 debt-to-GDP had increased with 33.2pp to 107.8 percent of GDP. Reasons are the weakening growth in the preceding years and rising unemployment, which have led to rising primary deficits; the negative nominal GDP growth in 2009 and 2011; and large interest payments due to the already high debt ratio at the start of the crisis and weakened creditworthiness (see table B.2.). In addition, transfers of several large pension funds from banks to the state and the disbursements of loans from the Troika led to a substantial amount of other stock-flow adjustments in 2011 (Eurostat, 2012). Finally, financial sector support has played a role, most notably in 2010. More than one-third of the debt-to-GDP increase in 2010 is attributable to banking sector support. This mainly is the result of the classification of the newly created enterprises Parvalorem, Parups, and Participadas in the general government sec-

tor. These enterprises are set up to deal with the problematic assets of, among other institutions, the nationalized Banco Portugues de Negocios and Banco Efisa. Fears exist that government finances will worsen in the future as a result of necessary bail-outs due to increasing non-performing loans.

Table B.2.: Portugal

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Gross debt-to-GDP ratio	71.6	83.1	93.3	107.8	
Change in the debt ratio ¹	3.3	11.5	10.3	14.4	39.5
<i>Contributions to the change</i>					
Primary deficit ²	0.6	7.3	7.0	0.4	15.3
Primary deficit due to crisis support to FI	0.0	0.0	1.3	0.5	1.8
Primary deficit excluding FI support	0.6	7.3	5.7	-0.1	13.5
Snow ball effect	2.0	4.3	0.9	4.8	12.0
Interest payments	3.0	2.8	2.9	3.9	12.6
Contribution of nominal GDP growth	-1.1	1.5	-2.0	0.9	-0.7
Stock-flow adjustments	0.7	-0.2	2.5	9.3	12.3
Crisis support to financial sector ³	0.2	0.6	2.7	0.6	4.1
Other stock-flow adjustments	0.5	-0.8	-0.2	8.7	8.3
Aggregate debt increase FI support	0.2	0.6	4.0	1.1	5.9
Stock-flow adjustment	0.2	0.6	2.7	0.6	4.1
Increase in the primary deficit	0.0	0.0	1.3	0.5	1.8

FI = Financial Institution

Statistical discrepancies stem from rounding

1. Primary deficit + Snowball effect + Stock-flow adjustments

2. Budget deficit excluding interest payments. A minus sign indicates a surplus

3. Deficit-debt adjustment resulting from crisis support to financial institutions. A minus sign indicates recovery from the financial sector.

Ireland

As Ireland's pre-crisis public finances seemed to be among the most solid of the euro area (Eurostat), it represents a completely different case than Greece and Portugal. In 2007 the country's debt level was only 24.9 percent of GDP, well below the EA average and only above the level of Estonia, Luxembourg, and Slovenia. By 2011, however, its debt-to-GDP ratio amounted to as much as 108.2 percent, well above the EA average of 75.3 percent of GDP, implying an increase of 83.4 percent of GDP. Ireland's recession and debt increase were initiated by the collapse of the real estate bubble, in 2008.

After the bubble burst, domestic demand, investments, housing prices, output, and the value of financial equity fell considerably, whereas unemployment and

non-performing loans grew. The fall in output and increasing unemployment originated large primary deficits, whereas the fall in nominal GDP growth also raised the debt ratio in his own right (see table B.3.). Growth further plummeted as a consequence of the banking crisis, which started at the end of 2008 due to the excessive amount of non-performing loans. In order to prevent a complete collapse of its domestic banking sector and a further fall in confidence and output, the Irish government provided large capital injections to its ailing financial institutions. Capital injections into its heavily loss making banks Anglo Irish Bank, Irish Nationwide Building Society, and EBS Building Society have led to the recording of financial transactions³⁴, but the more so to the recording of deficit increasing capital transfers as losses on most acquisitions were either directly borne or indisputably unavoidable in the (near) future. As a matter of fact almost 70 percent of Ireland's 83.4 percent debt-to-GDP increase between 2008 and 2011 represents financial sector support measures; thereby demonstrating that apparent solid public finances can be turned around in no-time due to a highly leveraged and weak financial system in combination with unsustainable and unfunded output growth. Meanwhile, we can see that interest payments have been on a rising path due the increased debt ratio and decreased creditworthiness. Finally, if we look at other stock-flow adjustments we notice a large debt increasing adjustment in 2008 and a large debt decreasing adjustment in 2010. The former stems from the precautionary accumulation of cash reserves by issuing bonds or taking loans in the context of the crisis (Eurostat, 2009), whereas the latter for a substantial part stems from the participation of the Treasury and National Pension Fund Reserve in Ireland's sovereign bail-out.

Table B.3.: Ireland

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Gross debt-to-GDP ratio	44.2	65.1	92.5	108.2	
Change in the debt ratio ¹	19.4	20.9	27.3	15.7	83.4
<i>Contributions to the change</i>					
Primary deficit ²	6.0	12.0	28.0	9.7	55.7
Primary deficit due to crisis support to FI	0.0	2.3	20.2	3.3	25.8
Primary deficit excluding FI support	6.0	9.7	7.8	6.4	29.9
Snow ball effect	2.8	7.4	5.1	3.2	18.5
Interest payments	1.4	2.0	3.1	3.4	9.9
Contribution of nominal GDP growth	1.4	5.3	1.9	-0.3	8.3
Stock-flow adjustments	10.7	1.6	-5.7	2.9	9.5
Crisis support to financial sector ³	0.1	3.8	20.6	5.5	30.0
Other stock-flow adjustments	10.6	-2.2	-26.3	-2.6	-20.5

³⁴ Stock-flow adjustments increasing gross debt.

Table B.3.: Ireland (*continued*)

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Aggregate debt increase FI support	0.1	6.1	40.8	8.8	55.8
Stock-flow adjustment	0.1	3.8	20.6	5.5	30.0
Increase in the primary deficit	0.0	2.3	20.2	3.3	25.8

FI = Financial Institution

Statistical discrepancies stem from rounding

1. Primary deficit + Snowball effect + Stock-flow adjustments
2. Budget deficit excluding interest payments. A minus sign indicates a surplus
3. Deficit-debt adjustment resulting from crisis support to financial institutions. A minus sign indicates recovery from the financial sector.

Spain

Spain has not yet received support from the EFSF. But due to rising unemployment, weak and even negative growth prospects, problems within the banking sector³⁵, weak fiscal positions of regional governments³⁶, and government bond yields rising towards 7 percent: its future does not look all too bright. And as a matter of fact, in June 2012 it made an official request and it became known that Spain will be able to lend maximum 100bn euros either through EFSF or ESM to support its ailing banking sector³⁷.

Table B.4.: Spain

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Gross debt-to-GDP ratio	40.2	53.9	61.2	68.5	
Change in the debt ratio ¹	4.0	13.8	7.2	7.3	32.3
<i>Contributions to the change</i>					
Primary deficit ²	2.9	9.4	7.4	6.1	25.8
Primary deficit due to crisis support to FI	0.0	-0.1	-0.1	-0.1	-0.3
Primary deficit excluding FI support	2.9	9.5	7.5	6.2	26.1

³⁵ In May 2012, Spain's bank Bankia, a merger of 7 cajas, was partially nationalized and has asked for 19bn euro more. In addition, possibly more banks will follow. HOMAN, M., May 29, 2012, "Onorthodoxe redding Bankia in de maak", *Financieel Dagblad*. (http://fd.nl/Print/krant/Pagina/Voorpagina/619306-1205/onorthodoxe-redding-bankia-in-de-maak-bron_fd_krant, retrieved 31 May 2012); R. MINDER, May 25, 2012, "Giant lender in Spain asks for Billions fend off collapse", *The New York Times*, www.nytimes.com/2012/05/26/business/global/spanish-lender-seeks-state-aid-ratings-cut-on-5-banks.html?pagewanted=all, retrieved 12 June 2012); G. TREMLETT, May 10, 2012, "Spanish government rescues fourth largest lender, Bankia", *The Guardian*, (www.guardian.co.uk/business/2012/may/10/spanish-government-rescues-fourth-largest-bank-bankia, retrieved 12 June 2012).

³⁶ M. HOMAN, May 12, 2012, "Miljoenenleningen voor 'vriendjes' zonder rente", *Financieel Dagblad*; DOW JONES, May 25, 2012, "Spaanse yield stijgt door zorgen over financiën regio's", *Financieel Dagblad*.

³⁷ EUROPEAN FINANCIAL STABILITY FACILITY, *Frequently Asked Questions*, pp. 20-23 (www.efsf.europa.eu/attachments/faq_en.pdf, downloaded 22 August 2012). Up to this date it has however made no use of the possibility, due to possible conditions concerning economic reforms it will have to accept.

Table B.4.: Spain (*continued*)

(as a % of GDP)	2008	2009	2010	2011	2008-2011
Snow ball effect	0.5	3.3	1.7	1.1	6.6
Interest payments	1.6	1.8	1.9	2.4	7.7
Contribution of nominal GDP growth	-1.2	1.5	-0.2	-1.3	-1.2
Stock-flow adjustments	0.6	1.0	-1.9	0.0	-0.3
Crisis support to financial sector ³	0.9	1.0	0.6	-0.3	2.2
Other stock-flow adjustments	-0.5	0.0	-2.5	0.3	-2.5
Aggregate debt increase FI support	0.9	0.9	0.5	-0.4	1.9
Stock-flow adjustment	0.9	1.0	0.6	-0.3	2.2
Increase in the primary deficit	0.0	-0.1	-0.1	-0.1	-0.3

FI = Financial Institution

Statistical discrepancies stem from rounding

1. Primary deficit + Snowball effect + Stock-flow adjustments
2. Budget deficit excluding interest. A minus sign indicates a surplus
3. Deficit-debt adjustment resulting from crisis support to financial institutions. A minus sign indicates recovery from the financial sector.

When exploring how Spain got into this unfavorable situation, it immediately appears that its debt ratio was low in the year 2007, just like that of Ireland. With a debt ratio of 36.2 percent and a decade of primary surpluses public finances appeared to be sustainable and robust to shocks. Between 2007 and 2011, however, Spain's debt level rose by 32.3pp to 68.5 percent of GDP. This rapid increase can be explained by the housing market bubble burst in 2008 and its consequences: a rapid fall in output and a significant increase in unemployment from 8.3% in 2007 to 21.8% in 2011 (Eurostat). Resulting large primary deficits have increased debt and negative nominal GDP growth in 2009 also contributed (see table B.4.). Furthermore, besides rising unemployment due to the bankruptcy of large construction companies, Cajas, regional savings and loan banks, ran into large problems. Capital injections were needed to save them from going bankrupt. Large banks on the other hand were less invested in (risky) real estate projects and therefore seemed to be more solid back then. Consequently, the size of actual bank rescue packages as a percentage of GDP remained relatively small in the preceding years. However, in May 2012 Spain's bank Bankia was partially nationalized by converting government loans priority given to Bankia worth EUR 4.5bn into shares, and it has asked for 19bn euros more³⁸. Furthermore, recently it has been estimated that between EUR 51bn –

³⁸ See footnote 35.

EUR 62bn is needed to recapitalize the Spanish banking sector, for it to be able to become solid again³⁹.

Other EA-17 countries

The final part of this section gives an overview of the debt increase in other euro area countries as the result of banking sector rescue programs in table B.5.⁴⁰

Besides Ireland (table B.3.), especially Germany and The Netherlands have experienced sizeable debt increases as a result of financial sector crisis support. In Germany this amounts to 14 percent of GDP of which most was injected in 2010. In 2011, total liabilities stemming from financial sector support decreased, however, by 1.1 percent of GDP, because of an earlier accounting mistake made by the FMS Wertmanagement, the bad bank of HRE⁴¹. Due to this earlier mistake its contribution to public liabilities decreased by 55bn euro in 2011. Since Germany's GDP in 2011 amounted to 2571bn euro, this implies that other liabilities as a result of financial sector crisis support in fact increased by 1 percent of GDP⁴². In case of the Netherlands, the focus is on the year 2008. In 2008, debt suddenly increased by 13.2pp, as a consequence of the acquisition of equity in the ailing financial institutions Fortis, ABN AMRO, and ING. By the end of 2011, a part of the State capital involved has been redeemed.

Table B.5.: The impact of financial sector crisis support on government debt as a percentage of GDP in some euro area countries, 2008-2011

		2008	2009	2010	2011	2008-2011
AT ¹	Total change in the debt ratio	3.6	5.7	2.4	0.3	12
	Aggregate debt increase FI support	0.3	1.8	1.0	0.0	3.1
	Stock-flow adjustment	0.3	1.8	0.5	-0.1	2.5
	Increase in the primary deficit	0.0	0.0	0.5	0.1	0.6
BE ²	Total change in the debt ratio	5.3	6.5	0.2	2.0	13.9
	Aggregate debt increase FI support	5.9	-0.1	-0.3	0.9	6.4
	Stock-flow adjustment	5.9	-0.1	-0.2	1.0	6.6
	Increase in the primary deficit	0.0	0.0	-0.1	-0.1	-0.2

³⁹ EUR 62bn amounts to 5.78 percent of 2011-GDP and 5.83 percent of expected 2012-GDP. The two largest banks: Banco Santander and BBVA, do however seem to be strong enough to cope with a possible deteriorating economy. The problems mainly concern the cajas. ANP, June 9, 2012, *Spaanse banken hebben EUR 40 miljard nodig* (www.nuzakelijk.nl/economie/2830809/spaanse-banken-hebben-40-miljard-nodig-.html, retrieved 12 June 2012). EUROPEAN FINANCIAL STABILITY FACILITY, frequently asked questions, section I, p. 20-23, www.efsf.europa.eu/attachments/faq_en.pdf, downloaded 27 July 2012.

⁴⁰ Italy and France are left out since bailout packages in these countries were of negligible size relative to GDP.

⁴¹ BBC NEWS, 28 October 2011, *Germany finds extra 55bn euros after accounting error*, (www.bbc.co.uk/news/business-15503097, retrieved 12 June 2012).

⁴² EUR 55bn/EUR 2571bn = 2.1 percent of GDP, total decrease in liabilities (stemming from financial sector support) as a percentage of GDP amounted to only 1.1 percent of GDP. The difference of 1 percent of GDP thus points towards another increase in public debt due to financial sector rescue programs.

Table B.5.: The impact of financial sector crisis support on government debt as a percentage of GDP in some euro area countries, 2008-2011 (*continued*)

		2008	2009	2010	2011	2008-2011
DE ³	Total change in the debt ratio	1.5	7.7	8.6	-1.8	16
	Aggregate debt increase FI support	2.2	2.0	9.8	-1.1	12.9
	Stock-flow adjustment	2.1	1.9	8.5	-1.1	11.4
	Increase in the primary deficit	0.1	0.1	1.3	0.0	1.5
LU ⁴	Total change in the debt ratio	7.0	1.1	4.3	-0.9	11.5
	Aggregate debt increase FI support	6.4	0.5	-0.6	-0.5	5.8
	Stock-flow adjustment	6.3	0.3	-0.5	-0.4	5.7
	Increase in the primary deficit	0.1	0.2	-0.1	-0.1	0.1
NL ⁵	Total change in the debt ratio	13.2	2.3	2.1	2.3	19.9
	Aggregate debt increase FI support	13.7	-3.2	-1.0	-1.6	7.9
	Stock-flow adjustment	13.7	-3.6	-1.2	-1.6	7.3
	Increase in the primary deficit	0.0	0.4	0.2	0.0	0.6

1. Nationalization Kommunalkredit, guarantee for bad-bank KA Finanz increased both deficits and debt due to a highly expected future call
2. Support measures Dexia, Fortis, KBC, and insurance company Ethias
3. Creation of the Erste Abwicklungsanstalt and FMS Wertmanagement, which were to deal with impaired assets of the WestLB and the nationalized HRE bank respectively; and capital injections in the Commerzbank, KfW, and several Landesbanken.
4. Acquisition of equity in Fortis
5. Acquisition of equity in Fortis, ABN AMRO, and ING, by now a part of the State capital involved has been redeemed.

8. CAN EUROBONDS SAVE THE EURO?

Séverine Menguy

Abstract

This paper proposes a simple modeling of the dynamic evolution of the interest rate on the public debt of a country. An equilibrium interest rate on the financial markets exists only if the global economic framework is sufficiently stable to avoid an excessive risk aversion from the investors and if the probability of default of this country is sufficiently small. Furthermore, this interest rate is an increasing function of the budgetary deficit of the country but a decreasing function of its growth rate, and mainly a function increasing exponentially with its public debt. Therefore, the possible mutualization of a share of the public debt of the European countries could give confidence to the investors, and many countries could benefit from the creation of a large and liquid common bond market. Nevertheless, the participating countries should have sound fiscal situations. Therefore, our model shows that the cost of the participation in the common issuing of bonds in terms of interest rate premium should be very high for the most hardly indebted European countries.

Keywords: Eurobonds, Economic and Monetary Union, Public debt, Interest rate

JEL classification Codes: F33, G12, H63

8.1. INTRODUCTION

The financial crisis of 2007-2009, and afterwards the debt crisis in Europe since 2010, have both strongly underlined the necessity to reinforce the European budgetary framework. Indeed, the Stability and Growth Pact and the Excessive Deficit Procedure proved to be insufficiently efficient to avoid major budgetary and debt crisis as it happened for Greece. The European institutions have then been criticized for failing to provide the governance and the budgetary framework necessary to avoid the spread of a financial contagion and the mistrust towards the indebtedness and the budgetary situation of many member countries of the European Union. In these conditions, one of the solution that has recently been suggested by economists or European deciders is to progress towards a mutualization of a share of the public debt of the member countries of the Economic and Monetary Union (EMU). Indeed, the recent years have seen a real deepening of the integration of the government bond markets in Europe; but this integration could perhaps still be more accentuated.

First, the creation of the EMU has changed public debt management (Favero *et al.*, 2000). Indeed, the speculative demand and the demand for portfolio diversi-

fication related to exchange rate variations have disappeared, as all the bonds are now denominated in Euros. Today, the competition between EMU member States in issuing government securities only concerns the liquidity and the risk of default (credit risk) of their assets. Some countries may be tempted to adopt non cooperating behavior in the choice of the issue dates or in the information about the quality of their assets. However, debt structures and maturities (debt duration) have strongly converged in EMU, and an efficient and liquid market for debt instruments has been created, which contributes to ease the conduct of the common monetary policy: the liquidity and the transmission channels of monetary policy are more easily controllable. This market relies essentially on fixed-rate medium and long term bonds, exchanged on well-integrated markets with large trade volumes, whereas the share of the markets for variable rates securities has much been reduced (Favero *et al.*, 2000; de Haan and Wolswijk, 2005).

The longer term duration of debt implies that the investors support the anti-inflationary policy of the European Central Bank (ECB), as well as it is explained by the greater price-stability provided by an independent central bank. Moreover, it also contributes to isolate the governments' budget from monetary policy and variations in interest rates. Indeed, in the private sector, minimizing interest rates costs or the risks of large fluctuations in these payments are key considerations for debt management. However, in the public sector and at the level of the European Union (EU), macroeconomic goals also tend to be important. They can include macroeconomic stabilization (smoothing tax rates, stabilizing public deficits...), the development of national financial markets, or the support of monetary policy (de Haan and Wolswijk, 2005).

In this framework, Adjaouté and Danthine (2003) underline the increase in the correlation of nominal bond yields between the European countries after the creation of the Economic and Monetary Union, as well as the decrease in the volatility between the interest rates on European public debts. However, the demand side of this debt market is today much more integrated than its supply side. Besides, during the recent debt crisis, the large widening of interest rates differentials on the European debt market proves the limits of this integration, and the fragmentation that still remains on this financial market. The debt crisis in 2010 shows that if the common denomination in Euros has made European bonds close substitutes, the interest rates differentials have not disappeared, because of the credit risk and liquidity premiums which remain [see Favero and Missale (2010), or De Grauwe and Moesen (2009)]. Therefore, this has contributed to boost the interest for the possibility of creating a unified European government bond market. However, what are the economic conditions for the possibility of creating Eurobonds, and what theoretical mechanism of central funding could be put in place concretely in Europe?

In order to study this question, the rest of the paper is organized as follows. The second section gives a review of the recent literature about the advantages and drawbacks of the possible common issuing of Eurobonds by the EMU member countries. The third section details our modeling of the dynamic evolution of the interest rate on the public debt of a given country. Afterwards, the fourth section studies the various factors influencing this interest rate: the risk aversion of the investors, the defiance of the financial markets and the possibility of a default in payment, the financial (benchmark interest rate, transaction costs) and fiscal (growth rate, budgetary deficit and public debt) parameters. In the framework of this model, the fifth section then tries to simulate a possible mechanism of joint issuing of Eurobonds, which could efficiently be enforced. Finally, the sixth section concludes.

8.2. ADVANTAGES AND DRAWBACKS OF ISSUING EUROBONDS IN THE LITERATURE

Creating common European governments bonds (Eurobonds), jointly issued and guaranteed by many member countries, is an idea dating back to 1993. Then, Jacques Delors already proposed the issue of ‘Union bonds’ whose repayment would be guaranteed by the Community budget. The Giovannini Group (2000) assumed that this idea was, for the moment, too premature for the European Union. Nevertheless, more recently, the proposal to create Eurobonds has been sustained, for example, by De Grauwe and Moesen (2009), Mayordomo *et al.* (2009), Boonstra (2010), Favero and Missale (2010), Bonnevey (2010), Jones (2010) or Quadrio Curzio (2010). According to these authors, what would then be the advantages of creating common European bonds?

Favero and Missale (2010) consider that: “a *common Eurobond is a strong form of debt management cooperation with the potential of promoting further market integration, greater liquidity and lower borrowing costs*”. Indeed, common bonds would promote further market integration, especially on the supply side of the market (larger outstanding volumes), and greater debt management coordination. A joint bond issuance would require a high degree of coordination: amounts, maturity and timing of bond issues would have to be decided by the issuing entity in close cooperation with the member countries. The coordination could also concern the fiscal situation of these countries. Indeed, to be allowed to participate to the common issuing of Eurobonds, the countries should agree to a multi-annual fiscal framework, and to pursue sound (and not pro-cyclical) budgetary policies even in good times, which could be a strong incentive to a virtuous fiscal behavior. So, according to Jones (2010), the member countries should accept much closer scrutiny of their national statistics and fiscal accounts.

Besides, Bonnefoy (2010) asserts that the creation of Eurobonds would favor the European budgetary cooperation and would at the same time reinforce the credibility of the individual member countries. However, he proposes that the system be initially limited to France and Germany, before being progressively extended to other fiscally sound EMU member countries, in exchange of budgetary commitments.

Another potential advantage of the creation of common bonds would be to reduce the borrowing costs for the participating countries. Indeed, today, only the big issuers (Germany, France and perhaps also Italy) can benefit from a large liquidity of their bond markets. To the contrary, as mentioned by Jones (2010), the issue of Eurobonds would provide very liquid investment means for all member countries (including Germany), and it would reduce the market speculation (or flight to security) due to differentiated country-risk perception. Nevertheless, the countries which could have the more to gain from the creation of Eurobonds are, naturally, the very indebted countries, which would then be able to borrow at much weaker long run interest rates. Indeed, Eurobonds would give collective guarantees to the creditors, and therefore, all countries could benefit from the credibility of the financially strongest countries like Germany. The mutualization of the European public debts would thus be a big step towards the budgetary federalism; but it raises the political problem of Euro-skepticism. Indeed, it seems obvious that if the financially weakest countries are mostly favorable to such a measure, A. Merkel and the German government are strongly opposed to this proposal. Becker (2010) underlines that it could be difficult to convince the current triple AAA countries of the advantages of Eurobonds issuing, as the interest rates on the public debts of these countries could then mainly increase.

However, one can mention that the interest rates on Eurobonds could perhaps be smaller than the average (weighted) interest rates at which EMU member countries can actually borrow on international markets, because of lower credit risk and liquidity premiums. A more liquid bond market would particularly be beneficial for the small and medium sized issuers, which could take advantage from a larger market and which could exchange bonds at more stable prices. The Giovannini Group Report (2000) already assumed that there would be large gains in terms of liquidity premium to be obtained with the issuance of a common Eurobond and with the reduction of the current fragmentation of the national debt markets. Indeed, Mayordomo *et al.* (2009) have tried to estimate econometrically the value of the risk free interest rate (without liquidity risk, without influence of country-specific macroeconomic variables, without cross-country correlation and contagion) on a common Eurobond, using data from the period 2004-2009. They find then that this risk free interest rate would imply savings in borrowing costs for all EMU member countries and for all maturities.

