



# Surveillance and Control of Fiscal Consolidation on a Supranational Level

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# ***Surveillance and Control of Fiscal Consolidation on a Supranational Level***

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## **Surveillance and Control of Fiscal Consolidation on a Supranational Level**

**Bas van Aarle (UHASSELT)**

### **Contribution to the Project**

Budgetary stability is a crucial factor in safeguarding economic growth and macroeconomic stability. This workpackage contributes to the total project by considering in more details the recent measures and proposals to strengthen budgetary governance in the EU. The analysis is placed in the context of the recent global financial crisis and economic slowdown that induces substantial budgetary stress.

**Keywords:** Academic research, challenges for welfare system, competitiveness, economic strategy, EU integration, European economic policy, European governance, European Monetary Union, Institutional reforms, acroeconomic disequilibria, multi-level governance

**Jel codes:** C70, D70, E30, E60, H60, H70, H80

## **Contents**

<b>Executive Summary</b>	<b>1</b>
<b>1. Introduction</b>	<b>2</b>
<b>2. The Existing Budgetary Governance Framework in the EU.</b>	<b>4</b>
<b>3. An Economic Perspective on Budgetary Governance: Fiscal Federalism and the EU.</b>	<b>7</b>
<b>4. A Public Policy and Political Perspective on Budgetary Governance: Multi-Level Governance and Open-Coordination and the EU.</b>	<b>14</b>
<b>5. A Systems Design and Control Perspective on Budgetary Governance: Dynamic Hierarchical Control and the EU.</b>	<b>20</b>
<b>6. A Macro-Finance Perspective on Budgetary Governance: Budgetary Stress Testing, Budgetary Spillovers, Budgetary Resilience and Budgetary Early Warning Systems in the EU.</b>	<b>24</b>
<b>Conclusion</b>	<b>30</b>
<b>References</b>	<b>32</b>
<b>Project Information</b>	<b>36</b>
<b>Partners</b>	<b>37</b>

## **Executive Summary**

Strengthening budgetary surveillance and coordination of budgetary policy measures in the EU is of vital importance for economic stability and growth. The decentralised decision making structure in most areas of budgetary policies, requires the need to balance national and common objectives; clearly also given the context of highly integrated goods-, labour-, and financial markets that lead to significant interdependencies and spillovers, as e.g. the recent financial crisis and economic slowdown demonstrate. We analyse the progress that is underway in the current budgetary governance framework in the EU -including the recent new instruments in the form of the Macroeconomic Imbalance procedure, the European Semester, Stability Bonds, the European Financial Stability Facility, Euro+ Pact and Europe 2020. This paper surveys supranational governance in the EU, and the coordination of national policies, including concepts of fiscal federalism, multi-level governance and open coordination methods, control and systems methods and macro-finance. We relate this exercise to the current context of budgetary stress in the aftermath of the global financial crisis and economic slowdown which has strongly impacted on the economies and public finances of the Member States. We consider financial market conditions that have exerted a particular strong influence in the European debt crisis and evaluate specifically the merits and risks relating to proposals for the introduction of Eurobonds. We conclude by formulating the policy recommendations on streamlining EU economic and budgetary governance that could be drawn from our analysis.

## 1. Introduction

The *global financial crisis* has made a strong negative impact on the European economy<sup>1</sup> the last four years: a substantial and persistent recession has occurred, unemployment has reached record levels and fiscal balances have deteriorated significantly as a result of the recession, fiscal interventions to prevent a systemic break-down in the financial sector and other fiscal stimulus measures. Interventions by national governments, European Union (EU) and the ECB in the European financial sector were necessary as a systemic banking crisis in one country could become also fairly easy a threat to other countries, because of the highly integrated financial markets inducing spillovers and contagion effects. Public finances in many EU member states substantially deteriorated due to the combination of saving the banking sector and fighting the recession. As a result the European Union is currently confronted with a *debt crisis*, especially in the peripheral countries of the euro area.

Most EU countries face a combination of weak economic performance and a pressing need for *fiscal consolidation* given the sharp deterioration of government budget balances and a parallel increase in debt to GDP ratios. In some Member States, the situation of the public finances became so critical as to put their fiscal sustainability at risk. The spreads on sovereign interest rates increased and large financial assistance packages from the European Union and the IMF were necessary for Greece, Ireland, Portugal, Spain and Cyprus. In parallel, a permanent mechanism, the European Stability Mechanism (ESM)<sup>2</sup> was agreed upon to provide assistance to euro area Member States in the future. Weak economic conditions complicate fiscal adjustments: automatic stabilizers will lead to a drop in revenues and an increase in spending. Fiscal consolidations and structural reforms –while beneficial in the long run- may in the short run put downward pressure on an already stressed economy and thus lack political and social support.