To sum up, Claessens *et al.* (2012) show that common bonds can potentially serve two functions. In the short-term, they could stabilize financial markets (less fragmented markets and more similar monetary policy transmission mechanisms) and banks (weaker link between banks and their national government). In the medium-term, they could help to improve the euro area economic governance framework through enhanced fiscal discipline and risk-sharing. A partial mutualization of the European public debts could contribute to reduce the risks of speculative attacks against a hardly indebted country in budgetary difficulties, it could reinforce the financial stability, and it could contribute to the creation of a deep and liquid market for European government bonds. As mentioned by Favero and Missale (2010), Becker (2010) or Delpla and von Weizsäcker (2010), a common Eurobond would satisfy the global demand for a risk-free asset, and it would better compete with US Treasury bonds for the global financial flows in search of a 'safe-haven', thereby strengthening the use of the euro as a reserve currency.

However, the creation of Eurobonds also raises many drawbacks and difficulties, which are worth mentioning.

First, common European government bonds could encourage a kind of budgetary laxity and create a moral hazard problem in some member countries. Indeed, a supra-national entity issuing Eurobonds at quite low interest rates could discourage some countries to solve by themselves their problems of budgetary deficit and of public debt. Thus, Issing (2009) fears, that the creation of Eurobonds increases the risks of bailouts and signifies the end of the Euro area as a zone of financial stability. Indeed, the creation of Eurobonds would prevent financial markets from exerting their disciplinary effects through higher interest rates, and it would undermine the no bailout clause that prohibits a Member State to be liable for or assume the debt obligations of another government in Europe. Therefore, Eurobonds seems to necessitate the former intensification of budgetary discipline and of economic and political integration between the European countries. A stronger fiscal unification may be a pre-condition to the possibility of the creation of Eurobonds, and not its consequence. However, against this argument, one can wonder if the no bailout clause is really deterrent for EMU member countries. Indeed, the Greek situation since the spring 2010 shows that in the event of a debt crisis, the no bailout clause is not really binding and can't be sustained... But what are exactly the terms of this 'no bailout clause'?

According to Article 125 of the Treaty of the European Union (TEU), the EU and its institutions and individual member states are protected against becoming responsible for financial liabilities of other member states against their own will. Thus, according to Becker (2010), this condition seems to be one of the most fundamental obstacles to joint issuance of Eurobonds.

“[The Union or] A Member State shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of another Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project”.

Until recently, this so-called ‘no bailout clause’ was commonly understood as including a ban on the voluntary assumption of the responsibility of a member state’s financial liabilities by other member states. However, joint issuance of bonds aims at providing a liquid investment mean; therefore, it can be argued that a transfer of obligations between member States would only be an inevitable by-product of joint issuance, in the event that a participating country was to default on its debt repayments. Anyway, limiting the share of the public debts of the EMU member countries, which could be jointly guaranteed by all other member States, could be a solution to this institutional constraint. Indeed, the guarantee of only a share of the public debt of the member countries, corresponding for example to 60% of their GDP in the ‘Blue bond proposal’ by Delpla and von Weizsäcker (2010), is a way to propose an issuing of Eurobonds which could be compatible with the no bailout clause. Indeed, there would be normally no risk of default on the limited shares of the public debts of the EMU member countries which would then be jointly guaranteed, as such limited amounts are supposed to be without risk. Therefore, as mentioned by Favero and Missale (2010) or Jones (2010), the only viable solution seems to define the maximum amount of debt obligations that each Member State could have in the form of Eurobonds; any additional borrowing would have to be funded with national bonds. This would set a limit to the obligations that the participating Member States would have to guarantee and be liable for in the event that one of them would default. This would limit the moral hazard problem and the lack of incentive to the budgetary discipline related to the creation of Eurobonds. Moreover, the European debt should probably be made senior to national debts in the event of a default.

Besides, Favero and Missale (2010) mention that the Eurobond market should attain a minimal size, in order to be efficient and to offer a liquid and large market to the European countries; it should replace on a large scale the current national debt markets (which should even be closed when it is possible). Otherwise, the creation of a supplementary debt market would mostly reinforce the fragmentation and the illiquidity of these markets. Furthermore, to reap the liquidity benefits and efficiency gains of a unified and integrated bond market, the Eurobonds should be issued by all EMU member countries or by an EU institution. Therefore, another institutional difficulty would be the necessity to create a political entity issuing these Eurobonds. This institution could eventually be the European Investment Bank (EIB), already issuing common bonds and borrowing on the financial markets; or the European Commission. But it could also be another new

entity still to be created. For example, the future European Stability Mechanism (ESM) could, in a first period, play such a role, but its competences should then be clearly defined. Otherwise, Boonstra (2010) proposes the creation of a ‘EMU Fund’. The latter would be able, as the Institutional Monetary Fund, to impose conditions on the lending granted to a specific country, if its budgetary situation has much been deteriorated and if it has reimbursement problems with its debt. Finally, according to Favero and Missale (2010), the most likely solution is the one where Eurobonds would be covered by a European guarantee extended by a hypothetical European Debt Agency that would have the task of ‘managing’ a debt that would have now become European. However, this Agency still has to be politically decided and created, as the European budget is today much too insignificant to be able to play such a role. Indeed, the entity in charge of the management of the European debt and of the service of its interest rates should be endowed from the start with an amount of resources adequate to credibly guarantee its Eurobond issues; and about EUR 5 trillions seem then necessary.

The political and institutional constraints on the issuing of a new European government bond are thus quite large and numerous. Nevertheless, the rest of the paper will only concentrate on the economic conditions of the efficiency of a central funding mechanism likely to jointly guarantee the common issuing of bonds in the EMU.

8.3. THE MODEL

In order to discuss the advantages and the properties that a mechanism of central issuing of common bonds for a group of countries should verify, we will use a simple modeling of the behavior of a representative investor, in combination with the dynamic evolution of the public debt of a given country.

8.3.1. Behavior of the representative investor

Regarding the behavior of a representative investor, our model is not very different from those proposed by Mayordomo *et al.* (2009) or Bernoth *et al.* (2006). Let’s suppose an investor maximizing his utility function. This function depends positively on his expected nominal wealth: $E_t(W_{t+1})$, and negatively on the variance of this nominal wealth: $V_t(W_{t+1})$.

$$U_t = E_t(W_{t+1}) - \left(\frac{1}{A}\right) V_t(W_{t+1}) \quad A > 0 \quad (1)$$

where (W_t) is the nominal wealth in period (t) of the investor, and where the parameter (A) is an indicator of the risk aversion of the investor. Indeed, the

higher is (A) , the more the investor is risk-neutral and is only interested in his average expected wealth. On the opposite, the smaller is (A) , the more the investor is risk-averse, and prefers the certainty of gains.

In period (t) , the domestic investor allocates a share (m_t) of his nominal wealth to a domestic bond, and a share $(1 - m_t)$ to a benchmark bond; both are priced in the same common currency. Therefore, the domestic investor has a global amount: $[D_t = m_t W_t]$ of domestic bonds, and an amount: $[F_t = (1 - m_t) W_t]$ of benchmark bonds. Equations are symmetric for the benchmark investor; an asterisk denotes the corresponding benchmark variables¹.

Moreover, the domestic bond is subject to a default risk, which is likely to occur with a probability $(1 - p)$, $0 < p < 1$; in case of default, the investor then receives a sum $k_t \in [0, 1 + i_t[$, where (i_t) is the nominal interest rate on domestic bonds. On the contrary, the benchmark bond is supposed to be risk-free. Besides, the investor bears transaction costs proportional to the amount of his investment, and which are also a decreasing function of the liquidity of the domestic bond market. We suppose that the expected transaction costs on the domestic bond market are (c_t) , in comparison with the costs normalized to zero on the benchmark bond market, where the liquidity is supposed to be perfect. The expected wealth of the domestic investor for the following period $(t + 1)$ is thus:

$$\begin{aligned} E_t(W_{t+1}) &= [p(1 + i_t) + (1 - p)k_t - c_t]D_t + (1 + i_t^*)F_t \\ &= [p(1 + i_t) + (1 - p)k_t - c_t]m_t W_t + (1 + i_t^*)(1 - m_t)W_t \end{aligned} \quad (2)$$

The first term represents the yields on domestic bonds: without default, in case of default, and decreased with the transaction costs on the domestic bond market; the second term represents the yields on benchmark bonds.

The variance of next period's nominal wealth of the domestic investor is therefore:

$$\begin{aligned} V_t(W_{t+1}) &= V_t[p(1 + i_t) + (1 - p)k_t]m_t^2 W_t^2 \\ &= (1 + i_t - k_t)^2 V_t[p]m_t^2 W_t^2 = (1 + i_t - k_t)^2 p(1 - m_t)m_t^2 W_t^2 \end{aligned} \quad (3)$$

By combining equations (1), (2) and (3), we obtain the utility function of the representative domestic investor:

¹ The benchmark investor has a level: $[D_t^* = m_t^* W_t^*]$ of domestic bonds and a level: $[F_t^* = (1 - m_t^*)W_t^*]$ of benchmark bonds.

$$U_t = [p(1 + i_t) + (1 - p)k_t - c_t]m_t W_t + (1 + i_t^*)(1 - m_t)W_t - \left(\frac{1}{A}\right)(1 + i_t - k_t)^2 p(1 - p)m_t^2 W_t^2 \quad (4)$$

Therefore, we can also deduce the optimal share of domestic bonds held by the domestic investor. Indeed, $\partial U_t / \partial m_t = 0$ implies:

$$m_t = \frac{A[p(1 + i_t) + (1 - p)k_t - c_t - (1 + i_t^*)]}{2(1 + i_t - k_t)^2 p(1 - p)W_t} \quad (5)$$

Symmetrically, the share of domestic bonds held by the benchmark investor is:

$$m_t^* = \frac{A^* [p(1 + i_t) + (1 - p)k_t - c_t - (1 + i_t^*)]}{2(1 + i_t - k_t)^2 p(1 - p)W_t^*} \quad (6)$$

Therefore, if (A) and (A^*) are small, the relative risk aversion of the investors reduces the detention of domestic bonds; on the contrary, if (A) and (A^*) are high, the risk-neutrality of the investors increases their detention of more risky domestic bonds. Besides, the detention of domestic bonds is a decreasing function of the relative higher attractiveness of the returns on benchmark bonds: of the benchmark interest rate (i_t^*) and of the transaction costs on the domestic bond market (c_t) . Finally, the detention of domestic bonds is also an increasing function of (p) , and thus a decreasing function of the probability of default $(1 - p)$ on its debt of the domestic country².

8.3.2. Dynamic evolution of the public debt

The global level of public debt, that is to say the domestic bonds issued by the domestic government, equals the global demand of domestic bonds coming from domestic and foreign investors. Thus, the equilibrium on the domestic bond market implies:

$$(D_t + D_t^*) = m_t W_t + m_t^* W_t^* = \frac{(A + A^*)[p(1 + i_t) + (1 - p)k_t - c_t - (1 + i_t^*)]}{2(1 + i_t - k_t)^2 p(1 - p)} \quad (7)$$

² Indeed, $\frac{\partial m_t}{\partial p} = \frac{A[(1 - p)^2(1 + i_t^* + c_t - k_t) + p^2(i_t - i_t^* - c_t)]}{2(1 + i_t - k_t)^2 p^2(1 - p)^2 W_t} > 0$. On the contrary, the signs of:

$\frac{\partial m_t}{\partial i_t} = \frac{A[(2 - p)(1 + i_t - k_t) - 2(i_t - i_t^* - c_t)]}{2(1 + i_t - k_t)^3 p(1 - p)W_t}$ and of: $\frac{\partial m_t}{\partial k_t} = \frac{-A[(1 - p)(1 + i_t - k_t) - 2(i_t - i_t^* - c_t)]}{2(1 + i_t - k_t)^3 p(1 - p)W_t}$ are more ambiguous.

Therefore, equation (7) gives the interest rate differential between the domestic and benchmark interest rates:

$$(i_t - i_t^*) = (1 + i_t - k_t)(1 - p) + c_t + \frac{2p(1 - p)(1 + i_t - k_t)^2(D_t + D_t^*)}{(A + A^*)} \quad (8)$$

The first term is the default (or credit) risk premium endured by the domestic country. It increases with the probability of default of the domestic country ($1 - p$), and it decreases with the repayment that the investor can receive in case of default (k_t). The second term is the liquidity premium, increasing with the transaction costs on the domestic bond market (c_t). Finally, the third term is an indebtedness premium, related to the global level of bonds' supply by the domestic country. It also increases with the risk aversion of the investors ($1/A$ and $1/A^*$), and with the variance of the probability of default of the domestic country.

The former modeling of the behavior of the representative investor is quite standard. However, the contribution of our paper is now to combine this modeling with the dynamic evolution of the public debt in a given country. Indeed, equation (8) shows that the premium on the interest rate on the public debt of a given country increases with the global public indebtedness of this country. However, the fiscal situation of a country can also be expressed by its budgetary deficit.

So, let's suppose that in period (t), (Def_t) is the budgetary deficit of the domestic country. The dynamic evolution of the public debt in the domestic country is then as follows:

$$(D_t + D_t^*) = (1 + i_t)(D_{t-1} + D_{t-1}^*) + Def_t \quad (9)$$

Indeed, the debt of the domestic country, bought by domestic or foreign investors, increases at the interest rate (i_t), and it also includes the current budgetary deficit. The former equation can also be expressed in percent of GDP:

$$(d_t + d_t^*) = \frac{(1 + i_t)}{(1 + g_t)}(d_{t-1} + d_{t-1}^*) + def_t \quad (10)$$

With: $def_t = Def_t/GDP_t$, $d_t = D_t/GDP_t$, $d_t^* = D_t^*/GDP_t$, $a_t = (A + A^*)/GDP_t$, and where (g_t) is the nominal GDP growth rate.

8.3.3. Calibration

Let's quickly mention the basic calibration of our parameters, which we will use in the rest of the paper for the graphs and the estimations of our results.

Regarding the fiscal parameters of our model, we will take the reference values mentioned in the Maastricht Treaty: a budgetary deficit representing 3 percent of GDP ($def_t = 0.03$), and a global indebtedness representing 60 percent of GDP ($d_{t-1} + d_{t-1} = 0.6$). We will also suppose that the nominal GDP growth rate equals 2 percent ($g_t = 0.02$), which is already a quite high value in the current economic framework.

Regarding the financial parameters, we will suppose that the nominal interest rate on the public debt of the benchmark country is ($i_t^* = 0.03$), which roughly corresponds to the interest rates on German 10-years government bonds during these last years. Indeed, Germany is still graded AAA, and it is currently considered as soundest European country by the financial markets. Besides, with the stronger integration of the financial markets in Europe and the creation of the EMU, the liquidity premium has tended to diminish and even to vanish, according to Bernoth *et al.* (2006). Therefore, we will take a very weak value ($c_t = 0.005$) for the transaction costs. Furthermore, we will suppose that the investors are sure to recover at least a large share ($k_t = 0.9$) of their investment in case of default of a given country, and that this probability of default is very weak ($1 - p = 0.05$). Indeed, our model shows that without such conditions, the interest rate on the public debt of a 'risky' country would tend to explode on the financial markets (see section 8.4.2.).

Finally, regarding the parameter reflecting the risk aversion of the investors (a_t), there are many possibilities. If this parameter is very weak ($a_t \rightarrow 0$), it means that the risk aversion of the investors is extreme; on the contrary, if this parameter is very high ($a_t \rightarrow \infty$), the investors are fully risk neutral. However, the expression of (a_t) and equation (8) show that ($A + A^*$) should be of the same order of height as the global public indebtedness ($D_t + D_t^*$), and thus as the GDP. Therefore, we will take the following value for our basic calibration: ($a_t = 0.1$). Nevertheless, section 8.4. will examine various possibilities regarding the parameter (a_t).

8.4. THE VARIOUS FACTORS INFLUENCING INTEREST RATES

By combining equations (7) and (10), we can solve our model in order to find the optimal interest rate on the public debt of a given country according to the parameters of this model (see Appendix A). This optimal interest rate depends on the fiscal (budgetary deficit, public debt) and financial (probability of default, transaction costs) situation of the country. However, it also highly depends on the

global economic framework, and on the subjective confidence or defiance of the investors with regard to the future.

8.4.1. Risk aversion and period of economic crisis

In period of economic crisis, the risk aversion of the investors ($1/A$ and $1/A^*$) can become very high. Therefore, (a_t) is quite small³, and the optimal interest rate on the public debt of a given country is (see Appendix A):

$$i_t = \sqrt[3]{-\frac{Q}{2} + \left[\left(\frac{Q}{2}\right)^2 + \left(\frac{P}{3}\right)^3\right]^{0.5}} + \sqrt[3]{-\frac{Q}{2} - \left[\left(\frac{Q}{2}\right)^2 + \left(\frac{P}{3}\right)^3\right]^{0.5}} - \frac{def_t(1+g_t)}{3(d_{t-1}+d_{t-1}^*)} + \frac{2k_t}{3} - 1$$

$$\text{With } P = \frac{-\{2(1-p)z_t^2 + 3a_t(1+g_t)(d_{t-1}+d_{t-1}^*)\}}{6(d_{t-1}+d_{t-1}^*)^2(1-p)}$$

$$Q = \frac{9a_t(1+g_t)(d_{t-1}+d_{t-1}^*) + [pz_t + 3(d_{t-1}+d_{t-1}^*)(1+i_t^*+c_t-k_t)] + 4p(1-p)z_t^3}{54p(1-p)(d_{t-1}+d_{t-1}^*)^3}$$

$$z_t = def_t(1+g_t) + k_t(d_{t-1}+d_{t-1}^*) \quad (11)$$

Therefore, our model [the values of (P) and (Q)] proves that in case of economic turmoil and if the defiance and the risk aversion of the investors is very high, the interest rate becomes quite independent from the financial factors: (c_t), (p) and (i_t^*). The optimal interest rate on the public debt of a given country tends to depend mainly on the budgetary situation of this country: on its budgetary deficit (def_t), on its public debt ($d_{t-1}+d_{t-1}^*$) and on its economic growth (g_t).

Besides, the simulations of our model show that the interest rate which is solution of (11) is negative with plausible values of our parameters. So, the investors would receive a negative interest rate if they invest in the public debt of a risky country, and they would lose money; the bonds on the public debt of such a country would thus never be accepted. Indeed, in the extreme situation where the investors would not accept any risk, we obtain:

$$\text{If } (a_t \rightarrow 0), (z_t < 0), \text{ and: } i_t \rightarrow -\frac{def_t(1+g_t)}{(d_{t-1}+d_{t-1}^*)} - 1 \quad (12)$$

Therefore, the risky country against which the investors have a high defiance should get a budgetary surplus ($def_t < 0$) in order to get its public debt accepted.

³ We can mention that according to equation (8), ($A+A^*$) mustn't be too small in comparison with ($D_t+D_t^*$), and also in comparison with the (GDP); otherwise, the differential in interest rates $i_t-i_t^*$ would tend to explode. Therefore, ($a_t = 0.01$) can already be considered as a very small value.

Moreover, according to equation (12), the interest rate on its public debt could be positive only if its budgetary surplus was higher than its public indebtedness, which is fully unrealistic. Therefore, given the risk aversion of the investors, it becomes impossible for the financial markets to offer an interest rate correctly paying for the public debt of a risky country in a period of turmoil and of economic crisis.

Our model can thus contribute to explain the current difficulties and even the impossibility since 2010 for the Greek government to finance its public debt on the financial markets. According to our model, in a period of economic crisis where the risk aversion of the investors reaches extreme heights, the latter always prefer to buy benchmark (in particular German) bonds. The exchange on the financial markets of bonds which are more risky (credit risk, liquidity premium etc.) becomes then impossible.

8.4.2. The defiance of the financial markets

In normal times, the investors have a limited risk aversion ($1/A$). Therefore, (a_t) is high⁴, and the optimal interest rate is (see Appendix A):

$$i_t = \sqrt[2]{\frac{-P}{3}} \cos \left[\frac{1}{3} \arccos \left(\frac{-Q}{2} \sqrt{\frac{27}{-P^3}} + \frac{4\pi}{3} \right) \right] - \frac{def_t(1+g_t)}{3(d_{t-1} + d_{t-1}^*)} + \frac{2k_t}{3} - 1 \quad (13)$$

With the values for (P) and (Q) formerly mentioned in equation (11).

However, even without risk aversion, our model shows that for a given country, an equilibrium interest rate exists only if the financial markets don't speculate against the financial health and the solvability of this country. Indeed, equation (13) has a solution [which implies that $\Delta < 0$ in Appendix A] only if (k_t) and (p) are sufficiently high. That is to say, the equilibrium interest rate exists only if the investors are sure to recover at least a minimal share of their invested funds (k_t) , and if the probability of default of the country $(1-p)$ is not excessively high. Only in these conditions, the interest rate on the public debt of a given country can be a decreasing function of the percentage of its debt that the country is supposed to refund in case of default (k_t) , but an increasing function of its probability to default on its debt $(1-p)$. More precisely, the necessary conditions for the existence of an equilibrium interest rate on the public debt of a country that would be considered as 'risky' by the financial markets are quite restrictive.

⁴ We can mention that according to equation (8), $(A_t + A_t^*)$ mustn't be too high in comparison with $(D_t + D_t^*)$, and also in comparison with the (GDP); otherwise, the indebtedness level would tend to have no influence on the differential in interest rates $(i_t - i_t^*)$. Therefore, $(a_t = 0.4)$ can already be considered as a high value.

Indeed, Appendix B shows that without minimal values for (p) and (k_t) , equation (13) has no solution⁵.

Here also, our model can then contribute to explain the inextricable character of the Greek situation. Indeed, as the probability of default $(1-p)$ of Greece increases, and as the financial markets were dubious about the amount (k_t) of its debt that the country would effectively be able to refund, the financial tensions could only accentuate. After a huge increase in interest rates in 2009 and at the beginning of 2010, no equilibrium interest rate on the Greek public debt could any longer be found on the financial markets. Therefore, since May 2010, the Greek government has no other solution than to find a public financing and to resort to new institutional mechanisms. Indeed, the European Commission and the national governments have instituted a ‘European Stabilization Fund’ in May 2010, a ‘European Financial Stability Facility’ of bilateral loans guarantees in June 2010, to be replaced in September 2012 by a permanent ‘European Stability Mechanism’, and they have put in place various successive stabilization plans, in order to try to avoid the formal default of the Greek government on a share of its debt. Nevertheless, with the write-down of about 53.5% (i.e: $k_t = 0.53$) of their assets on the Greek public debt accepted by the European banks in February 2012, it seems obvious that the financing of the Greek public debt can no longer be found on the financial markets, and for many years.

8.4.3. Influence of the financial parameters

If the risk aversion of the investors is weak, and if the parameters (p) and (k_t) are sufficiently high (see the previous section 4.2), the optimal interest rate on the public debt of a given country becomes an increasing function of the risk aversion of the investors $(1/A$ or $1/A^*)$, or to the contrary a decreasing function of their risk neutrality $(A, A^*$ or $a_t)$. In fact, if the investors are sufficiently risk neutral, we obtain:

$$i_t \xrightarrow{a_t \rightarrow \infty} \frac{(1 + i_t^* + c_t - k_t)}{p} + k_t - 1 \quad (14)$$

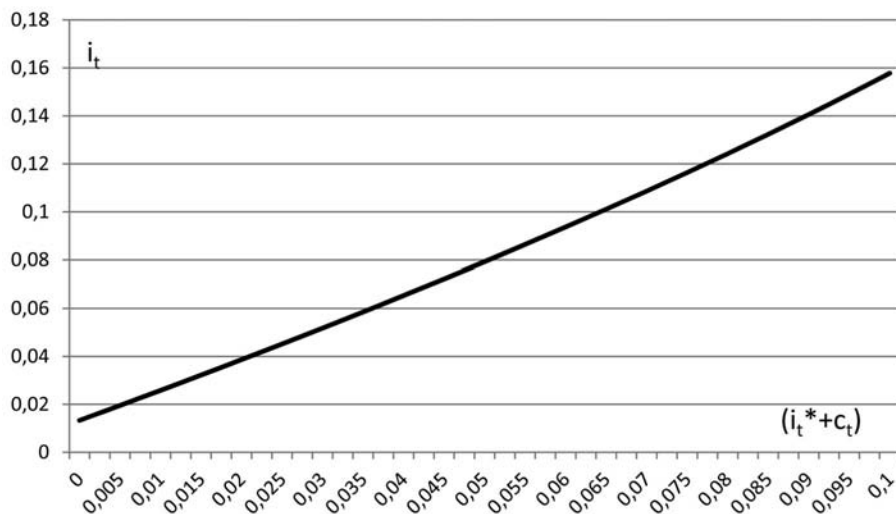
In this framework, according to equations (13) or (14), the interest rate on the public debt of a given country is, quite logically, an increasing function of the transaction costs on its domestic bond market (c_t) and of the interest rate on the risk-free benchmark bonds (i_t^*) . As expressed by figure 1, this function would be linear, and according to the basic calibration of the parameters of our model, the

⁵ For example, with the basic calibration of our parameters: $(0.74 < k_t < 1 + i_t)$ or $(0.89 < p < 1)$ are conditions which are necessary in order to be able to solve equation (13).

following equation could be a good approximation of this relationship: $[i_t = 1.5(i_t^* + c_t)] + 0.008$.

However, with a mechanism able to suppress any probability of default from one country ($p \rightarrow 1$, for example because of guarantees from other countries, our model [equation (A1) in Appendix A] simply reduces to: $[i_t = i_t^* + c_t]$. The slope of the former line is less accentuated. Therefore, our model underlines a first advantage of a mutualization of the public debts in Europe. The guarantees that such a system would provide could, by themselves, contribute to reduce the interest rates and the 'premium' that the most risky countries have to pay on their public debts. In this way, a system of Eurobonds, which could provide a joint guarantee of the public debts of the countries participating to the issuing of common bonds, and which would then nearly cancel the probability of default of the member countries, could be beneficial. Nevertheless, this system should only concern countries likely to have liquidity but not solvability difficulties. To be authorized to participate to the joint issuing of bonds, the candidate countries should, of course, have healthy budgetary and fiscal situations. That is now what we are going to study in the following section.

Figure 1: Interest rate with respect to the benchmark interest rate and to transaction costs

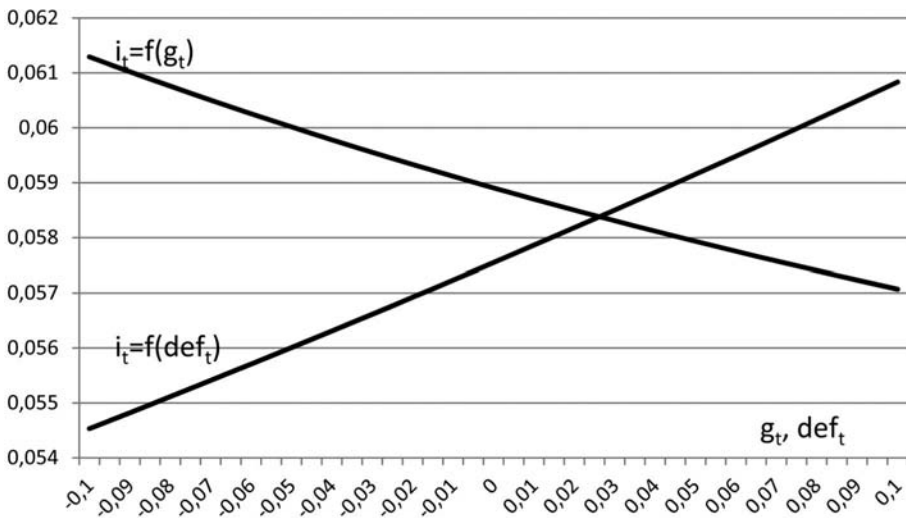


8.4.4. Influence of the fiscal parameters

According to equation (13), the interest rate on the public debt of a given country appears as an increasing function of its budgetary deficit (def_t) but as a decreasing function of its GDP nominal growth rate (g_t). With the basic calibration of

our parameters, the following equations could approximate these linear relationships: $[i_t = 0.032(def_t) + 0.058]$ and $[i_t = -0.02(g_t) + 0.059]$. However, figure 2 shows that the slopes of the two lines remain moderate, even if the one concerning the budgetary deficit is a little bit more accentuated. Therefore, according to our model, the immediate fiscal difficulties of a given country, the size of its current budgetary deficit or an economic recession, should only have limited consequences for the interest rates on the public debt of this country. Indeed, according to the calibration of our parameters, the interest rate on the bonds issued by a given country would already be 2.45 points above the benchmark interest rate ($i_t^* = 3\%$) if this country had a budgetary surplus of 10% of GDP, and it would only be 3.10 points above the benchmark interest rate if this country had a budgetary deficit of 10% of GDP. The differential in interest rates related to the current fiscal situation of a given country should therefore remain quite limited.

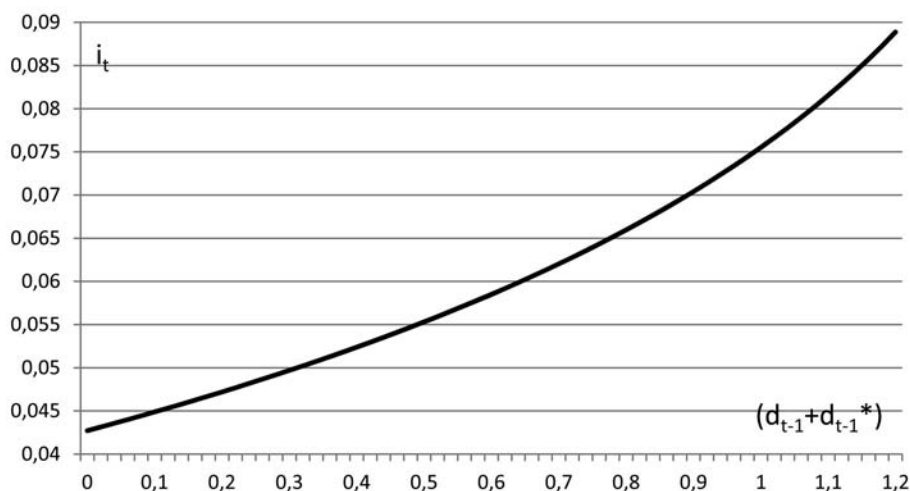
Figure 2: Interest rate with respect to the GDP nominal growth rate and to the budgetary deficit



On the contrary, the differential in interest rates related to the indebtedness level of a given country seems much more substantial. The stock of the global public debt inherited from the past ($d_{t-1} + d_{t-1}^*$) highly increases the current interest rates on the bonds issued by a given country. Besides, according to our model, the former relationship would be rather polynomial (see figure 3); our basic calibration gives the following approximation: $[i_t = 0.02(d_{t-1} + d_{t-1}^*)^2 + 0.01(d_{t-1} + d_{t-1}^*) + 0.043]$. Therefore, the indebtedness level would very quickly increase the interest

rate on the public debt of a given country, until making very expensive its possibilities of refinancing on the financial markets.

Figure 3: Interest rate with respect to the public debt



To sum up, our model shows that in order to be incentive, a political entity issuing common bonds for a group of countries should distinguish the various interest rates that each country has to pay for being allowed to participate to the mechanism. The fiscal parameters, and in particular the indebtedness levels, should then be used to define these differentiated interest rates. Let's now try to simulate the conditions that a possible mechanism of joint issuing, for example of Eurobonds, could enforce in order to be efficient.

8.5. ESTIMATIONS OF A CENTRAL FUNDING MECHANISM

8.5.1. Theoretical results

Concretely, what kind of mechanism could be appropriate at the European level, for the issuing and the financing of a possible common Eurobond? Delpla and von Weizsäcker (2010) propose that up to 60% of GDP of the national debt of the European countries be financed with 'Blue bonds', that is to say senior sovereign debt with joint and several liabilities. The interest rate on this debt would be low and attractive; indeed, this market would be more liquid and less risky. Any funds used to service and repay government debt will always first be used to satisfy the claims of the Blue bonds holders. On the contrary, the share of the debt above this threshold allocation should remain junior or 'red debt', and submitted

to sound procedures for orderly default. The interest rate on this debt, which would be more risky and strongly illiquid, should be much higher, in order to promote budgetary discipline. Besides, Delpla and von Weizsäcker (2010) favor a mechanism where the Blue bonds allocations of a country could vary with the budgetary situation and the virtuous character of the fiscal policies conducted by this country. They favor such variability in Blue bonds borrowing quotas, as a differentiation of yields between countries would be much more difficult to put in place according to them.

However, for the European countries, the incentive to participate to a common issuing of bonds could also take the form of higher participation fees for the fiscally weaker countries, as proposed by De Grauwe and Moesen (2009). Indeed, the latter propose that each government pays a yearly interest rate on its part of the common bond corresponding to its national market interest rate. This would avoid any free-riding or moral hazard issue, and this would preserve the incentive to conduct sound budgetary policies. Mayordomo *et al.* (2009) also propose that each country pays to the common issuing agency fees corresponding to the CDS spread on its sovereign bonds (a measure of credit risk), in order to be allowed to participate in the issuance of common bonds.

Finally, the proposition by Boonstra (2010) is perhaps the closer to the one suggested by the results of the fourth section of our paper. Indeed, the author proposes a mechanism of central funding of the public debts in the EMU. Funds would be raised by a new central institution, and afterwards they would be passed on to the governments of the EMU member countries. The central institution would then charge the various governments a fee comprising its own funding costs plus a margin. This (positive or negative) margin could be defined by reference to the relative performance of the member country concerned against the average within EMU, in terms of budgetary deficit or of outstanding government debt. Such a margin, relying on objective criteria, would create an incentive to conduct virtuous economic policies and to budgetary discipline. The formula defining the interest rate margin that the country (i) would have to pay on the issuing of common bonds could be the following:

$$\text{Margin (i)} = \alpha[\text{def}_{i,t} - \text{def}_t] + \beta[d_{i,t} - d_t] \quad (15)$$

However, the coefficients α and β are not defined in the paper by Boonstra (2010). These parameters are only assumed to reflect the result of a political process, the ‘arbitrary’ weight that one wants to give to the current public finances (deficit) in comparison with a ratio (debt) inherited from the past which is more long lasting. Therefore, it is these coefficients that the framework of our model can contribute to define and to precise.

First, we can mention that the creation of Eurobonds could give confidence to the investors. Common bonds jointly guaranteed by a pool of countries would be protected from the risk aversion of the investors (A and A^* would be sufficiently high). Indeed, they would provide safe investment means, with limited variance of bonds yields, and they would avoid the dangers of a behavior of risk aversion from the investors mentioned in section 8.4.1. The creation and the provision of safe investment means, whose probability of default is very limited ($p \rightarrow 1$), is necessary for the possibility to maintain weak interest rates on the public debt of the countries participating to the common issuing of bonds. Indeed, section 8.4.2. has mentioned that it is only if the percentage of its debt that a country is supposed to refund in case of default (k_t) and if (p) are sufficiently high that the problem of defiance of the investors can be avoided. These conditions are necessary to prevent the out-bidding of interest rates on the financial markets.

We have also mentioned in section 8.2. that in order to be compatible with the 'no bailout clause', only a limited share of the public debt of a given country should be jointly guaranteed by all member States, a share which is normally without risk. This 'senior debt' could correspond to about 60% of a country's GDP, and above this level, the countries would have to issue national bonds. This solution corresponds to the 'Blue bonds' proposal of Delpa and von Weizsäcker (2010), for example. The lower interest rates on a liquid and risk free market would only concern a limited share of the debt, which would be senior and thus for which the probability of default would be nearly null. In case of a default, the 'red debt' will first be concerned, and so, we can consider that the 'Blue bonds' would be relatively free from default risk; such an asset could therefore benefit from a triple A rating. Nevertheless, in the framework of our model and of the results obtained in the previous section 8.4., we still have to estimate the interest rate premium that a given country could have to pay to a central entity on the issuing of common bonds, according to its fiscal situation (budgetary deficit and indebtedness) but also according to its economic growth.

8.5.2. Simulations of the interest rate premium

First, we can suppose that with the creation of Eurobonds, transaction costs could nearly be suppressed in the EMU ($c_t \sim 0$). Indeed, section 8.2. has mentioned the gains to be obtained from common Eurobonds, with a more liquid and larger bond market, equivalent to the US Treasury debt market, and therefore with negligible transaction costs. Besides, if we consider the sensitivities of the nominal interest rate to the budgetary deficit, to the public debt or to the growth rate mentioned in the previous section 8.4., the supplementary premium that an EMU member country would have to pay over a benchmark interest rate could be the following:

$$i_t - i_t^G = 0.03(def_t - def_t^G) + 0.01(d_{t-1} - d_{t-1}^G) + 0.02(d_{t-1} - d_{t-1}^G)^2 - 0.02(g_t - g_t^G) \quad (16)$$

With: g_t = variation in nominal GDP in comparison with the former period
 def_t = Net borrowing (+)/ net lending (-) of the general government in percent of GDP
 d_t = government consolidated gross public debt in percent of GDP
 i_t = interest rate on 10-years government bonds

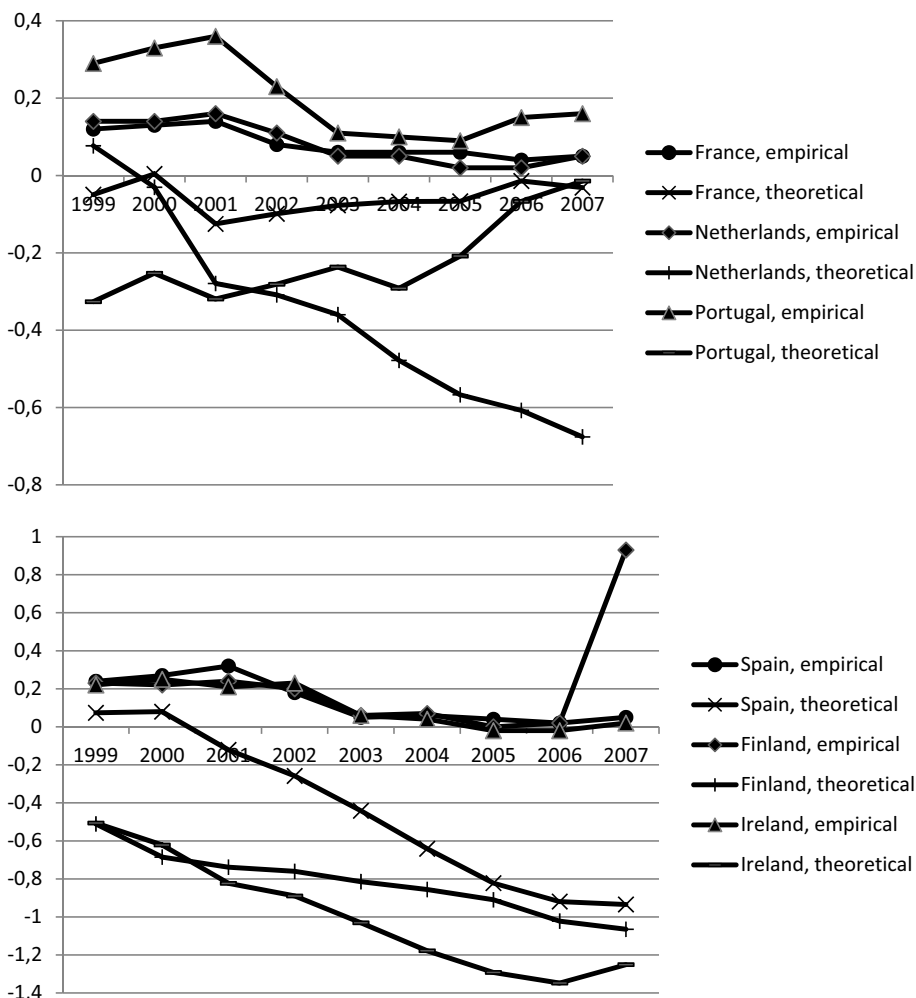
The index 'G' corresponds to the German data, as in the EMU, Germany remains today the benchmark country for the financial markets, whose rating AAA, is the strongest.

The theoretical estimations of the differential with the German nominal interest rate are obtained with the help of equation (16), whereas the empirical observations are those mentioned in *Eurostat* data. For our estimations, we will consider the period from the creation of the Economic and Monetary Union (1999) until the current financial crisis (2007). Indeed, the more recent period of financial crisis and economic turmoil is much more erratic and difficult to analyze, because of its systemic dimension and of auto-realization of anticipations on the financial markets about the solvability difficulties of some member countries.

Then, in this framework, our simulations show that some countries could mainly have benefited from the creation of Eurobonds (see figure 4). Indeed, between 1999 and 2007, France, the Netherlands, Portugal, Spain, Ireland and Finland had empirically higher interest rates on their public debt than Germany. However, according to the formula suggested in equation (16), they could have benefited from a negative premium and from smaller interest rates than Germany. Indeed, all these countries were less indebted than Germany; besides, some of them had higher growth rates (France before 2005, the Netherlands, Spain, Finland and Ireland), and some of them had smaller budgetary deficits (Ireland before 2006, the Netherlands, Spain and Finland). Let's remember that we consider here only the period before 2007, that is to say before the financial and economic crisis, and the problems of out-bidding of the Irish budgetary deficit and interest rates, for example.

Regarding Austria, the differential with the German interest rate was quite limited between 1999 and 2007, and our formula in equation (16) replicated quite well the empirical variation of this differential in interest rates with Germany (see figure 5, p. 222). Finally, Greece, Italy and Belgium were highly indebted countries. Therefore, according to our simulations, the interest rate premiums that these countries would have had to pay on their public debts should have been still much higher than their effective levels, in comparison with the German interest rate (see figure 5). Indeed, these countries were much more indebted than Germany, and the Greek budgetary deficit was also higher.

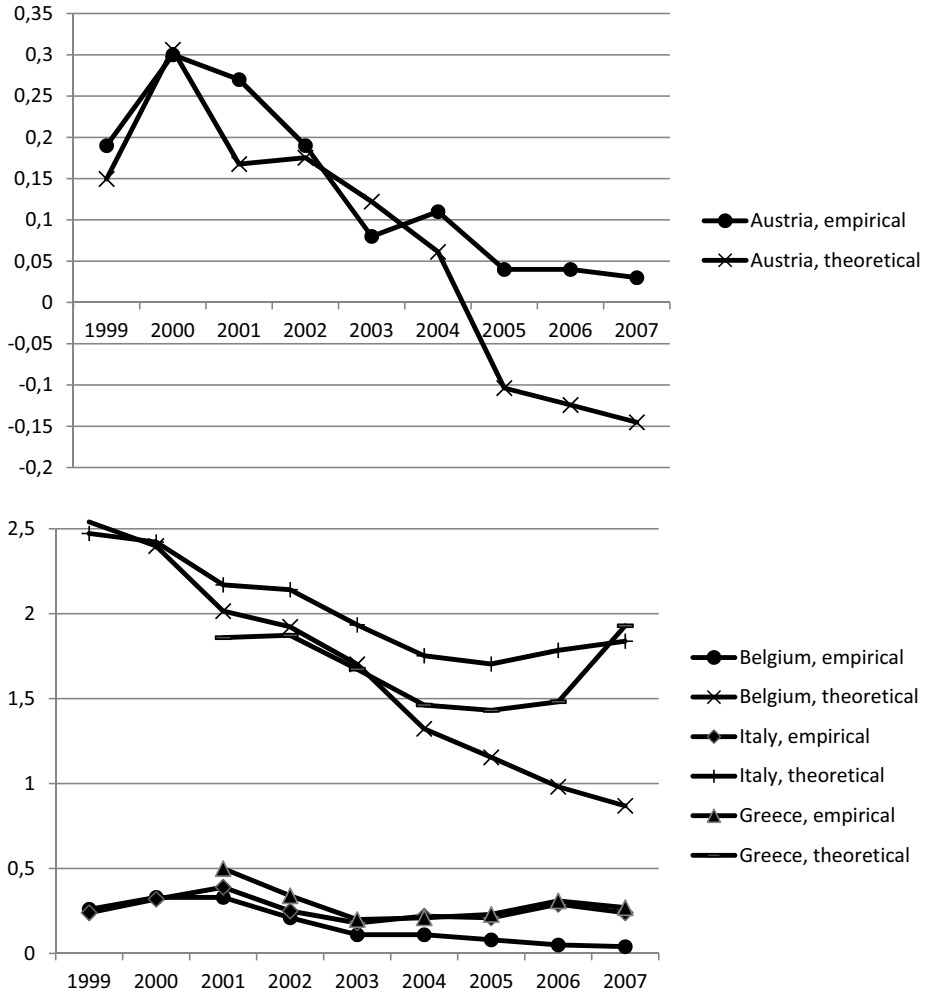
Figure 4: Nominal interest rate differential with the German rate, in percentage points



8.6. CONCLUSIONS

In this paper, we have proposed a simple modeling of the dynamic evolution of the interest rate on the public debt of a given country. Our model then shows that there are many conditions necessary to the existence of an equilibrium interest rate on the financial markets. First, the global economic framework must be sufficiently stable to avoid an excessive risk aversion from the investors. Besides, the probability of default of a given country must be sufficiently small, and the amount that the investors can hope to recover in case of default on the public debt must be sufficiently high, in order to avoid the defiance of the financial markets.

Figure 5: Nominal interest rate differential with the German rate, in percentage points



If these conditions are not fulfilled, a given country cannot hope to find the amounts necessary to finance its public debt on the financial markets. Furthermore, the interest rate on the public debt of a given country is an increasing and linear function of financial parameters like the interest rate on the debt of the benchmark country or the transaction costs on the domestic bond market. For a particular country, the equilibrium interest rate on its public debt is also a slightly increasing function of its budgetary deficit and a decreasing function of its nominal growth rate. Nevertheless, to explain the dynamic evolution of this interest rate, the most important fiscal parameter seems to be the indebtedness level of the

country. Indeed, according to our model, the interest rate on the bond market appears to increase exponentially with the public debt of the country.

What are then the teachings of our model regarding the possible mutualization of a share of the public debt of the European countries? The creation of Eurobonds could give confidence to the investors. Common bonds jointly guaranteed by a pool of countries would be better protected from the defiance and from the risk aversion of the investors. The creation and the provision of safe investment means, whose probability of default is nearly null, can contribute to prevent, on the financial markets, the out-bidding of interest rates on the public debt of countries participating to the common issuing of bonds. EMU member countries could thus mainly take advantage and benefit from the creation of a large and liquid common bond market. Nevertheless, the participating countries should have sound fiscal situations and sustainable levels of public indebtedness. Therefore, the share of the public debt of the participating countries which would be jointly guaranteed by the issuing of common bonds should be reduced to a limited percentage of these countries' GDP. Besides, according to the framework of our model, the cost of the participation in the common issuing of bonds in terms of interest rate premium should be very high for the most hardly indebted European countries.

This paper has only analyzed the economic side of the question of the creation of common Eurobonds for the EMU member countries. We are aware of the fact that political and institutional limits to the mutualization of a share of the public debt of the European countries are, today, the most important and the most empirically binding. However, they are too numerous and too sizeable to be studied in the current paper...

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APPENDIX A: RESOLUTION OF THE MODEL

By combining equations (7) and (10), we obtain:

$$(d_t + d_t^*) = \frac{(1 + i_t)(d_{t-1} + d_{t-1}^*)}{(1 + g_t)} + def_t = \frac{a_t[p(1 + i_t) + (1 - p)k_t - c_t - (1 + i_t^*)]}{2p(1 - p)(1 + i_t - k_t)^2}$$

Therefore, we have to solve the following cubic equation:

$$\begin{aligned} & 2p(1 - p)(1 + i_t)^3(d_{t-1} + d_{t-1}^*) + 2p(1 - p)(1 + i_t)^2[def_t(1 + g_t) - 2k_t(d_{t-1} + d_{t-1}^*)] \\ & + p(1 + i_t)[2(1 - p)(d_{t-1} + d_{t-1}^*)k_t^2 - a_t(1 + g_t) - 4(1 - p)def_t(1 + g_t)k_t] \\ & + [1 + i_t^* + c_t - (1 - p)k_t]a_t(1 + g_t) + 2p(1 - p)def_t(1 + g_t)k_t^2 = 0 \end{aligned} \quad (A1)$$

Let's take: $z_t = def_t(1 + g_t) + k_t(d_{t-1} + d_{t-1}^*)$

$$P = \frac{-\{2(1 - p)z_t^2 + 3a_t(1 + g_t)(d_{t-1} + d_{t-1}^*)\}}{6(d_{t-1} + d_{t-1}^*)^2(1 - p)}$$

$$Q = \frac{9a_t(1 + g_t)(d_{t-1} + d_{t-1}^*) + [pz_t + 3(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] + 4p(1 - p)z_t^3}{54p(1 - p)(d_{t-1} + d_{t-1}^*)^3}$$

$$\Delta = \left(\frac{Q}{2}\right)^2 + \left(\frac{P}{3}\right)^3 = \frac{a_t(1 + g_t)}{432p^2(1 - p)^3(d_{t-1} + d_{t-1}^*)^4}$$

$$\begin{aligned} & \{-2p^2 a_t^2(1 + g_t)^2(d_{t-1} + d_{t-1}^*)^2 + 8p(1 - p)^2 z_t^3(1 + i_t^* + c_t - k_t) \\ & - (1 - p)(1 + g_t)a_t[pz_t + (6\sqrt{3} - 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] \\ & [pz_t - (6\sqrt{3} + 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)]\} \end{aligned}$$

• If (a_t) is high, $\Delta < 0$, and (A1) has three real solutions:

$$i_t = \sqrt[3]{\frac{-P}{3}} \cos\left[\frac{1}{3} \arccos\left(\frac{-Q}{2} \sqrt{\frac{27}{-P^3}} + \frac{2j\pi}{3}\right)\right] - \frac{def_t(1 + g_t)}{3(d_{t-1} + d_{t-1}^*)} + \frac{2k_t}{3} - 1 \quad \text{with } j = 0, 1, 2$$

However, the only one which avoids an out-bidding of interest rates is obtained for $j = 2$.