Europe's financial, budgetary and economic crisis has pointed at various shortcomings of the current *economic and budgetary governance framework* in place<sup>3</sup>. Under *systemic stress* these shortcomings manifested themselves more clearly than before. Responses to the crisis by policymakers at the national and supranational levels have been perceived as inadequate, uncoordinated and inconsistent by and large. A fundamental question remains whether the budgetary governance framework provided by the Excessive Deficit Procedure (EDP) -even if augmented and adjusted now in various manners-, constitutes an adequate governance framework or than more fundamental flaws are present.

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<sup>1</sup> In this article we will often use the terms “European”, “European Union (EU)” and “Euro Area” interchangeably. Clearly, not all European countries are member of the EU and not all EU countries are member of the Euro Area. Some countries may accede in the near or more distant future. Others –consider the case of the UK e.g.- may decide to secede again. Disentangling all configurations all the time would clearly be rather tedious.

<sup>2</sup> Gocaj and Meunier (2013) describe in detail the creation process of the ESM.

<sup>3</sup> In its Governance Whitepaper the Commission of European Communities (2001) defines European governance as ‘rules, processes and behaviour that affect the way in which powers are exerted at the European level, particularly as regards openness, participation, accountability, effectiveness and coherence.’

Rather than searching for approaches that seek to further modify, refine and adjust the existing fiscal governance framework –the approach that the EU Commission has adopted essentially-, this paper tries to explore ways to address more fundamentally apparent flaws in/ alternatives to the existing fiscal governance framework and makes suggestions to create a new, improved governance framework for fiscal policy in the euro area. Essentially we argue in favour of a broader fiscal governance framework that is much more oriented towards actual *budgeting and budget processes*: from passive, accountant-like supranational governance an evolution towards active, initiating, steering, process-oriented, network-based governance framework is advocated.

More specifically, we consider four approaches that we think can make significant contributions to budgetary governance in the EU: (i) the economics inspired approach of *fiscal federalism* which provides a framework for a consistent governance framework for fiscal policy and fiscal consolidation in the euro area, (ii) the political science oriented approach of *multi-level governance and open coordination*, (iii) the systems, control and network theory oriented approach of *hierarchical control* that studies the control of large, complex hierarchical systems, (iv) the macro-finance oriented approach of stress-testing, early-warning-systems and resilience.

A common element in these three approaches is that these approaches would take a *process-based* view when applied to fiscal governance in the EU: according to these approaches the EU fiscal governance framework would need to be linked much more closely to the actual budgeting process of governments at different layers and integrate these budgeting processes of different government layers in order to come to a clear, consistent and effective fiscal governance framework: in this way a much stronger fiscal governance framework in the EU could be envisaged. This in contrast to the current *procedural-, indicator-, outcome- and rule based* fiscal governance framework of the SGP that remains a partial, ad-hoc, and ex-post construct. Indicators like the fiscal deficit and government debt e.g. represent essentially the final outcomes of expenditures and revenues in the entire budgeting process and do not provide much guidance when one would like to design and implement an active fiscal governance framework. We relate our findings to the discussion about economic -, monetary and banking-, fiscal -, and political union in the EU.

Section 2 provides an outline of the current budgetary governance framework in the EU. Section 3 considers aspects of fiscal federalism and their potential EU related context. Section 4 takes a political science and public policy perspective on budgetary governance. Section 5 looks at budgetary governance in the EU from systems and control theory. Section 6 considers a macro-finance perspective on budgetary surveillance and management. The conclusion of the paper summarises the main findings.