If (a_t) is small, $\Delta > 0$, and (A1) has only one real solution:

$$i_t = \sqrt[3]{-\frac{Q}{2} + \left[\left(\frac{Q}{2}\right)^2 + \left(\frac{P}{3}\right)^3\right]^{0.5}} + \sqrt[3]{-\frac{Q}{2} - \left[\left(\frac{Q}{2}\right)^2 + \left(\frac{P}{3}\right)^3\right]^{0.5}} - \frac{def_t(1 + g_t)}{3(d_{t-1} + d_{t-1}^*)} + \frac{2k_t}{3} - 1$$

APPENDIX B: CONDITIONS FOR A POSITIVE EQUILIBRIUM INTEREST RATE

$\Delta < 0$ if and only if:

$$\begin{aligned}
 & 2p^2 a_t^2 (1 + g_t)^2 (d_{t-1} + d_{t-1}^*) - 8p(1-p)^2 z_t^3 (1 + i_t^* + c_t - k_t) \\
 & + (1-p)(1 + g_t) a_t [pz_t + (6\sqrt{3} - 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] \\
 & [pz_t - (6\sqrt{3} + 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] > 0
 \end{aligned} \tag{B1}$$

Conditions for the parameter (k)

• $\Delta < 0$ if: $(1 + i_t^* + c_t - k_t) < 0$ and

$$[pz_t + (6\sqrt{3} - 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] > 0$$

$$(1 + i_t^* + c_t) < k_t < (1 + i_t^* + c_t) + \frac{p[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t)]}{(6\sqrt{3} - 9 - p)(d_{t-1} + d_{t-1}^*)}$$

As long as the sum of the two first terms in (B1) is positive, $\Delta < 0$ if:

• $(1 + i_t^* + c_t - k_t) > 0$ and $[pz_t - (6\sqrt{3} + 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] > 0$

$$(1 + i_t^* + c_t) - \frac{p[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t)]}{(6\sqrt{3} + 9 + p)(d_{t-1} + d_{t-1}^*)} < k_t < (1 + i_t^* + c_t)$$

• With (h) having a small value, if:

$$(1 + i_t^* + c_t - k_t) > 0 \text{ and } -h < [pz_t - (6\sqrt{3} + 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] < 0$$

$$(1 + i_t^* + c_t) - \frac{p\left[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t) + \frac{h}{p}\right]}{(6\sqrt{3} + 9 + p)(d_{t-1} + d_{t-1}^*)} < k_t$$

$$< (1 + i_t^* + c_t) - \frac{p[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t)]}{(6\sqrt{3} + 9 + p)(d_{t-1} + d_{t-1}^*)}$$

• With (h) having a small value, if:

$$(1 + i_t^* + c_t - k_t) < 0 \text{ and } -h < [pz_t + (6\sqrt{3} - 9)(d_{t-1} + d_{t-1}^*)(1 + i_t^* + c_t - k_t)] < 0$$

$$(1 + i_t^* + c_t) + \frac{p[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t)]}{(6\sqrt{3} - 9 - p)(d_{t-1} + d_{t-1}^*)} < k_t$$

$$< (1 + i_t^* + c_t) + \frac{p\left[(1 + i_t^* + c_t)(d_{t-1} + d_{t-1}^*) + def_t(1 + g_t) + \frac{h}{p}\right]}{(6\sqrt{3} - 9 - p)(d_{t-1} + d_{t-1}^*)}$$

Therefore, a solution can exist as long as:

$$\frac{[(1 + i_t^* + c_t)(6\sqrt{3} + 9 + p)(d_{t-1} + d_{t-1}^*) - pdef_t(1 + g_t) - h]}{(6\sqrt{3} + 9 + p)(d_{t-1} + d_{t-1}^*)} < k_t$$

$$\frac{[(1 + i_t^* + c_t)(6\sqrt{3} - 9)(d_{t-1} + d_{t-1}^*) + pdef_t(1 + g_t) + h]}{(6\sqrt{3} - 9 - p)(d_{t-1} + d_{t-1}^*)}$$

Conditions for the parameter (p)

$$\Delta < 0 \text{ if: } \frac{2p^2}{(1-p)} a_t^2 (1 + g_t)^2 (d_{t-1} + d_{t-1}^*) + p^2 (1 + g_t) a_t z_t^2$$

$$-18p(1 + g_t) a_t (d_{t-1} + d_{t-1}^*) (1 + i_t^* + c_t - k_t) z_t - 8p(1 - p) z_t^3 (1 + i_t^* + c_t - k_t)$$

$$-27(1 + g_t) a_t (d_{t-1} + d_{t-1}^*)^2 (1 + i_t^* + c_t - k_t)^2 > 0$$

Therefore, it seems obvious that (p) must be high, for the former condition to hold.

9. CONDITIONAL EURO T-BILLS AS A TRANSITIONAL REGIME

Wim Boonstra & Allard Bruinschoofd

9.1. INTRODUCTION AND SUMMARY

Since early 2010, tensions within the Eurozone have risen sharply. What started with a Greek confession that both projections for and past realizations of government debt and deficit statistics were blatantly off the mark, developed into a Euro crisis of systemic proportions. The driving force has predominantly been a lack of resolve of Eurozone leaders to stand firm for the Economic and Monetary Union and provide a blanket guarantee for all the sovereign debts of its members. Hence each individual rescue package was received with caution, providing only a patch for the ultimate solution and hence only temporary relief in financial markets.

In a floating exchange rate regime, the weaker members of the union would have experienced a currency crisis, with the resulting collapse of the currency providing much of the desired boost to export price competitiveness to rebalance their economies and current accounts. In the euro straitjacket that is the one outcome that is impossible. And thus government bond markets acted as the natural pressure valves, with speculators adding insult to injury by exploiting these institutional fault lines. As a result sovereign bond yields have risen sharply for the weaker members of the currency union and fallen to extremely low levels for its stronger members.

Naturally, the discussion about Eurobonds once again found its way to the top of the European political agenda. Their introduction would remove the fault lines and bring the Economic and Monetary Union a major step closer to completion. The problem is that the generic term 'Eurobonds' conceals a multitude of variations. Some (e.g. Mario Monti) see the issuing of Eurobonds as an instrument to stabilize the EMU. Others (e.g. François Hollande) would want to use Eurobonds to boost economic growth. Others still (e.g. Angela Merkel) mainly consider Eurobonds as a measure which would undermine discipline in weaker countries and which will push up interest rates sharply for strong member states. It is for this reason that German and Dutch political actors in particular are entirely opposed to the use of Eurobonds other than as a closing piece of crisis resolution. It is unfortunate that this discussion is generally not very analytical in nature. Rarely is the question raised of whether it might be possible to design a Eurobond

system in such a way as to boost stability and increase budgetary discipline while also offering tangible benefits to the financially stronger states. After all, everything depends on the way a Eurobond programme is shaped.

Building on the work of Boonstra¹ (2011-a, 2011-b, 2012), this article proposes a temporary programme of short-term Eurobonds (Euro T-Bills). This idea was launched by the European League for Economic Cooperation (ELEC) and was presented in draft form to the Commission in November 2011, and in its definitive form in January 2012 (Bishop *et al.* 2011, 2012). The idea is a reaction to the ‘green paper’ on the topic published by the European Commission (EC 2011). We argue that a temporary regime of conditional Eurobonds, if well designed, can create long-term stability and present policymakers with the right incentives. The system would offer benefits to all participating countries and the ECB would be able to once again focus entirely on the execution of monetary policy.

9.2. WHY DO WE NEED EUROBONDS?

9.2.1. The crisis cannot be resolved by the efforts of individual member states

In late 2009 it came out that Greece had provided incorrect information about its government finances. In early 2010, German finance minister Wolfgang Schäuble suggested that this meant the Greeks would need to leave the Eurozone. This triggered a process of monetary disintegration within the Eurozone. Capital flight from the supposedly weaker countries to those in a stronger position put great pressure on the Economic and Monetary Union. Despite several European summits, during which meaningful steps were taken to strengthen European governance, the problems are not over yet until the Eurozone also features a credible and readily deployable crisis mechanism².

By now, most countries in Southern Europe have seen new governments come to power which are expected to start up a credible process of reforms and restructuring. Nonetheless, they still have a long way to go before public finances will have been put sufficiently into order. Countries like Spain and Italy which, although facing major challenges with their public finances, ought to be able to

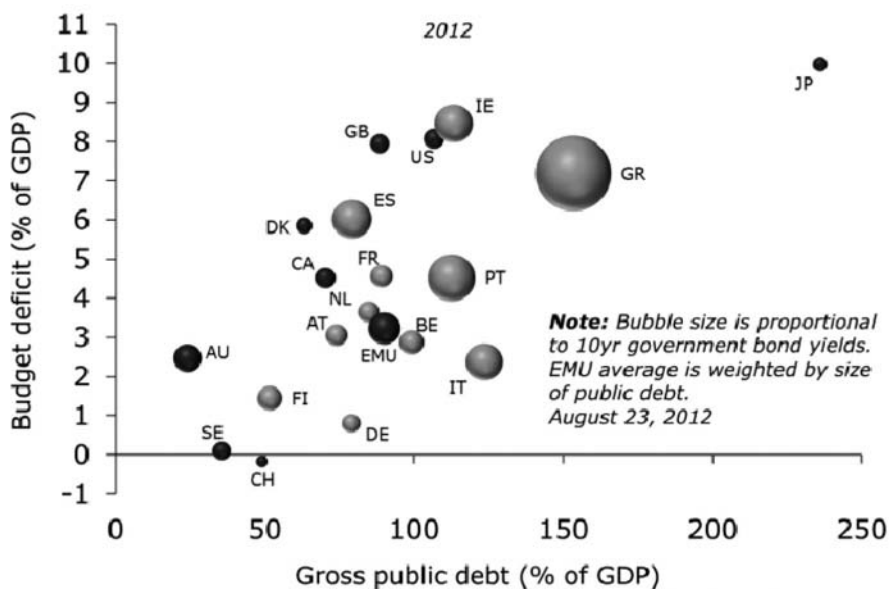
¹ We are indebted to the members of the ELEC working party on eurobonds, viz., Graham Bishop, Michiel Bijlsma, Marko Bos, Niels Gilbert, Shahin Kamalodin, Rene Karsenti, Alman Metten, Franz Nauschnigg, Rene Smits and Nicolás Trillo Ezquerro. This article reflects the authors’ personal evolving views regarding the ELEC proposal. Special thanks to Shahin Kamalodin.

² Also see W.A. BRUINSHOOFD, S.A. KAMALODIN and M.P. VERDUIJN, 2012, “Euro crisis: institutional tug-of-war”, *Rabobank Special Report 12/14*, September.

overcome their current challenges unsupported by the other Eurozone countries. However, they are falling prey to market sentiment which risk them suffering from a liquidity crisis that turns into a solvency crisis. This illustrates the unintended fault lines along the boundaries of national sovereign bond markets that were created in the design of the euro.

On average, the government finances of EMU member states compare favorably from an international perspective (figure 1). Moreover, the current account of the Eurozone balance of payments is more or less balanced. Therefore the EMU as a whole does not suffer from any significant savings deficit. Inasmuch as the EMU has a financial problem at all, in theory it should be able to solve this with its own means. What is clear, however, is that this externally balanced situation conceals significant differences between countries within the EMU.

Figure 1: Public finances in an international perspective



Source: IMF, Reuters EcoWin, Rabobank.

Figure 1 shows that within the EMU the spread in government deficits and debts is considerable. The EMU contains a number of states with very weak government finances. The US does that, too, in fact. But in contrast to the US, the EMU does not have full political and economic union. There is no overarching budgetary policy, the member states' individual labor markets remain heavily segmented along national lines and the relative national debt and surplus positions are still sensitive subjects. Within the EMU, therefore, it is not the average quality of gov-

ernment finances that matters; instead, the weakest links have a disproportionately large effect on the EMU's overall strength. For as long as this remains the case, which is moreover associated with fragmented bond markets and the absence of cross-guarantees, the EMU will not be able to extract itself from the danger zone. After all, financial markets have free rein within the Eurozone and they may cause imbalances to spiral out of control to such an extent as to risk tearing the Eurozone apart altogether. The Greek crisis has shown that even a small country (2.3% of EMU GDP in 2011) that finds itself in trouble can wreak havoc for the entire Eurozone. The fragmentation of bond markets means financial markets have the possibility of speculating against the continued existence of the Eurozone. This fragmentation is the Eurozone's most important design flaw.

9.3. THE CRISIS NEEDS A COLLECTIVE EUROZONE EFFORT

We are in need of a collective Eurozone effort first and foremost because we cannot risk letting the European integration project fail. For one because the economic fallout is probably going to generate a prolonged depression on the continent. Moreover, this will at best result in a structural setback in the functioning of the single market, though more likely put that process firmly into reverse.

Of course, a collective solution may involve the ECB purchasing unlimited amounts of sovereign debt of Eurozone member states. At the start of the year, financial markets had temporarily been put at ease, in large part due to the European Central Bank (ECB). Its Securities Markets Program (SMP) allowed it to temporarily prevent interest rates for sovereign bonds in weaker member states from rising to unsustainably high levels. With the Long Term Refinancing Operation (LTRO), started in December 2011, the ECB has moved to issuing long-term (three year) liquidity to the banking sector. Through these actions it was able to assuage the worst stress in the markets, and buy politicians some time to implement the agreed measures. Fundamentally, however, nothing changed and over the summer of 2012 the ECB was forced to move to bolder action and announced its OMT (Outright Monetary Transactions, September 6, 2012), in which it pledges to buy potentially unlimited amounts of short denominations of Eurozone sovereign bonds if the relevant sovereign has agreed to a Memorandum of Understanding (MoU) with its Eurozone partners and receives financial support from the ESM. Politicians have been bought yet more time to implement their permanent crisis solution. If the fragile sentiment on the financial markets turns negative again, however, as it did during spring 2012, there is a possibility that policymakers would not even have the time to convert their plans into policy.

9.4. A COLLECTIVE SOLUTION MUST HAVE DEMOCRATIC LEGITIMACY

Not only may ECB actions restore confidence only temporary, ECB solutions effectively mutualize debts without the consent of the national constituencies. Eurozone leaders may actually prefer this solution as it is more palatable to them in short-term political terms. In the longer run however, the widening of the democratic deficit – the distance between the degree of European solutions relative to what national constituencies prefer – may come back to haunt their successors in the pursuit of the European cause.

Eurobonds provide a collective European solution wherein the mutualization of the debts of Eurozone countries is highly transparent. The challenge is to design then in such a manner as to be acceptable to the populations at large.

Within European policy circles, a majority is emerging in support of Eurobonds as a tool to resolve the crisis. The problem with this, however, is that there has been a lot of noise around the topic for a number of years now, which has confused the issue. Our argument is that the introduction of effective Eurobonds can restore calm to the financial markets without introducing moral hazard. First, however, a definition is required of what makes Eurobonds effective Eurobonds.

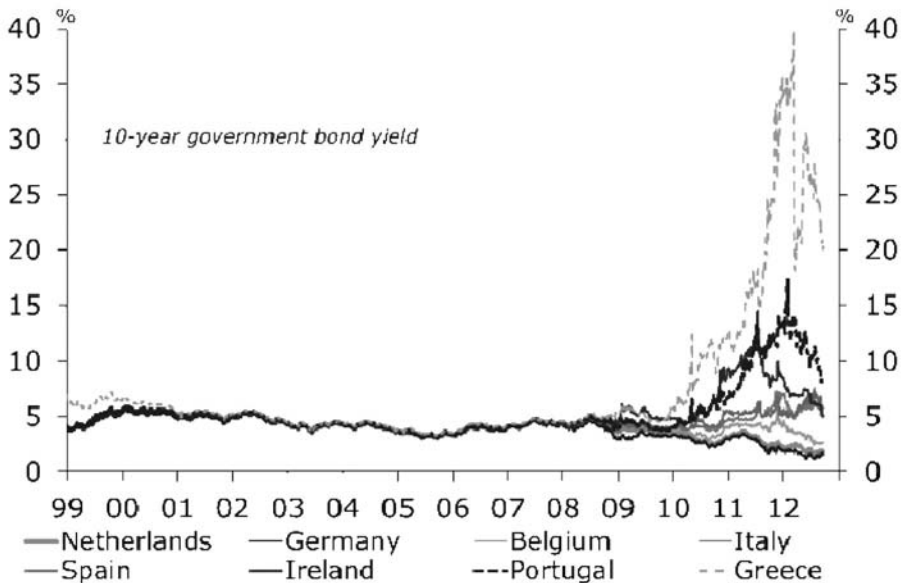
9.5. THE EUROBONDS DEBATE

Eurobonds are bonds issued by a central European agency in order to finance the participating member states' national debt³. Although the first proposals to introduce Eurobonds can be traced back to 1989, the debate has only switched to a higher gear since 2009 (Eijffinger, 2011). Eurobonds are also known as Stability Bonds (EC, 2011) or EMU Bonds (Boonstra, 1989, 1991; Bishop *et al.*, 2011). They allow weaker member states to access funding for their sovereign debts at lower interest rates than the current market rates. Nonetheless, this carries the risk of removing a powerful external incentive for the countries in question to improve their fiscal policy. Because of this perceived moral hazard, the use of Eurobonds has so far been rejected outright by Germany and the Netherlands. However, in the 1999 to mid-2008 period, the financial markets actually barely differentiated at all between strong and weak member states (figure 2). Therefore such an external incentive was in fact absent for a long time in any case. This meant policymakers were not being disciplined, harmful developments both in the realm of government finances and in the real economy were allowed to

³ Most proposals either implicitly or explicitly assume a type of agency which will issue Eurobonds. The French president François Hollande on the other hand has argued these should be issued by the ECB.

flourish, and the situation in a number of states became badly unhinged. The idea that strong euro countries are consistently rewarded with low interest rates therefore rests on a false impression of economic reality.

Figure 2: Eurozone interest rates differentials



Source: Reuters EcoWin.

Only after the collapse of the American investment bank Lehman Brothers did markets start to factor in differences in risk. After the Greek troubles started in the autumn of 2009, these differences became increasingly apparent. Therefore it was only in times of crisis that financially stronger states enjoyed more advantageous funding compared to weaker states. However, this advantage has been cancelled out almost entirely by the cost of the bailout packages, losses incurred on government bonds issued by problem countries and the costs of the recession in Southern Europe, which has impacted on the northern countries too.

Given the hesitant response to the crisis and the tensions on financial markets, it remains to be seen whether policymakers will be given the time to adjust policies in the right direction. A well designed system of Eurobonds could help to rein in financial markets. The problem is, politicians are quick to adopt outspoken positions in the debate surrounding Eurobonds (whether for or against) without first asking questions such as: what do we want to achieve by introducing Eurobonds? Is this feasible, and if so, under what conditions? This failure to analyze the situation is regrettable, because the common term 'Eurobonds' hides a multitude of proposals with significant differences between them.

9.6. CRITERIA FOR EURO BONDS

We are personally of the opinion that before adopting a position regarding Eurobonds, the question should be asked which criteria these should meet and what the intended outcome would be. This involves the following points.

1. Generate benefits for all countries, weak and strong alike.

Any Eurobond program should produce noticeable benefits for *all* participating states, i.e. it should not just help the weaker member states, but also offer advantages for the stronger ones. Only if this is the case will Eurobonds enjoy broad political support. The benefits for the weaker member states will be clear from the subsequent criteria. As a tangible benefit for the stronger member states, the design should aim to create a sufficiently deep and liquid Eurobond market such that a sufficiently large *liquidity premium* may be expected.

2. Guarantee all countries access to funds at reasonable terms, yet at the same time embed strong incentives for fiscal discipline and limit moral hazard to a minimum.

If it wants to be successful in neutralizing the (speculative) threat of financial markets, the Eurobond program should produce the effect that all countries be given access to funding at all times under reasonable conditions. However, having taken away the disciplining effect of financial market pressure – even if only in place during crises – a Eurobond program should reinstall a disciplining mechanism on policymakers; it should strongly discourage moral hazard but rather increase budgetary discipline where possible.

The funding guarantee can best be given if the program operates under a joint-and-several guarantee. A solution to the problem of moral hazard might be found in the use of ‘Conditional Eurobonds’ (Muellbauer, 2011). These would reduce moral hazard through an internal allocation mechanism, with which states would finance their sovereign debt through a central agency, but they would pay this agency a *premium* on top of the agency’s funding costs, depending on the quality of their government finances. This would provide the right incentives because good policy would soon translate into reduced premiums and vice versa. These premiums could be used to build up central buffers and to address any disappointing results. And ultimately, if countries continue to fail to address required budgetary and economic reforms, they should be able to be *ejected from the program*.

3. Contain a time-consistent exit-threat.

A regime would preferably be self-funding, so that any possible problems in the future might be addressed without having to bother the stronger member states with them (Boonstra, 2011-b, 2012). A *pre-funded resolution fund* would help here, as it takes away the political haggling over who picks up what part of the bill. Recall that quite a number of Northern European politicians have voiced their desire to make / let Greece exit the euro, but the costs they inflict on all remaining members refrains them from doing so.

There are disadvantages of throwing countries out of a Eurobond scheme too, although these are limited. Should the unwelcome step be necessary of phasing out a member state, this will cause unrest. However, given that the other states will be able to continue participating in the scheme under a *joint-and-several guarantee*, the chances of a serious risk of contagion are slim. After all, market participants will no longer be able to speculate against the continued existence of the EMU by bringing individual (remaining) countries into acute liquidity problems. These countries would still be safe under the umbrella of collective guarantees. Therefore the bargaining position of transgressor states would de facto be seriously undermined by the introduction of Eurobonds. Where Greece initially considered its bargaining position to be strong because of the justified fear of contagion regarding other Eurozone members should the country have to leave the Euro, this would no longer be the case under a program that features the joint-and-several guarantee among those remaining in the currency union.

4. It should realistically address the time-lags needed for necessary Treaty changes.

A temporary regime, such as proposed by Bishop *et al.* (2011, 2012), might work. This would be acceptable to constitutional courts (with the German constitutional court for instance arguing that from ESM onwards, any *permanent* and *open-ended* mutualization of risk should be put to the constituency through a referendum. The open-endedness may be overcome by focusing on part of the yield curve only, as a start. The temporary character, by the way, would also reinforce the exit threat to the countries that participate; even in the case that direct expulsion of a country is politically unfeasible, it may be relatively easy not to take this country on board in the successor of the temporary program. And you can learn; as out-of-the-box solutions have to be tested in practice, unintended design flaws may be part of it.

Only a Eurobond program which meets all these criteria would be acceptable to all member states. As of yet however, to a greater or lesser extent, most existing proposals do not meet these criteria.

9.6.1. Substantial fringe benefits...

We think that a Eurobond program fitting all the above requirements would automatically strengthen financial stability by breaking EMU member states' strong financial links between national governments and local banking systems. And it would do so much more effectively than through the intended banking union as currently Eurozone banks on average are suffering more from sovereign risks than the other way around (see box 1).

Box 1. Eurobonds as a means to break the sovereign-bank nexus

The proposals for a Eurozone banking union under the sole supervision of the ECB are intended, inter alia, to break the link between sovereign and banking sector risks. In the vicious sovereign-banking sector risks circle, concerns over sovereign debt sustainability generate worries over the stability of national banking sectors that are loaded with their national's sovereign debt, which in turn increases the contingent risks to sovereign debt sustainability.

At the current juncture, though, we have the impression that sovereign risks weigh more on national banking sectors than vice versa. The Irish banking risks have been effectively quarantined. The Spanish banking sector risks are substantial from a Spanish point of view, but rather limited from a European perspective. And banking sectors in countries like France, Italy, Portugal, and Greece are certainly suffering more from sovereign risk than vice versa.

So if the desire is to decouple these risks, should we not really be doing this from the sovereign side? The lack of eagerness to do so may stem from the fact that Eurozone leaders want to prevent from having to bail out local banking sectors as has been done in Ireland and is currently underway in Spain. This is not a particularly convincing argument as the real estate related problems in these countries' banking sectors, which have their origins in local conditions, are relatively contained from a European perspective. Nevertheless, it is still politically much more acceptable to have banks in strong countries support banks in weak countries than to have to risk tax payers' money via loans and/or loan guarantees. Hence a banking union may be preferable over Eurobonds from a political perspective.