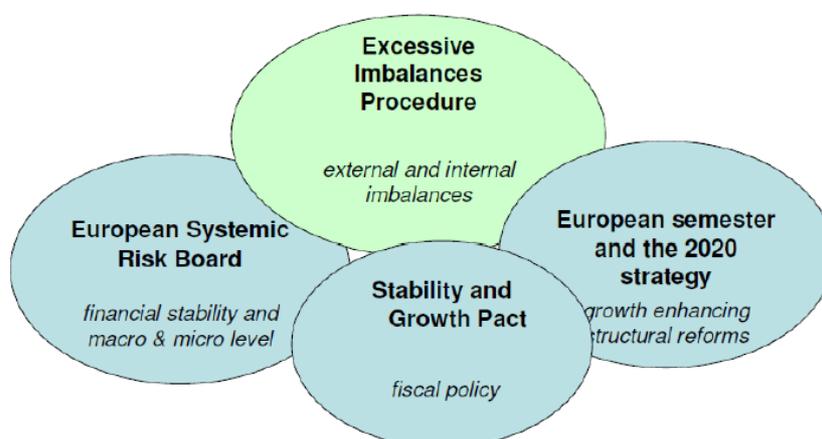
## 2. The Existing Budgetary Governance Framework in the EU.

Aim of this section is to outline the recent adaptations to the Excessive Deficit Procedure, the core construct of the current budgetary governance framework in the EU.

### 2.1 The Current Economic Governance Framework

The EU economic governance framework has undergone a number of smaller and larger transformations recently as a result of the policy needs experienced in coping with financial -, budgetary -, and economic distress. Schematically, we can graphically depict the current framework as follows:

Figure 1 **The EU Economic Governance Framework**



The Stability and Growth Pact and the European Semester and Europe 2020 strategy have been subject to minor changes. The Excessive Imbalances and the European Systemic Risk Board are entirely new governance layers. A weakness of the framework is that the different parts are not (yet) well connected and integrated into one overarching governance framework: the current crisis in Europe demonstrates that growth, employment, budgetary stability and financial sector stability are all interconnected and can not be analysed well in isolation.

An important lesson learnt from the crisis is that the *Excessive Deficit Procedure of the Stability and Growth Pact (SGP) of Economic and Monetary Union (EMU)* by itself was not sufficient to ensure sound public finances. Beside some flaws in design and more general weakness in terms of enforcement and commitment, more concrete implementation problems became evident as a result of the European debt crisis, e.g. limited use of the instrument of early warnings by the Commission and even more limited follow up of these early warning by the Council. By focusing on purely fiscal indicators the SGP was not equipped to prevent the accumulation of macroeconomic imbalances: it does not delineate clearly enough instruments,

indicators and targets. These flaws may have also contributed in deferred but massive impacts on the public finances of some Member States that showed apparently sound fiscal position before the recession. Delivery on fiscal positions was less than satisfactory. Excessive reliance on the change in the fiscal balance, e.g. masked a widespread use of windfall revenues to offset expenditure developments. The EDP appears not to be well equipped to identify and diagnose disorders and imbalances, formulate instruments and treatments, implement policies, evaluate their progress, undertake corrections if necessary and formulate an ex-post evaluation in a systematic, consistent and timely manner.

To mend such weaknesses, the European Commission has proposed during 2011 and 2012 several reforms of the economic and budgetary surveillance framework<sup>4</sup>, in the form of the “*Six Pack*” and “*Fiscal Compact*” and a streamlining of reporting schedule in form of the “*European Semester*”. The changes consist of amendments to the two regulations that implement the preventive and the corrective arms of the SGP, a new directive on minimum provisions for national fiscal frameworks and a new regulation that introduces sanctions to the preventive arm of the Pact and strengthens those applicable under the corrective arm. With the Fiscal Compact, EU governments and the European Commission have decided to adopt fiscal rules which limit the fiscal room for manoeuvre beyond the reformed Stability and Growth Pact of 2005. The Fiscal Compact imposes two new rules: first, the objective of balanced budget is respected if the structural (or cyclically-adjusted) deficit is below 0.5% of GDP; second, countries whose public debt exceeds 60% of GDP reduce their debt “at an average rate of one-twentieth per year as a benchmark.” The balanced structural budget rule introduces two novelties in comparison with the former SGP: first, the limit at 0.5% of GDP, and, second and consequently, the speed of adjustment towards this limit losing its country-specificity.

The reforms are part of a package that also includes two new regulations on a new economic imbalances procedure. The “*Six-Pack*” adopted on November 16, 2011 introduced two Regulations dedicated to the prevention, monitoring, and correction of excessive macroeconomic imbalances, in short the Macroeconomic Imbalance Procedure (MIP), an interactive platform that provides the Scoreboard and Additional indicator data used in the Alert Mechanism Report of 14 February 2012 and its Statistical Annex. The main innovations are, first, the inclusion of a Scoreboard of macro indicators with thresholds, and second, the creation of an Excessive Imbalance procedure (EIP) in case imbalances are deemed excessive. All this therefore, very much as an analogue to the stipulations of the SGP/EDP on fiscal sustainability. Many indicators are also directly or indirectly related to indicators in the European Commission’s Europe 2020 framework for long-term growth and sustainability.

The Scoreboard reflects indicators of either internal or external disequilibrium. They are used to detect early imbalances that may be dysfunctional for a Member State economy, for the euro area, or for the entire EU. Internal disequilibria are scrutinized through data of public and private indebtedness, stock and real estate prices, credit flows, and unemployment. External

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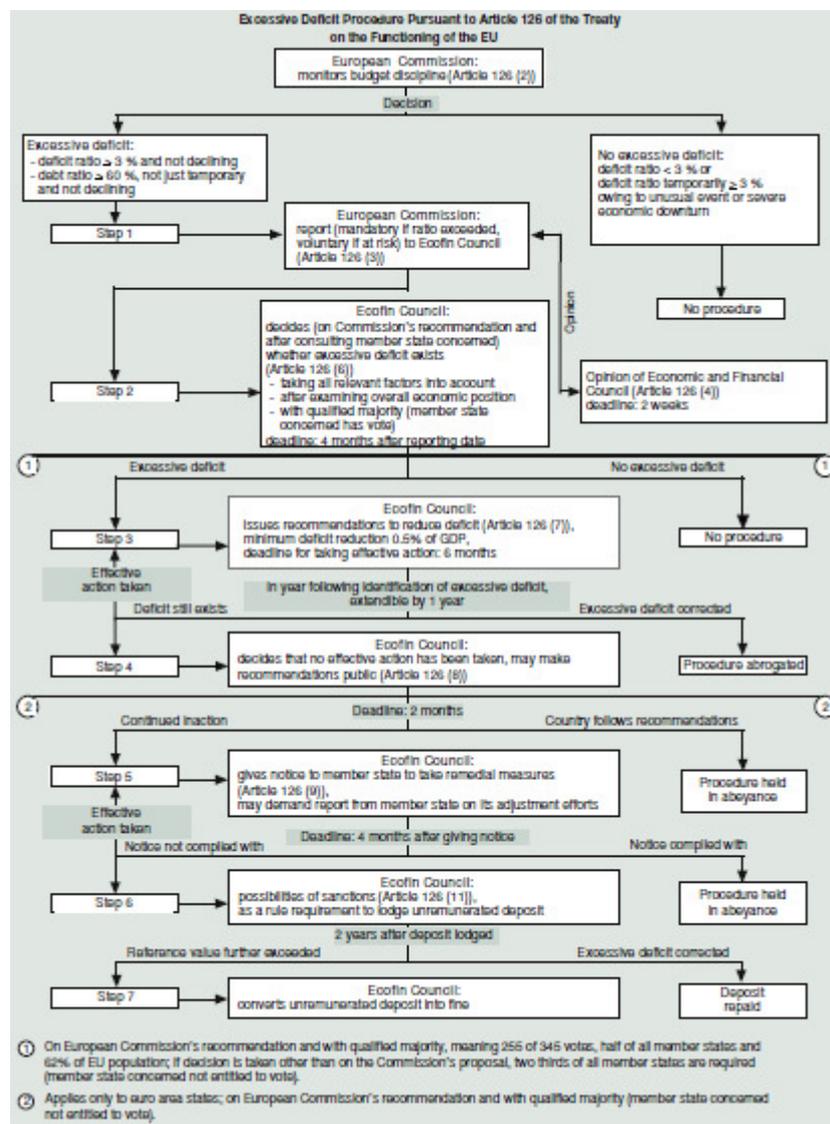
<sup>4</sup> See also European Central Bank (2011) for a more detailed overview on the reforms of the euro area’s governance framework.

disequilibria are scrutinized through current account balances, net external positions, real effective exchange rates, market shares, and nominal unit labour costs.

After an in-depth review, the Council can send recommendations to a country experiencing excessive macro imbalances. The Council imposes an interest-bearing deposit to the country under the excessive imbalance procedure. If the country does not take the recommended corrective actions, the deposit is transformed into a fine, amounting to 0.1% of the Member State's GDP in the previous year.