Will a banking union work to rend the vicious circle between sovereign and banking sector risks? The banking union criteria are roughly the following:

1. All banks must be subject to the same set of rules, and the ECB is put forward to pick up this baton.

2. All Banks should be treated equally if things go bad

A European resolution mechanism is required, probably pre-funded through a levy on banks (the latter aspect again to limit the risk to have to put tax payers' money on the line in the future).

It's not so clear why a deposit guarantee scheme at the European level would be needed as well at this point, unless the aim is to also open up European deposit markets for European competition, as in that case a European scheme guarantees deposits that may be scattered all over the currency union.

3. All banks should all have the same starting position

Here is the crucial bit. Before a banking union can be created, all banks should arguably be in compliance with the same rules pertaining to capital and liquidity buffers, such as Basel III / CRD IV (with potentially extra capital requirements for systemically important banks). They may have to be recapitalized by their national governments before they are allowed into the banking union, for instance.

But how do you get starting positions equal when banks are still using predominantly their own national's sovereign bonds in their liquidity buffers, whilst stress in Eurozone bond markets continues to play up time and again? Certainly here you would in fact need Eurobonds as the major vehicle for liquidity management, as the current home bias has created and strengthened the strong link between banking sector risk and the risks to their sovereigns bonds.

Creating Eurobonds to begin with would thus generate much of the benefits in terms of risk reduction now envisaged through the creation of the banking union, and it may be much simpler put in place.

Incidentally, the Eurobond program will free the ECB of its interventions in the market for national debt. The ECB would be allowed to direct its attention back to its primary goal: the execution of monetary policy with the ultimate aim of maintaining price stability.

9.6.2. ... though certainly not manna from heaven

However, it is also important to realize that Eurobonds are not a magic solution to all of Europe's financial troubles. After all, regardless of the program's design, Eurobonds do have their limitations as well. Most emphatically they are not an alternative to putting public finances in order and restoring competitiveness. Even with Eurobonds most EMU member states will need to put their government budgets in order and restore their competitiveness and potential for growth. At most, Eurobonds might contribute to creating the circumstances under which

such policies of stability can be executed. We should realize, however, that all this also can be said of the interventions by the ECB.

It should also be clear that a permanent Eurobond program cannot be put in place in the short run. The introduction of Eurobonds represents a far-reaching redesign of the Eurozone and this requires that time be taken to work out the details and complete all the necessary political, legal and constitutional procedures. This task should not be undertaken lightly. All the same, we are pressed for time: even though the ECB's LTRO 'bought' three extra years, and the ECB's pledge to intervene potentially without limit under its OMT on the shorter end of the sovereign yield curves, financial markets could still spoil things. The developments of the first half of 2012 have certainly demonstrated that. This is why a working group from the European League for Economic Cooperation (ELEC) is proposing to start with a temporary programme (Bishop *et al.*, 2011, 2012).

9.7. EURO T-BILLS: A TRANSITIONAL REGIME

The ELEC working group proposes that those states which participate for the duration of the program should be able to provide all the funding their governments need through collectively guaranteed short-term Eurobonds (Euro Treasury-Bills). This guarantee should be a joint-and-several guarantee, i.e. every member state guarantees the national debt of all other member states. Obviously, this is only possible when accompanied by a strict set of budgetary rules, incorporated in national law, to which participating countries would have committed, as well as effective and automatic sanctions for states that breach the agreements. Therefore the proposed T-Bill programme complements the new budgetary rules and Fiscal Compact agreed upon in late 2011. Furthermore, not every member state will be able to participate from the start. Conditions for participation and all the other parameters of the program are derived from the criteria outlined above.

9.7.1. Only solvent states with approved policy plans can participate from the start

The program is open to all solvent member states of the Eurozone, underscoring the fact that the Euro T-bills are not merely support-in-disguise for the weaker EMU member states and thereby partly speaking to the criteria that the program should be beneficial for strong countries as well as for weak countries. The solvency criterion is understood to include all countries which have so far managed to get by without financial support from the other member states. Countries which are already in need of financial support (Greece, Ireland and Portugal)

therefore cannot yet take part⁴; the EFSF is open to them. Incidentally, should Eurobonds be introduced, there would be no need to increase the size of that fund nor the size of its successor, the ESM. Only once these countries have brought their public finances in order, and have overcome their problems, might they qualify for entry. In addition to do this, the intended policies of the participating countries must first have already been approved under the European semester. These policies should lead up to eventually fulfilling the criteria outlined in the Stability and Growth Pact (SGP). Finally it is essential that all the large states participate, including Germany.

9.7.2. Funding through short-term Euro T-Bills

Through the program, participating countries can cover all of their funding needs (financing deficits and rolling over existing debts) over the next four years (2013-2017) through collectively guaranteed (cross-guaranteed) short-term bonds (Euro T-Bills). These will have a maximum maturity of 2 years and will be issued by a new agency, the EMU fund. Participating countries would not issue any further short-term bonds themselves. However, they would be free to issue longer-term government bonds without a collective guarantee. Accordingly, if the program were to be discontinued after four years, the last Eurobonds would be repaid after two more years, i.e. in 2019, at the latest. As such, all participating countries are guaranteed access to funds at reasonable rates.

9.7.3. Discipline through extra premiums

States whose budget deficit exceeds 3% and/or states with a national debt exceeding 60% of GDP would be liable to pay a premium on top of the necessary costs to finance the agency, thus embedding disciplining incentives and discouraging moral hazard behavior. This premium will vary according to an automated formula in which the relative size of the public deficit and debt is taken into account (see box 2 and figure 3).

Box 2: The size of premiums additional to the funding costs of the EMU fund

The premium will be calculated using the following formula:

$$R(i) = \alpha [DEF(i) - DEF(m)] + \beta [DEBT(i) - DEBT(m)]$$

⁴ So long as a full-blown ESM rescue package for Spain has not been provided, Spain would also be eligible to participate.

in which:

$R(i)$ = the size of the premium additional to the funding costs of the EMU fund.

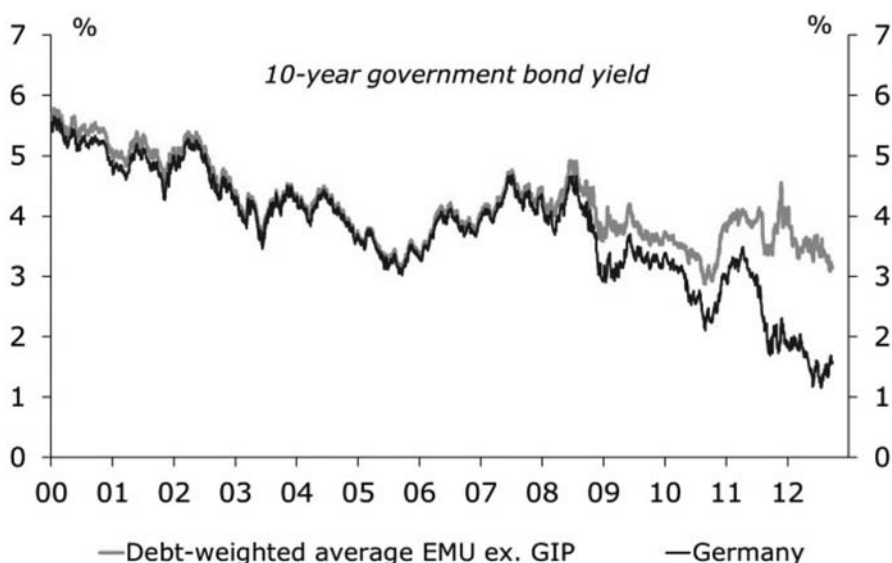
$DEF(i)$ = the budget deficit of country i , as a percentage of GDP

$DEBT(i)$ = the national debt of country i , as a percentage of GDP

$DEF(m)$ and $DEBT(m)$ are the maximum values for budget deficit and national debt described in the Stability and Growth Pact, i.e. 3% and 60% of GDP respectively.

Parameters α and β are coefficients determining the relative weight of national debt and the budget deficit in the formula.

Figure 3: EMU-funds versus German funding costs



Source: Reuters EcoWin.

9.7.4. Expulsion from the program as an ultimate sanction

If states fail to implement the agreed policies, ultimately the decision could be taken to gradually phase them out of the program. Obviously such a decision should not be taken lightly. States which do implement agreed policies cannot be blamed for a situation where results do not meet expectations due to lower economic growth than had been foreseen, for example. Nonetheless there should be an ultimate sanction for states which do not live up to policy rules. In any case the program does have a ‘big stick’ waiting at the end, as countries which behave

badly can be excluded from participation in a follow-up program, should this be decided upon.

9.7.5. Building up reserves

Through the premiums levied, the EMU fund would by definition make a profit as long as there are countries which do not meet the SGP criteria. This would be added to the agency's reserves. Thus, buffers are built up to resolve any possible future problem cases, adding to the credibility of the exit-threat in the process. These reserves are emphatically not meant to be used for bailouts, but rather intended as a cover for the collective guarantee on Eurobonds issued. When the program ends, and if a decision is made not to set up a follow-up program, collected unused funds will be added to the capital of the European Stability Mechanism (ESM), the permanent fund currently being set up. If a follow-up program does find support, the reserves created can, if desired, be passed on to the successor Eurobond program.

Even if they have to pay a premium to the EMU fund, the weaker countries will still find this a fairer and cheaper solution than having to access the markets on their own. Note that the premium mechanism does, however, begin to discipline these countries much earlier than the financial markets have done in the past. Moreover, states can influence the premiums they are being charged by adjusting their policies in the right direction. Finally, the premiums paid to the EMU fund would be used to build up reserves, where the market's high interest rates are only collected as a risk premium by investors. At the same time the stronger countries will find their borrowing costs will have gone up relative to the crisis troughs, but it should be borne in mind that their current interest rates are unnaturally low due to their safe haven role within the Eurozone.

Note that the buffers that have been built up should be placed at a distance from the political realm, in a situation analogous to the ECB.

9.7.6. Joint-and-several guarantees prevent contagion

If a member state finds itself in financial trouble and does not wish to adjust its policy to conform with the indications given by 'Europe', it may be excluded from participating not only in the follow-up program, but if necessary from the current program as well. The joint-and-several guarantees on already issued bonds, as well as the reserves that were built up to cover these, will prevent problems from spilling over into other states to a large degree. Therefore, compared to the situation without Eurobonds, those 'transgressors' are much less capable of wreaking havoc in the system, which will improve the EMU's bargaining position against

unwilling countries considerably. This setup thus provides for the searched-for strength of the collective, while at the same time is also adds to the time-consistency of the exit-threat.

9.7.7. A temporary regime as a lead-up to a permanent solution

The temporary regime would ideally be followed up by a new temporary or even a permanent program. However, in a permanent program it would be much harder to phase out the transgressing countries. The temporary nature of the scheme proposed here, containing as its ultimate sanction the exclusion from a future follow-up scheme, will therefore have a strong disciplinary effect and is thereby in and of itself an asset. The program will however provide policymakers with enough time to show themselves capable of good governance.

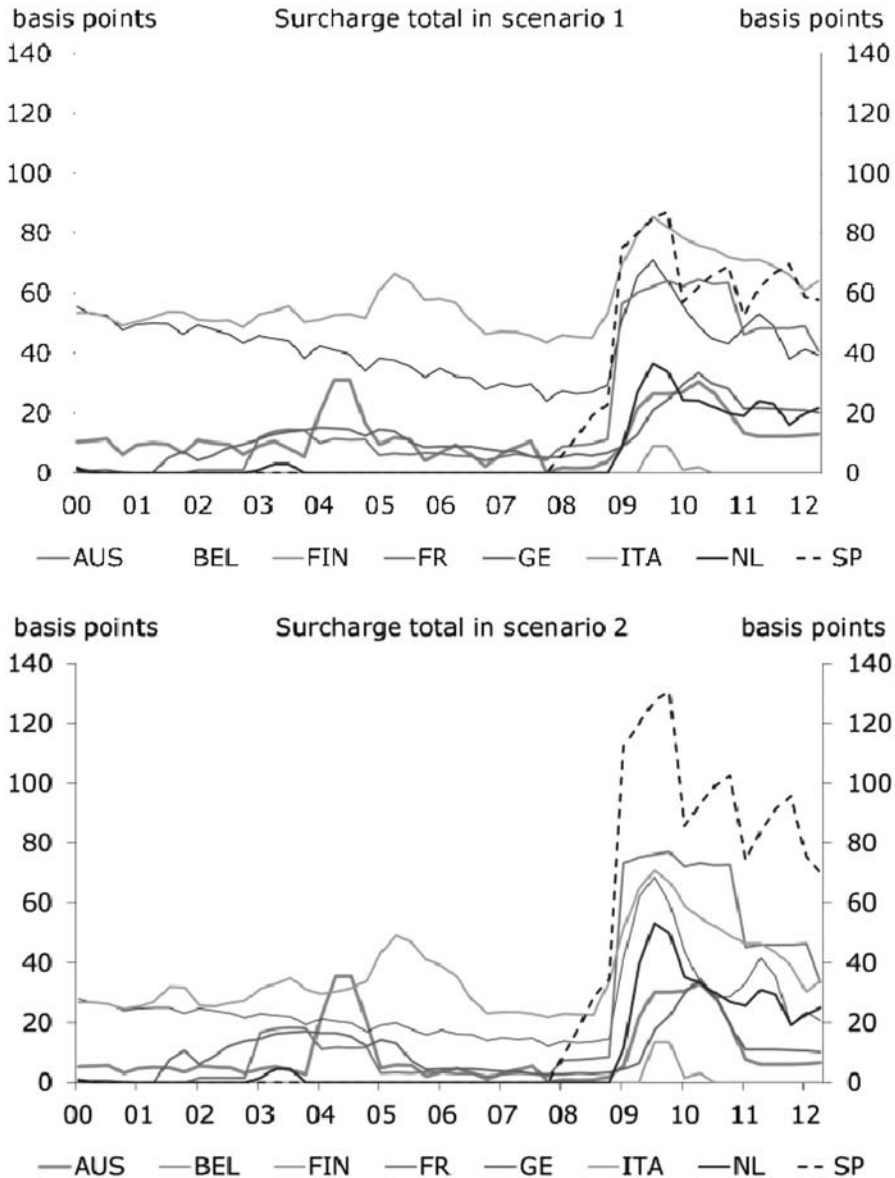
Also, the temporary nature of the program addresses the fact that it takes time to make the necessary changes to the European treaties, thus nurturing the democratic legitimacy of its potential permanent successor.

9.8. PRACTICAL AND OPEN ISSUES

9.8.1. Calibration of the premium applied

First, the formula needed to calculate the premiums must be determined (see box 2). Determining parameters α and β will be the outcome of a political bargaining process. These should be set in advance, be uniform for and subscribed to by all the participating countries at the moment of accession. There are two key questions to consider in setting the parameters. First, the absolute size of the premiums has to be determined. This is important for the disciplinary effect and for the speed at which the buffers can be built up. Second, the relative size of the premiums has to be determined. Should premiums primarily be built up based on the size of the national debt, or on the basis of the budget deficit? Figure 4 illustrates two scenarios. The second option is preferable here, as it will allow the premiums to react more directly to changes in fiscal policy. A rising budget deficit would swiftly be punished by rising premiums, but a change in direction would be rewarded equally fast. This embeds effective incentives. As mentioned above, determining the formula is a one-off process, as opposed to the many ad hoc negotiations which have caused Europe to limp from one incident to the next in recent years.

Figure 4: Premiums in the EMU fund in two scenarios (2000-2012)



Source: Reuters EcoWin, Rabobank calculations.

Note: This figure is a simulation of how these ratios would have progressed had Eurobonds been introduced from the start. They are based on the factual development of deficit and debt levels on a quarterly basis (related to SGP criteria). In scenario 1, more weight is given to debt ratio ($\alpha = 0.10$ and $\beta = 0.010$). In scenario 2, relatively more weight is given to the developments in budget deficits ($\alpha = 0.15$ and $\beta = 0.005$).

9.8.2. Guarding the term structure of sovereign debt

A possible disadvantage of the short-term Euro T-bill program is that weaker participating countries, in particular, who may find it hard to issue long-term bonds themselves, would finance their deficits and their maturing debt with short-term credit entirely. This means the average maturity of their national debt would decrease, which will increase their public finances' sensitivity to interest rates. Therefore it is advisable to extend the maturities in a follow-up program, should the scheme be successful and a successor scheme be put in place.

As things stand, though, this feature of the proposed Euro T-bills is not much different from Draghi's pledge to purchase bonds along the short end of the yield curve when the country has a MoU with its Eurozone partners. It's a risk that may be addressed by obliging countries to maintain their sovereign debt maturity structure within predefined boundaries, as is currently suggested in the OMT-meets-MoU discussions.

9.8.3. Succession planning

What does its successor look like? It may be the same regime once more. Or it may be a similar regime, for instance with the country composition adapted to new circumstances, with the maximum maturities of the Eurobonds expanded, or with some of the parameters and modalities changed based on the lessons learned in the first trial period. Ultimately, it may be the case that the successor is to be a permanent Eurobond scheme, for which the temporary facility has created the time to accommodate this transition by means of the required amendments to the European Treaties.

What needs to be worked out is how this EMU fund operates alongside the ESM. It seems logical that in its temporary setting, the two act in a parallel fashion. It also seems logical that when the temporary program ends and is not continued, the built-up funds are transferred to the capital base of the ESM. In a permanent setting, however, the need for ESM alongside the EMU funds is not so clear. Perhaps in that scenario, the EMU fund would grow to ultimately replace the ESM (the resolution fund thereby crowding out the bailout fund), with the ESM's capital given back to the contributing member states in proportion.

9.8.4. The resolution fund investment plan

An open question pertains to the optimal size of the reserves of the EMU fund. Its design in the build-up phase is such that it would grow indefinitely. At an optimal size of, say 10% or 20% of aggregate outstanding EMU sovereign debt,

the premium may be level-shifted in such a way that on a net basis, no fresh additions to the fund are made. Then, the premiums could be adapted in such a way that well-behaving countries actually are rewarded by receiving a transfer from the Fund.

A related issue is where the fund is to invest its capital? It seems unhealthy in a way to invest in Euro T-bills or Eurozone sovereign bonds, since in that case countries are paying in capital ultimately to finance the debt they issue to pay in that very same capital. It does not seem politically palatable to invest the funds outside Europe either, since the sovereign debts issued to fund the fund would arguably be crowding out private European investment. Hence a diversified portfolio of Eurozone corporate bonds would seem most feasible.

9.9. WHAT ARE THE ALTERNATIVES?

When discussing the positions for and against the use of Eurobonds, too little attention is paid to the question of what other options are available. Opponents who argue that Eurobonds would remove the pressure on policymakers to put their affairs in order make a valid point to the extent that many Eurobond proposals indeed lack any mechanism to prevent moral hazard. However, that has been addressed in this proposal. And opponents who argue that Eurobonds will not resolve the real problem, that of poor budgetary discipline in the Eurozone, are entirely correct. The main function of Eurobonds is to create an environment in which policy proposals can actually be realized. They can stabilize the markets and give the ECB some space to direct its attention back to its core function: monetary policy. However, they are by definition complementary to agreed budgetary measures and do not replace them.

But what is the way forward if we decide against introducing Eurobonds? In that case, it must be feared that the Eurozone will experience much deeper crises over the coming months and years than the current one. Implementing policy takes time and markets are no longer prepared to wait. Financial markets would still be free to speculate against the continued existence of the euro and will continue to target one supposedly weaker state after the next. Consequently, every problem, even in the smallest of member states, immediately becomes an EMU-wide problem, because it puts renewed pressure on the Eurozone. Until at some point, something has to give and one or more countries may even be forced out of the Eurozone. The ECB can keep matters under control to a certain extent through its Securities Markets Program (SMP), the LTRO and the OMT, but in doing so it is building an increasingly unbalanced portfolio, and its position as separating monetary from budgetary policy is becoming increasingly blurred, and harder to accept for the Germans. In reality, the ECB's measures in some ways resemble the

use of Eurobonds (buying weaker states' bonds backed by guarantees from the collective, namely the central bank's shareholders), but in an opaque way and lacking in democratic legitimacy. This should not be taken as criticism of the ECB. In contrast, its behavior underlines the weakness of the actions of Europe's politicians.

9.10. CONCLUSIONS

The introduction of a four-year Euro T-Bill program as proposed here would give policymakers time to implement good policies and to consider a permanent reform of Eurozone governance. The temporary nature of the program is an important asset. Many of the proposed Eurobond programs contain more than a few elements which will clearly harm the stronger member states. In most cases, for example, they do not deal with moral hazard, or they contain as yet untested elements, begging the highly legitimate question whether they might not lead to undesirable effects when put into practice. Consider for instance the blue bond/red bond proposal launched by the Brueghel think-tank (Delpa & Von Weizsäcker, 2011) or the idea proposed in Germany to put a so-called redemption fund in place. The disadvantages of such schemes are not just the insecurity they imply, but once in place, it will prove extremely hard to make any changes to them at all. The advantage of the temporary nature of ELEC's Euro T-Bill program is that it will be possible to accumulate some experience with Eurobonds as an instrument, which can prove itself in this period. Any desired changes can be included in a follow-up program. No further increases to the EFSF/ESM would be needed, because in this scenario those facilities would only be open to Greece, Portugal and Ireland. Once the new fund also takes over most of the portfolio of weaker states' government bonds accumulated by the ECB after a certain time, and places these in the Eurobond program, the central bank will once again be able to focus its energy on its core task: monetary policy with the ultimate goal of combating inflation, complemented of course by the task of guarding financial stability.

After four years, the Euro T-Bill program could, if desired, be converted into a permanent Eurobond program covering all maturities. However, the decision could also be taken to extend the program, and possibly to extend the maximum maturity of Eurobonds by a few years to three or four years. In that case the ultimate sanction, not being permitted to participate in a follow-up scheme, would still be a very credible threat on the horizon. Should the program be less successful than hoped for, and should the decision be taken not to extend it, then we may well have lost one illusion, but we would not be in a worse position than we find ourselves in today.

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10. THE ROLE OF GOVERNMENT INTERVENTIONS IN RESTORING THE BANKING SECTOR STABILITY

*Aneta Hryckiewicz*¹

Abstract

The systemic banking crises placed enormous pressure on national governments to intervene. However, these actions are justified if they contribute to economic recovery without subsequently increasing significant risk in the banking sector. Using a novel bank-level database, we examine whether and which government intervention measures among those commonly used enhance the credit supply in a country's banking sector and restore banking-sector stability after a crisis. We document that in general, government interventions have a negative impact on banking sector stability, increasing its risk significantly. In addition, our evidence shows that government involvement in the banking sector exerts a negative effect on credit supply, reducing its availability to borrowers. Nationalizations and asset management companies (AMCs) contribute most to these effects. Our evidence strongly encourages the regulatory authorities to rely on market mechanisms for resolving systemic banking crises.

Key words: Government Interventions, Crisis, Financial Stability, Credit Supply

JEL Classification: G21, G28

10.1. INTRODUCTION

The ongoing mortgage crisis has witnessed the largest scope of government interventions in the financial sectors since the 1920s. National authorities were compelled to intervene in almost all continents, beginning in the United States and proceeding through Europe into Asia. Not only the dimension of government interventions in the subprime crisis but also the volume of government support were massive. On July 20, 2010, Bloomberg News reported that the cost of government interventions in the United States alone may reach nearly EUR 50 trillion. In the European Union, the governments approved EUR 311.4 billion in capital injections for distressed institutions, EUR 2.92 trillion as liability guarantees, EUR 33 billion for relief of banking-impaired assets, and EUR 505.6 billion for liquidity support and bank funding. As a result of these actions, most of the

¹ The author is grateful to the Wharton Financial Institutions Center for the opportunity to conduct this research. Additionally, the author would like to thank Ed Kane, Thorsten Beck, Pawel Kolasinski, Bursin Yurtoglu, Peter Heiss, and other anonymous participants at the Federal Reserve Bank of Chicago 47th Annual Conference on Bank Structure and Competition, at the Multinational Finance Conference, at the 30th SUERF Colloquium on States, Banks and the Financing of the Economy, at the Workshop on Corporate Governance in European Banks, for their valuable comments.

largest banking institutions in the world are either in government hands or have implicit government protection. The massive government interventions in the banking sectors and the current financial landscape resulting from these interventions raise the question of the long-term effects of such actions on the banking sectors' future behavior. Specifically, the question is, do government interventions effectively restore long-run banking sector efficiency without a significant risk increase? This paper attempts to answer this question and examines the influence of government bailout programs on banking sector stability. In addition, the paper examines various government intervention measures and evaluates their individual and overall impact on banks' behavior and country's credit supply.

Government interventions in the banking sectors have provoked considerable debate among economists and politicians (see "The Support given to EU banks is killing the recovery", *The Guardian*, 17 July, 2011; "It was a low-down, no-good godawful bailout. However, it paid", *The Washington Post*, 8 July, 2011; "Interim Report of the UK Independent Commission on Banking", 2010 and the "Comments to the UK Independent Commission on Banking", 2011). Opponents argue that government interventions destroy the incentives in the banking sector, encourage banks to increase risk taking, and lead to high fiscal costs. These opponents argue that as a result, these actions negatively impact a country's economic growth. Proponents, however, believe that government interventions are effective in restoring financial confidence, improve banks' performance, and thus contribute to the efficient functioning of the banking sectors. These actions should then have a beneficial effect on a country's economic recovery.

Despite this debate, the academic studies provide little insight on the long-run effects of government interventions for the countries. Most of the evidences come from the examination of deposit insurance scheme on a bank's behavior. It is surprising given the important role the government interventions are thought to play in the countries' recovery.

From the policy makers' perspective, there are two central questions to be answered: what is the effect of the overall government bailout programs on the banks' behavior and whether the government support for the banking sector can spur the banking recovery and thus extend the credit availability.

Noticeably absent in the banking literature are the evidences to these questions. Perhaps the most closely related papers are recent studies by Giannetti and Simonov (2011) and Berger *et al.* (2010), but they provide conflicting evidence. Whereas the former study examining the Japanese crisis finds a positive link among capital injection in the banking sector, credit supply, and investment growth, Berger *et al.* (2010) document a negative relationship between this policy measure and liquidity creation several years after a bank's bailout. Our work extends these two papers not only by examining the role of other forms of

government assistance in the recovery of financial stability but also by considering an entire government bailout program on credit supply in a country. To our knowledge, this study is the first study that attempts to capture and assess the entire impact of government interventions in the banking sectors. The limited research in this area is somewhat surprising given the importance of bank lending for promoting economic recovery (see Beck *et al.*, 2000); Levine, 2005) and given the impact the government bailout programs are likely to have on both the relative importance of banking sector's recovery and the level of banks' risk taking. Arguably, the recent global financial crisis has further intensified interest in understanding the impact of government bailout measures on banking and countries' recoveries. In particular, regulators' recent initiatives to implement legal procedures for the resolution of systemic banking crises and distressed banking institutions call for additional research in this area (see for example "Technical Details of a Possible EU Framework for Bank Recovery and Resolution", 2011); "A Special Resolution Regime on the UK Banking Act", 2009); "Resolution Policies Acts on Restoring the Distressed Institutions" in Ireland, Germany and Denmark).

This paper attempts to fill the existing gap by exploring in detail the interactions among various government bailout programs and banking sector's stability in 23 countries. Specifically, the paper examines the link among government intervention measures, the risk taking behavior of banks, and credit availability in countries' banking systems. We perform this investigation at the aggregated level, at which we assess the overall impact of government bailout programs on banks' behavior and at the individual level, which allows us to evaluate the effect of individual policies on banks' behavior. To this end, we have constructed a novel bank-level database comprising all distressed and subsequently bailed institutions during 23 systemic banking crises in 23 countries. In total, we were able to identify 92 banking institutions that were either protected by governments that offered them blanket guarantees or were bailed out through central banks' actions and/or government capital assistance programs. Our data enable us to match a specific government policy measure to each bailed institution. Then, comparing the behavior of bailed banks with their non-bailed competitors, we are able to assess the impact of government intervention measures on banks' behavior several years afterwards.

Our study provides interesting results on the effect of government actions on banks' behavior, closing the gap in the existing academic literature. First, the evidence shows that government interventions are strongly correlated with subsequent increased risk taking in the banking sector. In particular, blanket guarantees and capital assistance programs in the form of nationalizations and asset management companies (AMCs) exert the greatest positive impact on all banks' risk measures. Our conclusions are extremely robust with respect to alternative risk

measures and time periods. The findings also hold when we control for countries' individual characteristics. More importantly, we find a statistically significant negative link between government interventions and credit growth. In our opinion, these results are an effect of newly created less efficient governance structures.

Our paper provides important policy recommendations. Government interventions should be associated with deep and effective restructuring of distressed institutions, allowing bailed banks to restore their performance. Furthermore, government interventions based on market forces and regulations strengthening market discipline should best promote the performance and stability of distressed financial institutions. Accordingly, the results indicate greater coverage of government-assisted mergers, as opposed to nationalizations and AMCs, as a mechanism to resolve systemic banking crises. Additionally, our results suggest that government guarantees are not the optimal mechanism to solve liquidity problems in the banking sector. Our results document that the use of liquidity injections instead of extending deposit insurance coverage can mitigate the moral hazard problem stemming from government protection.

The remainder of the paper is organized as follows. In section 2, we describe government bailout policies during recent systemic banking crises in 23 countries. Section 3 presents the literature review and hypothesis testing. Section 10.4 and 10.5 describes our data and methodology, and section 10.6 presents the empirical results with a robustness analysis. Section 10.7 investigates the link between the government bailout programs and credit supply. Finally, section 10.8 concludes.

10.2. FORMS OF GOVERNMENT INTERVENTIONS

Beginning in July 2007, the subprime mortgage meltdown in the United States resulted in a systemic banking crisis in many industrial countries that has prompted a substantial injection of capital into financial sectors. Most financial institutions have experienced enormous losses, and most of them struggled with insolvency. On August 26, 2010, Reuters reported that at that time, top US and European banks had lost more than USD 1.2 trillion on toxic assets and bad loans. To protect and stabilize the financial systems, various bailout strategies were implemented by governments internationally.

The ultimate role of government interventions is to help normalize credit conditions and thereby the resumption of sustainable growth. To this end, governments and central banks use various policy measures. Claessens *et al.* (2001) divide the measures into immediate reactions during the containment phase of the crisis and policies aimed at restructuring the banking sectors.

In the initial stage of a crisis when the markets are frozen and enormous uncertainty prevails, governments tend to implement policies aimed at restoring confidence in the financial system and minimizing the contagion effects of the crisis. Two important policies implemented during this phase are deposit guarantees and emergency liquidity provisions. In severe crises with concerns of bank runs, policy makers often extend the guarantees to all creditors. The coverage of blanket guarantees differs from deposit insurance arrangements. The latter are limited to bank deposits. Blanket guarantees are a government's promise to all banks' liabilities, typically with the exception of subordinated debt. Thus, the blanket guarantees offer coverage that is above an existing or pre-existing amount in an insurance arrangement. Additionally, it is possible to grant the government promise only to a single institution and not to the entire banking sector. For example, Sweden decided to grant the government guarantee on liabilities for only Nordbanken and Gote Bank during the Scandinavian crisis, and recently UK implemented such strategy for Northern Rock. However, in practice, blanket guarantees are often extended to the entire system exceeding even the countries' borders. For example, during the Scandinavian crisis Finland decided to extend the government protection to all Finnish subsidiaries operating abroad as well as to the foreign branches operating on the Finnish market.

The offering of blanket guarantees is often associated with the injection of liquidity provisions. Laeven and Valencia (2012) show that the more credible the first measure, the lower is the need to implement the second measure. Similar to blanket guarantees, liquidity provisions aim at restoring the liquidity position of banks and confidence in the financial system. Central banks achieve this either by open market operations or direct credit line extensions to distressed banking institutions.

The restructuring phase requires more complex mechanisms mostly aimed at restoring the banks' balance sheet and the efficiency of the banking sectors. This phase requires a deep restructuring of financial institutions' debt. Governments' most common measures of achieving these goals are government-assisted mergers, nationalizations of distressed private institutions, and/or transfers of non-performing assets to AMCs or so-called "bad bank". In a government-assisted merger, the government helps a troubled bank to find a partner willing to acquire the distressed institution. In practice, to increase the success of this intervention measure, the government participates in restructuring the banks' debt, often by taking it over. Sheng (1996) claims that government-assisted mergers are particularly popular when the government has limited funds to handle the closure of insolvent institutions, and the financial industry as a whole has sufficient resources to absorb the failing bank. Therefore, this type of intervention is often used in the initial phase of a crisis. In addition, many regulators view this bailout strategy as psychologically advantageous as no institution is treated as a loser.

Importantly, the distressed institution after the merger still operates on the market as a part of the new firm.

The nationalization of distressed institutions is perceived as a last resort. The government recapitalizes the distressed institution in exchange for its ownership. Academic studies argue that nationalization is a very ineffective method of restoring banks' financial positions when the government has a minority ownership. The studies argue that governments do not actively participate in the restructuring process of distressed institutions (Waxman, 1998). Furthermore, Kane (1986, 1989) suggests that even if governments had the power to influence the banks' behavior, they do not have sufficient incentives to do so. Politicians tend to pursue a policy of forbearance, deferring such decisions to later periods due to the representatives' relatively short time span of governing. The lack of appropriate restructuring processes reduces the incentives of such institutions to change their behavior in the future.

The last bailout policy, the formation of AMCAs or "Bad Bank", aims at transferring non-performing loans from distressed institutions' balance sheets into a fund created for this purpose. Due to involvement of governments in the management of bank's debt, this bailout strategy often undertakes a form of implicit nationalization. The role of the fund is to clean up the banks' balance sheets and restore their profitability. The fund then attempts to maximize the recovery rates of bad debt through active restructuring of it. In the past, the management of the funds was in the governments' hands. Klingebiel (2000) claims that AMCAs are a very ineffective restructuring method for distressed banks due to a lack of necessary expertise, regulations related to these entities, and political involvement.

10.3. ROLE OF GOVERNMENT INTERVENTIONS IN RESTORING BANKING SECTOR STABILITY

10.3.1. Theory on government interventions

The academic literature presents two distinct views on the possible effects of government interventions on the long-run behavior of banks. One set of theoretical models documents that government interventions have negative effects on banking sectors due to increased risks taken by bailed banks. The theoretical literature indicates two possible but not necessarily distinctive sources of these effects. On the one hand, it is argued that increased risk is a result of reduced market discipline and creditors' anticipation of a bailout (Flannery, 1998; Sironi, 2003; Gropp *et al.*, 2006). This effect is comparable to that discussed in the literature on deposit insurance (Merton, 1977). On the other hand, the recent literature suggests that when government intervention measures are ineffective in restoring

banks' profitability and capital positions relative to their initial financial level, the distressed institutions tend to increase their risk to compensate for their poor performance (Giannetti and Simonov, 2011; Bonaccorsi di Patti and Kashyap, 2009). The above theories are not necessarily contradictory. The existing studies document a positive relationship between the reduced level of market monitoring and weaker banking performance (Baumann and Nier, 2003).

The positive view of government interventions suggests that such government actions are helpful because they increase banks' charter values. The academic research documents that greater charter values of banks decrease the banks' incentives for excessive risk taking due to the threat of losing future rents (Keeley, 1990). Specifically, this work documents that government protection reduces refinancing costs, increases banks' performance, and thus positively affects banks' charter values (Hackenes and Schnabel, 2010). Accordingly, these studies argue that government interventions allow banking sectors to restore their performance and stimulate the credit supply.

The existing empirical literature presents conflicting results which effect dominates. We argue that it will largely depend on the type of government measures and its coverage. The subsections below presents a literature review on the role of specific government measures in restoring the banking sector stability, grouping the existing evidences based on the type of government policy measure.

10.3.1.1. Public guarantees

The role of blanket guarantees in restoring banks' financial condition and, thus, their positive effects on banks' charter values is disputable. Theoretically, government protection should decrease banks' refinancing costs and increase banks' performance. Recently, Hackenes and Schnabel (2010) provided empirical evidence supporting this hypothesis.

However, there are also studies that support the dominance of the negative view. Baumann and Nier (2003) document that protected banks operate less efficiently and thus have greater incentive to increase risk. Diamond and Dybvig (1983) show that government guarantees can positively impact the banks' behavior when the guarantees are credible. Honohan and Klingebiel (2003), Kane and Klingebiel (2004), and, recently, Laeven and Valencia (2012) document that because credibility is difficult to achieve during systemic banking crises, government guarantees are not effective in stopping the banks' runs. This evidence would indicate a negative effect of government guarantees on banks' performance, proving banks' incentive for increased risk-taking. Reduced market discipline accompanied by government protection will strengthen this effect.

10.3.1.2. Liquidity provisions

Similar to government guarantees, the role of liquidity provisions in the short term is to restore public confidence. In the long run, liquidity provisions aim at restoring banks' capital and thus credit availability for borrowers. However, the effectiveness of liquidity provisions is disputable.

On the one hand, theoretical models predict that liquidity injections should decrease refinancing costs for intervened banks and thus help them to restore their performance. Cordella and Yeyati (2003) document that liquidity provisions positively affect the banks' charter values and thus demotivate banks to increased risk-taking. This result would predict a positive effect of liquidity provisions on banks' recoveries and thus credit supplies subsequently.

On the other hand, some researchers argue that the predictability of central banks' actions reduces market discipline and thus incentivizes banks to increased risk taking. This effect should be especially strong in systemically important institutions and "too many to fail" market (Freixas, 1999; Goodhart and Huang, 1999; Acharya and Yorulmazer, 2007).

10.3.1.3. Capital injections

In theory, capital injections should have a positive effect on banks' charter values and should encourage faster recovery of distressed institutions. This effect should then translate into greater credit availability subsequently (Diamond and Rajan, 2000, 2001). However, the effect of capital injections will vary with the type of the banks' recapitalization. In the recent global crisis, nationalizations, government-assisted mergers, and AMC restructurings were the most common measures of recapitalizing insolvent institutions. With regard to nationalization, the academic literature documents the negative effect of government participation on a bank's behavior. The studies argue that state ownership creates a conflict of interest between the politicians and shareholders in which the politicians attempt to use their power to fulfill their own interests. Notably, the restructuring process necessary to restore banks' profitability is either not undertaken or is inadequately conducted (Kane, 1986, 1989). As a result, institutions with greater participation of state ownership operate less efficiently and have greater incentives for excessive risk taking (Shleifer and Vishny, 1994; Iannota and Sironi, 2007). Accordingly, we hypothesize that greater coverage of government participation in a banking sector will be negatively correlated with the sector's efficiency, postponing the recovery of a banking sector and thus the economic recovery of a country.

We would also expect a similar effect from the implementation of asset management companies. Apart from the Swedish success in this policy measure, in most

countries, the AMCs were ultimately very ineffective in restructuring corporate debt (Klingebiel, 2000). The practice has revealed that banks tend to transfer this impaired asset that is very difficult to resolve or sell off. The banks are also pressured to transfer politically motivated loans. Additionally, a long recovery process, political dependence, and the low transparency of this mechanism contribute to its ineffectiveness.

In contrast to nationalization and AMCs, government-assisted mergers involve government participation only at the initial stage of the restructuring process. The newly created institution operates as a part of the already existing institution but without any government protection subsequently. Because the government actively participates in the restructuring process before the transaction, we would expect this to have a positive effect on a bank's recovery. We would also anticipate more effective market discipline due to a takeover and a lack of any government protection for the existing institution. Barth *et al.* (2004) and Beck *et al.* (2006) document that market mechanisms most effectively discipline banks' behavior. Therefore, we argue that government-assisted mergers are the most effective methods of restoring banking sector efficiency, contributing to its long-term stability.

10.4. SAMPLE

10.4.1. Descriptive Statistics

Table 1 (p. 258) presents the descriptive statistics at the bank level for two groups of banks: bailed banks versus their non-bailed competitors four years after a specific intervention measure was offered to a bank. The comparison is also conducted based on the mean test which reports the difference between the bank's performance of non-intervened and intervened institution, segregated by intervention type.

Table 1: Descriptive statistics at the bank level

Data present the statistics of performance variables for two groups of banks: intervened versus non-intervened, four years after a specific policy measure has been introduced by a government to a bank. The comparison is conducted based on the mean test, segregated by the intervention type.

Guarantee	Intervened banks					Non-intervened banks (peer group)					t-test
	Mean	Std.dev	Min.	Max.	N	Mean	Std.dev.	Min.	Max.	N	
z-score	4.635	6.117	-5.310	23.900	45	12.131	11.769	-0.100	90.750	149	4.103***
credit growth	35.289	86.191	-85.378	3.3669	45	83.422	120.945	-99.922	585.885	147	2.772***
loan quality	45.376	22.817	3.770	89.340	45	50.203	16.916	0.130	84.630	147	0.143*
cost to inc.	89.547	76.298	42.500	457.940	42	69.291	62.328	3.580	735.640	149	-1.767*
asset size	8.834	2.302	3.030	14.010	45	7.027	2.147	0.520	13.980	149	-4.864***
stand. dev.	8.765	12.163	0.200	44.040	43	2.712	4.121	0.100	36.290	149	-5.160***
ROA	-0.447	4.056	-20.660	2.460	43	1.724	4.025	-23.150	31.580	149	3.111***
equity/asset	6.673	2.659	1.18	13.81	44	12.931	12.612	2.130	97.650	149	8.908***
liquidity ratio	26.071	19.205	1.690	75.560	35	41.167	25.666	0.520	146.650	127	1.978**
loan loss res.	7.780	24.036	-112.690	86.090	41	6.109	6.010	0.500	43.920	142	-0.755
non-perf. ratio	13.083	16.752	0.820	95.620	34	9.515	28.167	0.030	266.150	93	-0.694
Liquidity											
z-score	9.103	9.793	-5.310	37.360	44	10.770	11.548	-0.480	90.750	150	0.870
credit growth	62.902	87.039	-85.380	336.687	44	73.491	121.644	-99.922	585.885	148	0.569
loan quality	48.610	21.946	3.770	89.340	44	49.269	17.437	0.130	84.630	148	0.836
cost to inc.	73.697	67.873	3.580	457.940	43	73.760	65.652	13.520	735.640	148	0.006
asset size	7.866	2.004	3.030	10.820	44	7.323	2.382	0.520	14.010	150	-1.374
stand. dev.	4.991	8.487	0.200	40.670	44	3.793	6.803	0.100	44.040	148	-0.966
ROA	1.650	6.478	-20.660	31.580	44	1.116	3.121	-23.150	16.300	148	-0.753
equity/asset	9.391	4.550	1.980	29.480	44	12.128	12.742	1.180	97.650	149	2.832***
liquidity ratio	29.238	20.395	0.630	97.070	40	40.747	25.966	0.520	146.650	122	2.555**
loan loss res.	5.895	22.695	-112.690	86.090	43	6.664	6.911	0.500	43.920	140	0.353
non-perf. ratio	17.754	48.341	0.620	266.150	32	8.017	9.143	0.030	57.330	95	-1.880*
National.											
z-score	5.556	7.757	0.120	35.420	37	11.532	11.561	-5.310	90.750	157	2.986***
credit growth	48.138	98.281	-85.380	336.687	37	76.335	117.895	-99.922	585.885	155	1.424
loan quality	39.723	20.621	3.770	82.180	37	51.361	17.296	0.130	89.340	155	3.539***

	Intervened banks				Non-intervened banks (peer group)					
cost to inc.	87.603	79.073	3.580	457.940	70.636	62.541	13.520	735.640	156	-1.378
asset size	8.216	1.586	4.150	11.230	7.265	2.416	0.520	14.010	157	-2.279**
stand. dev.	9.469	11.663	0.420	44.040	2.821	5.013	0.100	40.670	156	-3.326***
ROA	1.730	6.308	-12.130	31.580	1.125	3.448	-23.150	16.300	156	-0.794
equity/asset	8.837	4.635	3.300	29.480	12.116	12.431	1.180	97.650	157	5.588***
liquidity ratio	34.255	23.168	0.630	97.070	38.769	23.598	0.520	146.650	131	0.898
loan loss res.	4.701	21.621	-112.690	24.310	6.890	9.275	0.500	86.090	149	0.924
non-perf. Ratio	18.590	50.893	0.820	266.150	8.380	12.514	0.030	95.620	101	-1.831*
Merger										
z-score	11.106	8.610	0.490	37.360	10.195	11.799	-5.310	90.750	152	-0.467
credit growth	64.658	112.752	-97.445	414.636	72.678	115.612	-99.922	385.885	152	0.407
loan quality	47.642	17.878	0.250	69.040	49.532	18.717	0.130	89.340	150	0.584
cost to inc.	61.100	19.279	34.850	136.320	77.310	73.669	3.580	735.640	149	1.410
asset size	8.999	2.423	4.150	14.010	7.018	2.088	0.520	13.980	152	-5.251***
stand. dev.	2.517	5.928	0.200	36.290	4.488	7.492	0.100	44.040	151	1.357
ROA	1.555	2.757	-3.170	16.300	1.152	4.425	-23.150	31.580	151	-0.553
equity/asset	8.984	7.694	3.400	52.190	12.184	12.200	1.180	97.650	152	1.076
liquidity ratio	28.823	19.424	0.520	72.800	40.141	25.941	0.630	146.650	130	2.312**
loan loss res.	7.122	8.332	0.710	43.920	6.316	13.360	-112.690	86.090	145	-0.354
non-perf. ratio	19.162	52.941	0.710	266.150	8.445	12.473	0.030	95.620	103	-1.865*
AMC										
z-score	6.811	8.080	-5.310	37.360	11.635	11.833	-0.100	90.750	144	2.673***
credit growth	55.981	92.820	-85.380	336.681	76.732	1.217	-99.922	385.885	144	1.198
loan quality	43.395	21.325	0.250	86.010	51.133	17.036	0.130	89.340	142	2.580**
cost to inc.	76.673	65.807	3.580	457.940	72.763	66.236	13.520	735.640	143	-0.355
asset size	8.620	2.150	4.270	14.010	7.039	2.227	0.520	13.980	144	-4.365***
stand. dev.	6.841	10.512	0.260	44.040	3.117	5.399	0.100	36.290	143	-3.191***
ROA	1.221	6.059	-20.660	31.580	1.244	3.233	-23.150	16.300	143	0.034
equity/asset	8.545	4.584	1.180	29.480	12.511	12.844	2.130	97.650	144	5.382***
liquidity ratio	31.463	22.535	0.520	97.070	40.233	25.717	1.690	146.650	119	1.978**
loan loss res.	6.884	22.804	-112.690	86.090	6.353	6.279	0.500	43.920	138	-0.248
non-perf. ratio	17.266	43.507	0.620	266.150	7.782	9.290	0.030	57.330	91	-1.901*

The data suggest that the largest differences in performance and risk behavior between the non-bailed banks and their bailed counterparts are significant. Especially, this refers to the publicly protected banks as well as to the institutions resolved through debt restructuring mechanisms: nationalization and AMCs.

In general we find, that these bailed institutions tend to have lower performance, capitalization, and have more risky portfolio than their non-bailed counterparties. The data reveal that the bailed institutions tend to operate less efficiently than their non-bailed competitors. This is especially observable for nationalized institutions and public protected banks. We also find a significant difference in bank's liquidity position. Interestingly, we find that banks which received liquidity support, have liquidity position significantly lower than their counterparties four years after this intervention. Similar results we observe for banks resolved by government-assisted mergers and by AMCs. Also, the intervened banks tend to be lower capitalized than their counterparties. The equity to total assets, a measure of banks' capitalization, is significantly higher for the non-bailed banks than for the bailed ones. These results especially hold for nationalized banks and restructured by AMC. Consequently, we find that these banks have higher ratio of non-performing loans as their non-bailed competitors. We do however find any significant difference in the profitability ratio between the bailed and non-bailed banks. Given the above consideration, this might indicate that the bailed institutions engage in the more risky activities. This assumption also confirms the z-score which measures the distance from a bank's insolvency (the lower the z-score, the higher the risk). It indicates significant changes between two groups of banks. Also, the lower bank's activity by the same profitability may suggest that bailed banks tend to increase the risk in the period after the government interventions.

Finally, the data also prove that institutions larger in size are more likely to be bailed by the government. The result is not surprising given the systemic relevance of larger banks. Interestingly, this result is valid for almost all intervention policy measures.

Figure 1 and 2 compares the financial performance of intervened and non-intervened banks between two time periods: at the time of government intervention and four years afterwards. However figure 3 presents the results for two groups of banks four years after the government intervention occurred categorized by the type of government intervention.

As one can see from the figure 1, the profitability as well as the banks' capital of the intervened institutions were significant lower than their peers at the time of the intervention. This indicates that the intervened banks were indeed distressed and required the measures aimed at improving their capital and liquidity positions. These banks were also less profitable. The situation has not however significantly changed four years after the injection of government support measures.

Figure 1: Financial ratio of banks at the time of government intervention

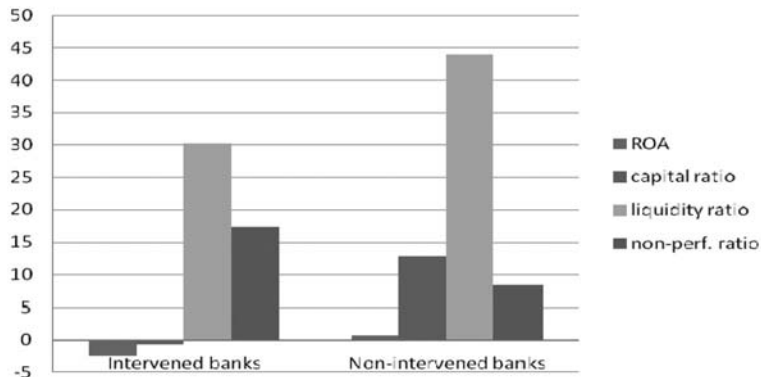


Figure 2: Financial ratio of banks four years after the government intervention

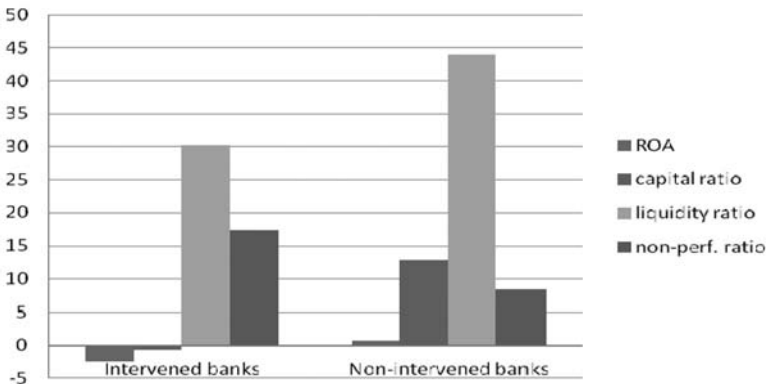
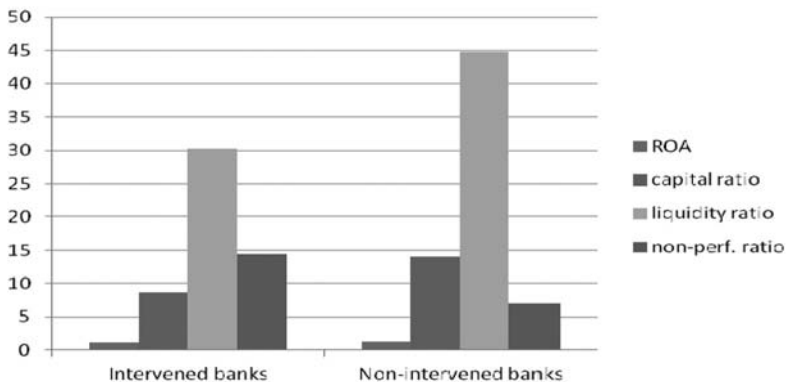


Figure 3: Financial ratio of banks resolved by a specific measure four years after the measure was implemented



The distressed banks still underperformed their peers, and as the figure 2 documents the positions of these banks has not improved considerably. These results might point toward the ineffectiveness of government bailout program's measures. Figure 3 shows the financial performance of the banks after receiving a specific measures. Though we find certain difference between the individual intervened banks' performance measures, the liquidity provisions and government-assisted mergers seem to perform most efficiently.

10.4.2. Data sources

Our major data source is Bureau van Dijk/IFCA's Bankscope database which contains the balance sheet and other bank-specific information for large number of banks from a broad set of countries. Our analysis is based on the cross-section of banks from countries which experienced the systemic banking crises based on the data from Laeven and Valencia (2008). The authors provide the guidance on timing of systemic banking crises in individual countries as well as the government intervention measures implemented in these countries. The disadvantage of the data of Laeven and Valencia (2008) is that the sample covers only the data on country level. Therefore, we extend this dataset by identifying the distressed institutions during the systemic country's crises and match the intervention policies used by the governments to bail out these institutions. The data on bank names and particular government policies used come from the national banks' reports and survey conducted among the central banks. From the collected data we had to exclude the countries for which we were either not able to identify any distressed institution or to find a bailout strategy used by a government. This happened for countries we did not get any response from the central bank or we were not able to identify this information from the public available sources. The most difficult task with constructing this dataset is to avoid the selection bias. This problem may result from the fact that our empirical analysis would be based on the sample including only institutions which "survived" the crisis and would eliminate these which despite a government support became insolvent in the consecutive years. This problem might be especially true because we investigate the behavior of bailed institutions several years after a particular intervention has taken place. Because it is almost impossible to control in our empirical framework for the exit of institutions, we perform two tests to make sure that these events do not affect our estimated results. First, we include into our regressions all insolvent institutions with the latest data and keep them as they would be existing on the market. Second, we also perform the analysis for different time frameworks which allow us to include the exited institutions². Our main results

² Most of the exits in our sample occurred two and three years after a particular intervention.

do not change however we observe an increasing statistical significant of our effects with the time passage. especially for bailed institutions associated with the state participation³.

Additionally, we had to exclude from our initial sample the observations with the missing financial data. Our final sample shrank from 114 bailed financial institutions from 27 developed and developing countries into 92 banks coming from 23 countries which have received any government support and 102 their non-bailed competitors. For the period of $t + 4$. where t is a year of a bank's bailout. we were also forced to exclude additional observations from Jamaica and Sweden due to missing concentration ratio and inflation rate. At the period of our interest $-t + 4$ our final sample includes 183 banking bailed and non-bailed institutions⁴.

10.5. EMPIRICAL MODEL

10.5.1. Methodology

In the empirical analysis, we explain banks' risk taking as a function of bank-specific and country-specific characteristics. The empirical specification is based on the theoretical literature on the effects of various government intervention measures on banks' risk taking that was presented in the previous section. Because a bailout affects the monitoring incentives, risk premiums, operating efficiency, and charter values (Cordella and Yeyati, 2003; Hackenes and Schnabel, 2010), the risk taking is expected to depend on the type, extent and effectiveness of the bailout strategy.

We control for other important determinants of banks' risk-taking that are suggested by the theoretical and empirical literature, such as size, the intensity of bank competition, efficiency, economic environment, and institutional structure. Hence, we model the risk taking of bank i in country j as a function of the bank's bailout measure, as well as some control variables, X_{ij} .

$$Risk_{ij} = \alpha_0 + \alpha_1 * X_{ij} + \varepsilon_{ij} \quad (1)$$

The construction of all the variables is explained in detail below.

³ The results are available upon request.

⁴ The number of observations may vary for different time periods due to data availability. We investigate in the robustness analysis whether the results remain the same, independently the period chosen.

10.5.2. Dependent variables

We use as dependent variables the following broad set of variables found in the literature to capture different aspects of risk-taking⁵: (i) *z-score measure at $t + 4$* . The z-score is defined as the ratio of the sum of a bank's average return on assets and capitalization (equity/total asset) to the standard deviation of the return on assets. The z-score indicates the number of standard deviations below which a bank's return on assets must drop its expected value before equity is depleted and the bank becomes insolvent. The z-score measure is estimated as a 4-year moving average. This type of measure has been widely used in the banking literature by Boyd and Runkle (1993), Boyd and DeNicolò (2005) and recently by Laeven and Levine (2009). The second risk measure that we use is (ii) *standard deviation measure at $t + 4$* , defined as the number of standard deviations of a bank's return on assets. A higher number indicates greater volatility of the ratio and thus a greater risk of insolvency. The standard deviation is estimated as a 4-year moving average: (iii) *the loan loss reserves to total loans at $t + 3$* ⁶, defined as the total value of reserves on risk loans over total loans, (iv) *the liquidity ratio at $t + 4$* , defined as liquid assets over short-term liabilities, and (v) *equity to total assets at $t + 4$* , defined as book capital over total assets.

The effect of banks' increased risk-taking behavior would hold if we found a negative correlation between the government bailout strategies and the z-score measure, the liquidity ratio and the equity ratio, and positive correlation with earnings' volatility and loan loss reserves (due to the inverse relationship between the variables).

10.5.3. Control variables

We use a standard set of bank-specific and country-specific control variables⁷.

Total assets (in logarithmic form) are used to measure a bank's market power, returns to scale, and diversification benefits. The inclusion of this variable is particularly important because it allows us to distinguish between the risk effects of diversification and those of an expected bailout.

Additionally, we use a *net loans-to-asset* ratio to control for the riskiness of a bank's loan portfolio. We expect a positive relationship between this variable and banks' risk measures as a greater ratio suggests better portfolio quality, which is consistent with other studies.

⁵ All variables are calculated from balance-sheet data from Bankscope.

⁶ We regress loan loss reserves on other explanatory variables at $t+3$ due to greater data availability, as compared with the $t + 4$ time framework.

⁷ See table 1 in the Appendix for a detailed description of the data sources.

Several studies claim that less efficient banks may be tempted to take on additional risk to increase their financial performance. Indeed, Kwan and Eisenbeis (1997) and Williams (2004) document that inefficiency positively affects banks' risk taking. Following these studies, we include a *cost to income ratio* to control for operating efficiency.

We also control at the country level for *concentration* of the banking sector, measured as the percentage of banking systems assets held by the three largest banks. We expect a positive relationship as the greater power of a few banks increases lending rates and hence reduces credit risk (Martinez-Miera and Rupullo, 2008). We also control for a country's macroeconomic environment by including the *gdp growth* and the *inflation rate (in logarithm)*. Additionally, we include a *dummy variable*= 1 and zero otherwise if a systemic banking crisis was accompanied by a currency crisis. Numerous studies claim that banks in developing countries are more exposed than in developed countries to moral hazard behavior due to less effective market discipline (Baumann and Nier, 2006; Laeven and Levin, 2009). We control for this factor by including the *dummy variable* = 1 if a country is a developing and zero otherwise.

The behavior of bailed institutions might be different under different institutional structures. The risk shifting should be more difficult if the regulations and information disclosure requirements are stricter. Therefore, in a later stage of our analysis, we also control for *rule of law* and *disclosure requirements* (see table A in the Appendix for details). The risk taking might also be strengthened by additional *explicit government guarantees*. Demirguc-Kunt and Detragiache (2002) find that deposit insurance increases the likelihood of banking crises, which suggests a risk-taking effect of deposit insurance. Therefore, we include *dummy*=1 for the existence of an explicit insurance deposit network (see table 1 in the Appendix for details). In the robustness check, we also include country fixed effects to ensure that our results are not driven by any other country's characteristics.

10.6. RESULTS

10.6.1. Bank-level estimations

Tables 2-6 present the bank-level regression results for the z-scores, the earnings' volatility, the loan loss reserves, the liquidity ratio and the equity ratio as risk measures, respectively.

Table 2: Government intervention and banks' risk taking using z-scores – Bank-level estimations

The dependent variable is the z-score = $(ROA + CAR)/(\sigma ROA)$, where ROA is return on assets, and CAR is the capital-asset ratio, both estimated four years after a specific policy intervention has been implemented. The $\sigma(ROA)$ is constructed as a four-year moving average. A higher z-score implies greater stability. The data present bank-level estimations is based on OLS regressions. The *p*-values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)

guarantee dummy (2)

liquidity dummy (3)

national. dummy (4)

merger dummy (5)

AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	-3.921*** (1.455)	-6.989*** (1.528)	-1.499 (1.705)	-4.745*** (1.687)	2.191 (1.603)	-3.393** (1.546)
loan quality	0.126*** (0.044)	0.124*** (0.042)	0.128*** (0.044)	0.109** (0.043)	0.127*** (0.044)	0.114** (0.045)
cost-to-income ratio	-0.019* (0.011)	-0.012 (0.012)	-0.028** (0.012)	-0.022* (0.013)	-0.028** (0.012)	-0.025** (0.013)
asset (log)	0.160 (0.484)	0.155 (0.484)	-0.233 (0.487)	-0.083 (0.486)	-0.506 (0.494)	-0.078 (0.491)
concentration ratio	0.074** (0.031)	0.096*** (0.033)	0.069** (0.032)	0.085*** (0.033)	0.064** (0.033)	0.078** (0.032)
gdp growth	-0.320 (0.211)	-0.507** (0.206)	-0.412** (0.202)	-0.432** (0.214)	-0.461 (0.201)	-0.423** (0.211)
inflation (log)	-1.395 (1.000)	-1.747* (0.994)	-1.312 (1.085)	-1.307 (1.011)	-1.394 (1.022)	-1.552 (1.012)
dummy for developing country=1	7.815*** (2.566)	6.672*** (2.455)	6.889*** (2.520)	7.036*** (2.466)	6.246** (2.455)	7.116*** (2.569)
dummy for currency crisis=1	1.488 (2.560)	2.589 (2.544)	2.041 (2.623)	1.919 (2.589)	2.386 (2.627)	1.990 (2.586)
constant	-1.502 (6.647)	-1.752 (6.686)	1.360 (6.664)	0.500 (6.702)	3.676 (6.586)	1.100 (6.759)
R2	0.117	0.144	0.096	0.117	0.098	0.108
Number of countries	23	23	23	23	23	23
Number of observations	183	183	183	183	183	183

Table 3: Government intervention and banks' risk taking using the volatility of ROA – Bank-level estimations

The dependent variable is the standard deviation of ROA constructed as a four-year moving average, starting from $t + 1$, where t is a year of government intervention. Higher volatility indicates higher risk in a banking sector. The data present bank-level estimations based on OLS regressions. The p-values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)

guarantee dummy (2)

liquidity dummy (3)

national. dummy (4)

merger dummy (5)

AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	3.541*** (1.168)	7.833*** (1.934)	1.578 (1.454)	7.644*** (2.019)	-1.906 (1.622)	3.111** (1.454)
loan quality	-0.100*** (0.030)	-0.098*** (0.028)	-0.102*** (0.032)	-0.074** (0.028)	-0.101*** (0.032)	-0.084*** (0.030)
cost-to-income ratio	-0.011 (0.010)	-0.021** (0.011)	-0.004 (0.009)	-0.013 (0.009)	-0.003 (0.009)	-0.006** (0.009)
asset (log)	-0.095 (0.277)	-0.190 (0.210)	0.242 (0.267)	-0.057 (0.200)	0.495 (0.375)	0.118 (0.259)
concentration ratio	-0.003 (0.024)	-0.029 (0.024)	0.001 (0.024)	-0.025 (0.024)	0.006 (0.026)	-0.007 (0.024)
gdp growth	-0.227 (0.172)	-0.044** (0.129)	-0.144 (0.163)	-0.118** (0.174)	-0.096 (0.145)	-0.134 (0.167)
inflation (log)	1.338*** (0.498)	1.677*** (0.563)	1.252** (0.521)	1.169** (0.509)	1.367** (0.552)	1.471*** (0.534)
dummy for developing country=1	-1.089 (1.231)	-0.016*** (1.241)	-0.278 (1.077)	-0.590*** (1.130)	0.295** (1.378)	-0.457 (1.071)
dummy for currency crisis=1	0.886 (1.275)	-0.181 (1.317)	0.398 (1.410)	0.654 (1.477)	0.067 (1.318)	0.440 (1.418)
constant	7.953 (4.964)	9.090** (4.600)	5.531 (4.783)	7.520* (4.477)	3.319 (5.560)	5.621 (4.708)
R2	0.305	0.145	0.147	0.295	0.145	0.108
Number of countries	23	23	23	23	23	23
Number of observations	182	182	182	182	182	182

Table 4: Government intervention and banks' risk taking using the loan loss reserve ratio – Bank-level estimations

The dependent variable is the loan loss reserve to total loans of a bank estimated three years after a specific policy intervention has been implemented. Higher loss reserves imply lower stability. The data present bank-level estimations based on OLS regressions. The p-values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)

guarantee dummy (2)

liquidity dummy (3)

national. dummy (4)

merger dummy (5)

AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	2.473* (1.254)	4.302** (1.639)	1.662 (1.462)	3.786** (1.709)	-0.212 (1.617)	2.426 (1.639)
loan quality	-0.166*** (0.039)	-0.164*** (0.041)	-0.167** (0.040)	-0.147*** (0.039)	-0.165*** (0.040)	-0.157*** (0.040)
cost-to-income ratio	0.008 (0.026)	0.003 (0.024)	0.012* (0.027)	0.010 (0.024)	0.014 (0.026)	0.012 (0.026)
asset (log)	-0.235 (0.441)	-0.294 (0.422)	-0.039 (0.462)	-0.144 (0.415)	0.058 (0.458)	-0.124 (0.463)
concentration ratio	0.052 (0.062)	0.024 (0.062)	0.055 (0.061)	0.043 (0.060)	0.059 (0.062)	0.048 (0.062)
gdp growth	-0.260 (0.354)	-0.137 (0.351)	-0.241 (0.357)	-0.191 (0.325)	-0.250 (0.361)	-0.239 (0.349)
inflation (log)	0.489 (0.856)	0.589 (0.913)	0.352 (0.825)	0.360 (0.816)	0.541 (0.877)	0.595 (0.865)
dummy for developing country=1	0.032 (3.115)	0.608 (3.088)	0.498 (3.080)	0.134 (3.118)	0.673 (3.056)	0.262 (3.159)
dummy for currency crisis=1	-2.961 (1.780)	-3.166 (1.867)	-3.149* (1.785)	-2.816 (1.749)	-3.234* (1.838)	-3.095 (1.797)
Constant	14.744 (6.710)	16.007 (6.621)	13.520* (7.270)	13.757* (6.715)	12.419* (7.002)	13.633 (6.981)
Number of obs.	214	214	214	214	214	214
Number of countries	24	24	24	24	24	24
R2	0.185	0.202	0.173	0.193	0.167	0.181

Table 5: Government intervention and banks' risk taking using the liquidity ratio – Bank-level estimations

The dependent variable is the liquidity ratio estimated as liquid assets to short-term liabilities four years after a specific policy intervention has been implemented. A higher liquidity ratio implies greater stability. The data present bank-level estimations based on OLS regressions. The *p*-values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)

guarantee dummy (2)

liquidity dummy (3)

national. dummy (4)

merger (5)

AMC (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	-5.921* (3.167)	-6.996** (3.360)	-6.096* (3.365)	-5.235 (4.291)	-1.409 (4.524)	-6.712* (3.685)
loan quality	-0.689*** (0.129)	-0.699*** (0.133)	-0.680*** (0.133)	-0.715*** (0.141)	-0.692*** (0.129)	-0.725*** (0.126)
cost-to-income ratio	-0.001 (0.034)	-0.001 (0.031)	-0.009 (0.034)	-0.009 (0.032)	-0.014 (0.033)	-0.008** (0.033)
asset (log)	-3.381*** (1.140)	-3.698*** (1.014)	-3.752*** (1.061)	-3.897*** (0.974)	-4.108*** (1.145)	-3.642*** (1.046)
concentration ratio	0.083 (0.071)	0.104 (0.077)	0.084 (0.070)	0.099 (0.073)	0.073 (0.071)	0.099 (0.072)
gdp growth	-0.136 (0.565)	-0.406 (0.629)	-0.221 (0.604)	-0.327 (0.615)	-0.291 (0.579)	-0.298** (0.599)
inflation (log)	-1.395** (1.000)	-5.114*** (1.868)	-4.083** (1.960)	-4.723** (1.858)	-4.953*** (1.859)	-4.956*** (1.875)
dummy for developing country=1	14.225*** (4.290)	12.148*** (4.251)	13.466*** (4.187)	13.028*** (4.256)	13.291** (4.505)	13.247*** (4.125)
dummy for currency crisis=1	1.271 (3.994)	2.731 (4.034)	1.611 (4.010)	2.007 (4.027)	2.201 (3.971)	1.812 (3.982)
constant	90.917*** (17.282)	94.009*** (16.230)	92.167*** (16.863)	95.404*** (15.961)	96.636*** (17.487)	94.937*** (16.384)
R2	0.507	0.507	0.507	0.503	0.498	0.509
Number of countries	23	23	23	23	23	23
Number of observations	158	158	158	158	158	158

Table 6: Government intervention and banks' risk taking using the capital ratio – Bank-level estimations

The dependent variable is the equity to total assets estimated four years after a specific policy intervention has been implemented. A higher capital ratio implies greater stability. The data present bank-level estimations based on OLS regressions. The p -values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)
 guarantee dummy (2)
 liquidity dummy (3)
 national. dummy (4)
 merger dummy (5)
 AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	-0.892 (1.312)	-2.220** (0.879)	-0.386 (1.083)	-0.433 (1.138)	1.330 (1.743)	-0.456 (0.996)
loan quality	-0.020 (0.044)	-0.020 (0.044)	-0.019 (0.044)	-0.021 (0.045)	-0.019 (0.043)	-0.021 (0.044)
cost-to-income ratio	-0.018 (0.014)	-0.015 (0.013)	-0.020 (0.013)	-0.019 (0.013)	-0.020 (0.013)	-0.020 (0.013)
asset size (log)	-1.181** (0.566)	-1.139** (0.503)	-1.267** (0.508)	-1.270** (0.500)	-1.400** (0.573)	-1.258** (0.508)
concentration ratio	-0.005 (0.033)	0.002 (0.032)	-0.007 (0.032)	-0.006 (0.032)	-0.009 (0.032)	-0.006 (0.032)
gdp growth	-0.251 0.174	-0.301 (0.189)	-0.272 (0.184)	-0.276 (0.186)	-0.298 (0.181)	-0.275 (0.186)
inflation (log)	0.199 0.787	0.097 (0.792)	0.224 (0.830)	0.195 (0.801)	0.235 (0.803)	0.170 (0.789)
dummy for developing country=1	1.915 (1.717)	1.647 (1.523)	1.709 (1.523)	1.704 (1.513)	1.358 (1.783)	1.726 (1.518)
dummy for currency crisis=1	0.698 (2.255)	0.986 (2.317)	0.819 (2.311)	0.830 (2.308)	1.984 (2.231)	0.829 (2.310)
constant	21.315*** (7.641)	20.880*** (6.897)	21.934*** (6.909)	22.035*** (6.791)	22.963*** (7.389)	22.031*** (6.810)
R2	0.187	0.193	0.184	0.184	0.187	0.184
Number of countries	23	23	23	23	23	23
Number of observations	183	183	183	183	183	183

The estimation results are consistent with the cross-country estimations and our summary statistics. They unambiguously document that government interventions in the banking sector have a negative influence on its stability in the long-run. The economic significance of this effect is also large because it suggests that the bailout increases the insolvency of a bailed institution by four times (see table 2). The effect is even larger once we use the liquidity ratio as a risk measure (see table 5). Interestingly, the mean of the z-score measure amounts to 12.8 for non-intervened banks. The result is consistent with the study of Bonaccorsi di Patti and Kashyap (2009), who document that only one third of banks tend to recover their performance relative to their initial financial level. Thus, the

unrecovered banks tend to increase their risk-taking activities to improve their performance. Certainly, the reduced market discipline associated with the explicit or implicit government protection contributes to this effect.

Specifically, the estimation results show that blanket guarantees and capital injections are associated with greater risk-taking of bailed institutions subsequently. This result is confirmed by the regression results using the z-score, volatility of earnings, problem loan ratio and the liquidity ratio as the dependent variables. With respect to the equity ratio, we find a negative effect only for public guarantees (see table 6). This evidence seems to be consistent with the recent studies that show that capital injections are successful in banks' capital ratio improvements (Berger *et al.*, 2010; Duchin and Sosyura, 2011). According to Diamond and Rajan (2000, 2001), safer capital ratios discourage bailed banks from increased risk taking. However, we find a negative effect of capital injections on other risk measures. This result seems to be in line with a study by Duchin and Sosyura (2011), who document that bailed banks tend to shift their risk within the same asset class, increasing significantly their credit risk yet without influencing banks' closely monitored capital levels. This finding is clear evidence of the banks' arbitrage involvement.

The negative effects of blanket guarantees and capital injections are also economically significant. As in our previous estimations, the coefficient of the public guarantee dummy exhibits the largest effect. The effect suggests that blanket guarantees increase a protected bank's probability of bankruptcy by seven times according to tables 2 and by eight times when the earnings' volatility is used as a risk measure (see table 3). These effects are substantial given a mean z-score of 12 for the non-intervened banks. The result is consistent with the existing literature that documents the negative effect of blanket guarantees on banks' risk taking behavior, which indicates the role of diminished market discipline (Flannery, 1998; Sironi, 2003; Gropp *et al.*, 2006).

Among the capital injection measures, the coefficients of nationalization and the AMC dummies exhibit statistical and economic significance. According to table 2, the effects suggest that nationalizations and AMCs increase the probability of banks' insolvency by five and three times, respectively, as a result of excessive risk taking. Some effects are even larger when we use different risk measures (see tables 3 and 5). This result is consistent with our prediction and with most existing studies, which support the evidence that political involvement in the banking sector increases banking sector fragility (Caprio and Martinez, 2000). This effect might be additionally strengthened by diminished market discipline. The creditors might perceive nationalized banks as protected by the government and therefore will have lower incentives to monitor their behavior. The result is

similar to the risk taking effect of public banks documented in existing studies (Berger *et al.*, 2010; Gropp *et al.*, 2011).

We also notice a lower statistical significance of nationalization and AMCs when the liquidity ratio is used as a risk measure (see table 5). The reason might be that this variable measures a liquidity risk rather than a true credit risk. Because liquidity injections also affect banks' liquidity positions, this variable might underestimate the probability of banks' insolvency⁸. We also cannot observe a significant effect of the AMCs on the loan loss reserves ratio (see table 4). This finding seems to support the management practice of transferring the doubtful loans to the formed AMCs.

Interestingly, our results suggest that government-assisted mergers and central banks' assistance do not exert any negative effects on banks' behavior. This result holds for all risk measures. The dummies proxying for these types of government interventions appear in the regressions as statistically insignificant. The former result is consistent with our predictions. Barth *et al.* (2004) document that the most effective way to restrict banks' risk-taking behavior is effective market discipline. Therefore, we assume that lack of any government protection (a newly created institution operates on a stand-alone basis) and lack of any political influence increase market monitoring and disciplining of banks' behavior. The insignificant coefficient of the liquidity provision on banks' risk-taking behavior probably is a result of unpredictability of central banks' actions, exerting a disciplinary effect on banks' behavior.

The remaining coefficients are largely as expected. The coefficient of banks' credit activity has a positive influence on our measures of risk, which means that institutions that have a higher proportion of healthy loans in their portfolio have a lower probability of bankruptcy. Furthermore, banks that are less efficient tend to engage in more risky activities. This result is consistent with the existing literature (Eisenbeis and Kwan, 1997; Williams, 2004). Concentration is positively correlated with our measures of risk. This result means that higher concentration has a positive effect on the long-run stability of the banking sectors and is consistent with Beck *et al.* (2006), who show that greater concentration is associated with lower frequency of financial crises. The negative coefficient of gdp growth is likely a result of "income smoothing". The banks are more willing to adopt additional risk during an economic expansion to increase their profitability and more willing to decrease their risk during economic contraction. Finally, the coefficient of the dummy controlling for the developing region is statistically significant and negatively correlated with increased risk taking. The result shows that banks in developing countries calculate their risk more carefully than in the developed economies.

⁸ BIS (2011) also indicates the disadvantages of this variable as a liquidity risk measure.

10.6.2. Do country characteristics change the results?

We perform several regressions to check the robustness of our results. First, we include in our regressions the variables controlling for legal environment. The existing studies claim that banks' risk taking is also influenced by country-specific institutional factors, including market discipline (Barth *et al.*, 2004; Beck, De Jonghe, and Schepens, 2011). For this reason, we add the country fixed effect to ensure that banks' behavior is not determined by any unobserved cross-country differences. Table 7 presents the results after including the fixed effect.

Table 7: Government intervention and banks' risk taking after controlling for the fixed effect – Bank-level estimations

The dependent variable is the z-score = $(ROA + CAR)/(\sigma ROA)$, where ROA is return on assets, and CAR is the capital-asset ratio, both estimated four years after a specific policy intervention has been implemented. The σROA is constructed as a four-year moving average. A higher z-score implies greater stability. Additionally, we include the fixed effect to control for a country's unobserved and uncontrolled characteristics. The data present bank-level estimations based on OLS regressions. The *p*-values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)
 guarantee dummy (2)
 liquidity dummy (3)
 national. dummy (4)
 merger dummy (5)
 AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	-3.027** (1.501)	-9.067*** (2.047)	-1.778 (1.662)	-3.952** (1.896)	2.276 (1.608)	-2.749* (1.573)
loan quality	0.089* (0.052)	0.083* (0.048)	0.096* (0.052)	0.085* (0.051)	0.101** (0.052)	0.087* (0.052)
cost-to-income ratio	-0.012 (0.011)	0.002 (0.012)	-0.016 (0.011)	-0.013 (0.011)	-0.018* (0.011)	-0.014 (0.011)
asset (log)	0.456 (0.553)	0.456 (0.513)	0.153 (0.528)	0.275 (0.545)	-0.166 (0.552)	0.283 (0.560)
dummy for currency crisis=1	0.168 (3.976)	11.156 (9.842)	7.240 (10.116)	8.377 (10.054)	-5.596 (7.201)	-3.376 (7.984)
Constant	8.290 (6.335)	8.959 (9.149)	11.970 (9.225)	11.256 (9.268)	13.035 (8.708)	11.259 (9.282)
R2	0.296	0.334	0.285	0.293	0.286	0.289
Number of countries	24	24	24	24	24	24
Number of observations	189	189	189	189	189	189

The estimation results show that all effects of interest remain the same after controlling for individual countries' characteristics. These findings support our main results suggesting that public guarantees and capital injections significantly con-

tribute to banking sector instability in the long run. We conclude that banks' risk-taking behavior is partially a result of government bailouts.

10.6.3. Does the structure of a government bailout program matter?

Thus far, we have examined how various bailout measures can affect the behavior of banks. Because we were interested in identifying the policy measures influencing the behavior of the banking sector, we treated all policy measures independently in the regressions. However, given these results, we are also interested in how various intervention measures interact with each other, i.e., whether the structure of a government bailout program matters for banking sector stability. Theoretically, we could expect that simultaneous implementation of specific policy measures might additionally increase banking sector risk. For example, nationalization might exert much higher risk in countries in which the banks are additionally protected by government guarantees. To examine the combined effect of the government bailout programs, we interact various policy variables and include them in the regressions. Specifically, we interact 1) guarantee with nationalization and with the AMC dummy, 2) the liquidity provision with nationalization and with the AMC dummy, 3) guarantee with government-assisted merger, 4) guarantee with liquidity, nationalization, and with the AMC dummy, and 5) guarantee with liquidity and merger. Because we are interested in the independent effect of the individual government bailout programs, we do not include the individual policy dummies as independent variables in our regressions. This procedure allows us to evaluate the overall effect of various structures of government bailout programs on banks' behavior. Table 8 presents the results.

Our results suggest that government bailout programs that include public guarantees exert a large negative impact on banking sector stability several years after implementation. This result is interesting from the regulators' perspective because it suggests that a blanket guarantee significantly contributes to subsequent financial fragility in the banking sector. Notably, combining public guarantees with nationalizations and AMCs results in the most significant risk increase in the banking sector (see specification 1 in table 8). This evidence suggests that the bailout programs including the combination of these intervention measures results in the most significant risk increase in the banking sector in the later periods. Accordingly, replacing the blanket guarantees by liquidity provisions seem to be more effective way of restoring the banking sector stability. The combination of liquidity provision with any other intervention measure does not imply any risk-increase in a banking sector (see specifications 2 and 5 in table 8).

Table 8: Government intervention and banks' risk taking using z-score measures – Bank-level estimations

The dependent variable is the z-score = $(ROA + CAR)/(\sigma ROA)$, where ROA is return on assets, and CAR is the capital-asset ratio, both estimated four years after a specific policy intervention has been implemented. The σROA is constructed as a four-year moving average. A higher z-score implies greater stability. The data present bank-level estimations based on OLS regressions. The p -values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

guarantee dummy*national. dummy*AMCs dummy (1)

liquidity dummy *national. dummy *AMCs dummy (2)

guarantee dummy*merger dummy (3)

guarantee dummy *liquidity dummy*national. dummy*AMCs dummy (4)

guarantee dummy*liquidity dummy*merger dummy (5)

	(1)	(2)	(3)	(4)	(5)
interaction term	-7.781*** (1.537)	-2.825 (3.118)	-2.084 (3.139)	-5.638*** (1.913)	2.371 (3.915)
loan quality	0.112*** (0.033)	0.121*** (0.035)	0.125*** (0.035)	0.120*** (0.032)	0.126*** (0.034)
cost-to-income ratio	-0.015 (0.015)	-0.029** (0.013)	-0.028** (0.013)	-0.024 (0.016)	-0.028** (0.013)
asset (log)	-0.106 (0.459)	-0.294 (0.480)	-0.237 (0.492)	-0.256 (0.453)	-0.387 (0.469)
concentration ratio	0.080 (0.048)	0.067 (0.039)	0.069 (0.040)	0.071 (0.043)	0.064 (0.040)
gdp growth	-0.430** (0.197)	-0.423** (0.192)	-0.451** (0.197)	-0.423** (0.194)	-0.415** (0.188)
inflation (log)	-1.489 (1.172)	-1.425 (1.246)	1.599 (1.243)	-1.288 (1.255)	-1.559 (1.244)
dummy for developing country=1	6.996** (2.496)	6.799** (2.581)	6.992** (2.494)	6.206** (2.808)	6.652** (2.550)
dummy for currency crisis=1	2.090 (2.659)	2.044 (2.777)	2.221 (2.694)	2.099 (2.772)	2.149 (2.738)
constant	0.263 (6.617)	2.410 (5.960)	1.892 (6.094)	2.058 (6.317)	3.093 (5.716)
R2	0.126	0.094	0.095	0.102	0.094
Number of countries	23	23	23	23	23
Number of observations	183	183	183	183	183

10.6.4. Endogeneity

The potential causality issues may cause the endogeneity problems which may question our results. In our study the endogeneity may stem from the fact that in general intervened banks might have greater level of risk than their non-intervened counterparts in the economy. This would imply that the increased risk taking of the intervened banks in the post-crisis period is not necessarily an effect of government intervention, but the weaker positions of these banks inherited from the pre-crisis period. To ensure that our results capture pure government interven-

tion effect, which then leads to the increased risk in the banking sector we perform additional analysis. One of the possibilities to tackle this problem is to run the regression on the panel data where we interact the intervention measure dummies with the time dummies, indicating a number of years after which a bank received government support. If the increased risk taking of intervened banks occur in the later periods, as compared to the early ones, this would indicate that the difference between two groups of banks is getting greater after the government intervention. This would suggest that the effect is a result of public intervention, and not characteristics of the intervened group. Table 9 (p. 277) presents our estimation results.

Again, our results are in line with our standard estimations. We observe a greater risk-taking of intervened banks, as compared to their non-intervened peers. In the initial years, we do not observe any significant differences between the intervened and non-intervened banks, which suggest similar financial position of both groups. The results clearly support that blanket guarantees and government ownership in a bank increase risk in the banking sector, and this is an effect of the government actions rather than initial characteristics of these institutions. Also, similar to our previous estimations, the results suggest that liquidity provisions and government-assisted mergers do not encourage the intervened banks to risk taking, probably due to positive effect of government support on charter value and greater market discipline.

10.7. WHICH GOVERNMENT INTERVENTION MEASURES RESTORE THE CREDIT SUPPLY IN A COUNTRY?

Our results clearly indicate that government actions have profound effects on the level of banks' risk taking. Although these results are interesting, they leave open a very important question, which is whether the risk taking is good or bad. Although it is well beyond the scope of this paper to address the question of the optimal level of banks' risk taking across different countries, we hope to offer insight on the consequences of higher risk taking. With this point in mind, we next consider whether government interventions can restore a country's credit supply, which in turn should spur economic recovery. The IMF Financial Stability Report (2009) highlights the importance of government interventions in restoring credit conditions and thus the economic growth of a country. Therefore, the role of specific intervention measures in stimulating the credit supply in a given country seems to be a central question to be answered.

To test the effects of specific government intervention measures on restoring the credit market in a given country, we estimate the following model:

Table 9: Government intervention and banks' risk taking using z-score measures – Panel data estimations

The dependent variable is the z-score = $(ROA + CAR)/(\sigma ROA)$, where ROA is return on assets, and CAR is the capital-asset ratio. The σROA is constructed as a one-, two-, three-, and four-year moving average. A higher z-score implies greater stability. The regressions include the interaction variables consisting of policy dummy and a time dummy indicating the number of years after a specific policy intervention has occurred. The data present bank-level estimations based on OLS regressions. The p -values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

guarantee dummy (1)
liquidity dummy (2)
national. dummy (3)
merger dummy (4)
AMC dummy (5)

	(1)	(2)	(3)	(4)	(5)
resolution policy*t1	-5.311* (3.074)	-3.055 (2.756)	-4.605 (2.779)	5.166* (2.591)	-1.287 (2.192)
resolution policy*t2	-8.447*** (2.618)	-4.755* (2.601)	-1.895 (2.837)	1.442 (2.267)	-3.883 (2.925)
resolution policy*t3	-8.584*** (2.159)	-3.191 (2.097)	-4.499** (1.978)	1.750 (2.366)	-5.008*** (1.703)
resolution policy*t4	-6.963*** (2.348)	-2.595 (1.941)	-4.494** (2.157)	1.462 (2.037)	-3.895** (1.876)
loan quality	0.143*** (0.034)	0.137*** (1.941)	0.120*** (0.033)	0.133*** (0.035)	0.124*** (0.035)
cost-to-income ratio	-0.036** (0.017)	-0.050** (0.016)	-0.047** (0.017)	-0.050** (0.016)	-0.048** (0.018)
asset (log)	-0.162 (0.391)	-0.466 (0.366)	-0.453 (0.377)	-0.817** (0.382)	-0.398 (0.375)
concentration ratio	0.102* (0.054)	0.057 (0.047)	0.056 (0.047)	0.050 (0.048)	0.065 (0.049)
gdp growth	-0.020 (0.106)	0.004 (0.084)	0.015 (0.094)	0.042 (0.094)	0.034 (0.094)
inflation (log)	-0.153 (0.939)	0.180 (0.981)	-0.048 (0.944)	-0.102 (0.973)	-0.014 (0.937)
dummy for developing country=1	4.942 (3.068)	4.996 (3.304)	5.163 (3.119)	4.559 (3.071)	5.399* (3.144)
dummy for currency crisis=1	-2.168 (2.721)	-2.190 (2.674)	-2.335 (2.744)	-1.868 (2.841)	-2.330 (2.767)
constant	1.524 (6.063)	6.036 (5.421)	6.733 (5.380)	8.561 (5.337)	5.604 (5.374)
R2	0.129	0.103	0.102	0.097	0.104
Number of countries	24	24	24	24	24
Number of observations	755	755	755	755	755

$$Credit\ Growth_{ik} = \alpha_0 + \alpha_1 + \alpha_3 * bank\ controls_{ik} + \alpha_4 * country\ controls_{tk} + \varepsilon_{ij}$$

where $Credit\ Growth_{ik}$ is the growth rate in the credit supply between $t + 1$ and $t + 4$, where t was a year of receiving government support by a bank; α_1 is an

intervention dummy, such as a blanket guarantee, a liquidity provision, nationalization, a government-assisted merger, or an AMC restructuring; the bank controls include ROA, the loan loss reserves to total assets, asset size, and the ratio of loans to bank total assets to control for a bank's activity. All bank controls are lagged by three years. Among the country variables, we include the concentration ratio and the inflation rate (in logarithmic form). The main concern with the analysis examining the country's credit growth is that such analysis captures the supply effect without controlling for the demand. Since the demand data are often not available, the standard approach in the banking literature to solve this problem is to include the gdp growth rate which partially proxies for the magnitude of the demand for a credit in a country. We average the country variables over the four-year period, where the starting year is $t + 1$. As in our previous estimations, we also include the currency crisis dummy = 1 if the systemic banking crisis was followed by a currency crisis and 0 otherwise and the country dummy = 1 if a country belongs to a developing country and 0 otherwise. All regressions include the country dummies. The regression results are summarized in Table 10.

Examining table 10 (p. 279), we find that overall, government interventions are negatively correlated with the credit supply, controlling also for other factors. The magnitude of this effect is also economically strong and indicates that the credit supply is by two fifth lower than that of non-intervened peers. The result is surprising and questions the role of government assistance in the banking sector. This finding supports our previous estimations and clearly indicates that government interventions are not effective methods of restoring banking sector stability in the long run. The evidence documents that government interventions rather destabilize banking markets without an offsetting increase in credit supply. This result seems to confirm some existing findings. Berger *et al.* (2010) document that regulatory interventions are associated with less liquidity creation in the economy due to the banks' threat of making the capital structure more vulnerable. Bonaccorsi di Patti and Kashyap (2009) document that despite government financial assistance, only one third of banks recover after a banking crisis. The authors document that this condition negatively influences the credit supply in a country. Finally, Giannetti and Simonov (2011) support the evidence that when government interventions are ineffective, they exert a negative effect on banks' behavior.

Specifically, the results suggest that nationalization and AMC restructurings exert the greatest effect on decreasing the credit supply. Nationalized banks tend to provide only half of the credits supplied by the non-intervened peers. The economic effect of AMCs is lower and only significant at the ten percent level, yet it is also economically strong. These findings seem to support our previous results. Government shareholding negatively influences the restructuring of distressed banking institutions mainly because the nationalized institutions become a tool to fulfill the interests of the controlling parties. Alternatively, the politicians may

Table 10: Government intervention and credit supply – Bank-level estimations

The dependent variable is the growth rate in the credit supply between $t + 1$ and $t + 4$, where t was a year of receiving government support by a bank. The banks' variables are lagged by three years, whereas the country's variables are averages over a four-year period. The estimation is based on OLS regressions. All regressions include the country dummies not reported. The p -values are computed by the heteroskedasticity-robust standard errors clusters for countries and are presented in brackets. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

intervention dummy (1)

guarantee dummy (2)

liquidity dummy (3)

national. dummy (4)

merger dummy (5)

AMC dummy (6)

	(1)	(2)	(3)	(4)	(5)	(6)
resolution policy	-0.435** (0.183)	-0.334 (0.250)	-0.388* (0.213)	-0.531** (0.215)	0.003 (0.221)	-0.342* (0.201)
loan quality	-0.019** (0.008)	-0.019** (0.009)	-0.019** (0.009)	-0.020** (0.008)	-0.020** (0.008)	-0.021** (0.009)
ROA	-0.003 (0.012)	-0.003 (0.12)	0.004 (0.011)	-0.006 (0.014)	0.003 (0.011)	-0.001 (0.012)
loss loan reserves	-0.004 (0.003)	-0.004 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.005 (0.003)	-0.004 (0.003)
asset (log)	-0.065 (0.085)	-0.093 (0.080)	-0.088 (0.089)	-0.090 (0.087)	-0.113 (0.081)	-0.081 (0.082)
concentration ratio	0.008 (0.007)	0.009 (0.008)	0.008 (0.007)	0.008 (0.008)	0.007 (0.008)	0.008 (0.008)
inflation (log)	-0.007 (0.187)	-0.050 (0.197)	0.006 (0.192)	-0.035 (0.193)	-0.047 (0.196)	-0.048 (0.193)
dummy for developing country=1	-0.447 (0.438)	-0.552 (0.429)	-0.487 (0.442)	-0.445 (0.464)	-0.511 (0.460)	-0.469 (0.461)
dummy for currency crisis=1	-0.191 (0.341)	0.251 (0.350)	0.228 (0.347)	0.240 (0.464)	0.270 (0.342)	0.223 (0.461)
gdp growth	0.189** (0.066)	0.184** (0.069)	0.191** (0.065)	0.188** (0.067)	0.186** (0.069)	0.187** (0.069)
constant	1.624 (1.267)	1.809 (1.282)	1.688 (1.384)	1.745 (1.345)	1.998 (1.269)	1.764 (1.297)
R2	0.339	0.328	0.332	0.340	0.321	0.332
Number of countries	21	21	21	21	21	21
Number of observations	146	146	146	146	146	146

follow the policy of forbearance and attempt to postpone the restructuring process of distressed institutions (Kane and Klingebiel, 1989). With regard to AMCs, the negative effect of this policy measure seems to result also from political influence (Klingebiel, 2000). The experience of many countries, perhaps excluding Sweden, documents that governments use AMCs as a political vehicle to realize their own goals. Notably, the Asian crisis experience documents that excessive prices for nonperforming loans paid by the government reduce the banks' incentives for recovery efforts and deteriorates credit discipline (Lindgren *et al.*, 1999).

Examining the coefficients of other policy dummies, we find that they appear in the regression as statistically non-significant. Nevertheless, these results should be interpreted as a positive impact of government interventions on banking sectors. The findings suggest that the credit supplies of intervened banks and their non-intervened counterparts occur on the same path, which indicates recovery of credit discipline in initially distressed institutions. Examining other explanatory variables, we find that credit growth is lower in banks that have exhibited higher loan activity. The result may suggest that banks choose their borrowers more carefully. This explanation is consistent with the findings of Bonaccorsi di Patti (2009). We also note that credit growth is positively correlated with greater economic growth, which is consistent with the existing literature.

10.8. CONCLUSIONS

This article analyzes the impact of various government intervention measures on the long-run stability of the banking sectors. To this end, we have constructed a novel bank-level database of all institutions bailed out during 23 financial crises that occurred in 23 countries. This database allows us to investigate the behavior of bailed banks several years after specific policy measures were undertaken. We then compare the behavior of these institutions to their non-bailed competitors in the same country. Importantly, our database allows us to distinguish the differences in bailout strategies among the banks and to assess their independent impacts on the banks' behavior. We test whether and which government intervention measures among those widely used can help the distressed banking sectors to recover without an associated moral hazard effect.

The regression results are striking: Government interventions significantly increase risk in the banking sectors several years after the interventions, and the estimated increase in risk is substantial. Our results document that this risk stems from the intervened institutions. This result is consistent with many existing studies. More importantly, our evidence also suggests that government interventions are ineffective in restoring credit discipline in the post-crisis period. In turn, our evidence documents that these interventions exert a negative effect on credit supply in a country. In particular, nationalizations and AMCs contribute to this effect. This result indicates the weakness of these government measures as restructuring methods for banks. Our evidence suggests that corporate control and market forces are much more effective in restoring long-run banking sector stability. Our evidence is strongly robust.

Our results have important policy implications. First, the findings show that pure government interventions are ineffective in restoring long-run banking stability. A more active role of governmental authorities in restructuring distressed banks

is needed for the efficient and healthy functioning of the banking sectors. This evidence contributes to the initiatives undertaken to adopt legal procedures for an orderly resolution of systemic banking crises and distressed banking institutions (see “Technical Details of a Possible EU Framework for Bank Recovery and Resolution”, 2011; “A Special Resolution Regime on UK Banking Act”, 2009; “Resolution Policies Acts on Restoring the Distressed Institutions” in Ireland, Germany and Denmark). Second, the evidence contributes to the current debate on the expected possible effects of government interventions on the future functioning of the banking sectors and on the shape of banking regulations (see the Interim Report of the UK Independent Commission on Banking, 2010). Finally, our results contribute to the debate on the role of the state in banking sector restructuring (OECD, 2009; IMF, 2010). The results clearly indicate that the government’s role should be limited to restructuring a distressed institution. After this process, the role of government in the banking sector should be reduced. Corporate control most efficiently disciplines the banks’ long-term behavior, restoring the banking sector’s long-term stability.

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APPENDIX

Table A

Variable	Description	Source
Z-score	ROA+(Equity to total asset)/standard deviation of ROA, sd(ROA) estimated as a moving average	Bankscope
Standard deviation	Standard deviation of ROA, estimated as a moving average (%)	Bankscope
ROA	Net income/Average Asset	Bankscope
Loan loss reserves	Total value of reserves on risk loans over total loans (%)	Bankscope
Liquidity ratio	Liquid assets/short-term liabilities in (%)	Bankscope
Equity ratio	Book capital/total asset (%)	Bankscope
Total asset (log)	Total assets (in mln USD) in logarithmic form	Bankscope
Net interest margin	Net interest revenue over volume of interest-bearing assets (%)	Bankscope
Loan quality	Net loans to total assets (%)	Bankscope
Cost to income	Total cost as share of total income (%)	Bankscope
Credit supply growth	The growth of domestic credit over 4 years	Bankscope
Currency crisis	Dummy indicating the currency crisis	Laeven, L. and Valencia, F. (2008)
Developing country	Dummy indicating if a country is a developing country	World Bank
Dummy variables for support	Dummy variables are equal to 1 if a bank has received any government support	National Central Banks
Concentration ratio	Assets of three largest banks as a share of the assets of all commercial banks	World Bank Financial Structure Indicators
Rule of law	Ordinal variable measuring the strength of the law in a country	Kaufmann et al. (2008), World Bank, Database on Governance Indicators
Information disclosure index	Ordinal variable measuring the degree of information disclosure requirements for banks	World Bank, Survey on Regulation and Supervision
Deposit insurance scheme	Dummy equals 1 if a country has an explicit deposit insurance scheme	Demirgüç-Kunt et al. (2002)
GDP growth	Annual percentage growth rate of GDP at market prices based on constant local currency (annual) (%)	World Bank Development Indicators
GDP (logarithm)	The logarithm of real GDP	World Bank Development Indicators
GNI Capita	Annual GNI per capita	World Bank Development Indicators

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