Bofinger and Ried (2012) analyse the organisation of the EDP in detail and summarise the procedures in the following flow-chart:

Figure 2 **Excessive Deficit Procedure**



Source: Bofinger and Ried (2012).

Bofinger and Ried (2010) list four problems with the current EDF in the current crisis context: (i) the EDP is pretty much a *black box* for both the general public and policymakers alike, (ii) there is no *coordination* of national consolidation efforts, (iii) the SGP does not spell out mechanisms for *mutual support* and (iv) there is no mechanism for *government insolvency*. To overcome these deficiencies, Bofinger and Ried (2010) propose a new framework for fiscal policy consolidation in Europe. At its centre is a European Consolidation Pact (ECP) that supplements the SGP in times of crisis. This pact may be used as common ground for the consolidation conditions currently imposed on crisis countries in an ad-hoc manner in return for a rescue package or the European Stabilisation Mechanism.

*The budgetary governance framework in the EU is concentrated in the EDF. The recent European debt and economic crisis has induced several changes to the governance framework as national and supra-national governance appeared not sufficiently equipped to handle such a large-scale crisis.*

### **3. An Economic Perspective on Budgetary Governance: Fiscal Federalism and the EU.**

With the completing of Economic and Monetary Union (EMU), there has been an intense discussion about the desirability and feasibility of *fiscal federalism* or “fiscal union” in the EU, as a natural requirement for a coherent operation of Economic and Monetary Union. The debate around fiscal federalism in the EU focuses on the instruments needed and for the implications stemming from the distribution of powers between different government tiers. The EU in its original form can be described as a *confederation* of (otherwise sovereign) states. In a longer term perspective the question is inevitable whether or not the EU needs to evolve into a *federal state* for its (current and envisaged) modes of economic -, monetary -, fiscal -, and political union actually to be sustainable. The discussion about fiscal federalism in EU is in particular centered around the ‘subsidiarity principle”, an organising principle of decentralisation<sup>5</sup>, according to which a matter ought to be handled by the smallest, lowest, or least centralised authority capable of addressing that matter effectively. In fact, a distinct, decentralised modality of fiscal federalism already exists in the EU: The EU stands at the extreme of decentralisation when compared with the other federations given that the allocation -, redistribution - and stabilisation functions are essentially performed at the national level (rather than also by the EU budget as it typically would in a more mature federation).

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<sup>5</sup> The United Nations Development Programme's 1999 report (UNDP, 1999) on decentralisation states this more precisely: “Decentralization, or decentralising governance, refers to the restructuring or reorganisation of authority so that there is a system of co-responsibility between institutions of governance at the central, regional and local levels according to the principle of subsidiarity, thus increasing the overall quality and effectiveness of the system of governance, while increasing the authority and capacities of sub-national levels.

### 3.1 Theory of Fiscal Federalism: An Outline

The theory of fiscal federalism assesses whether the expenditure decisions are set according to the right priorities and offers a cost–benefit analysis of centralization. Conventional fiscal federalism is understood as a constitutional system assigning fiscal powers –relating to *allocation, redistribution and stabilisation*- among different tiers of government, with a noticeable *decentralisation bias*. Inman and Rubinfeld (1997) summarize economic federalism as “preferring the most decentralized structure of government capable of internalizing all economic externalities, subject to the constitutional constraint that the central government policies be decided by an elected or appointed ‘central planner’.”

Fiscal federalism amounts to choosing the optimal allocation of revenue and spending powers across the different layers in a fiscal federation.<sup>6</sup> This results in a multi-level character of government: federal, state and local government and in the EU case an additional supra-national layer of government with much influence in particular concerning regulation (but not so much in terms of actual spending and taxation (budget of 1% GDP)).

Fiscal federalism has to confronts both efficiency and equity aspects. This concerns in particular the provision of public goods and taxation and intergovernmental transfers. In practice, this implies typically both centralized as well as decentralized designs of public goods provision, implying "local public goods," "state public goods," and "national public goods". The tax system is typically assigned in such a manner that local governments are mainly financed by user charges and "local" taxes, especially the property tax, and states by consumption taxes, with the income tax being left largely to the central (federal) government.

Fiscal federalism concerns both the design of public good provision and the tax system. The traditional framework for fiscal decentralization is clearly summarised by Oates (1999). The classic argument in favour of decentralization is that local governments are more efficient and responsive to the needs of citizens as well as being held to a higher level of accountability than national government structures. In spatial considerations, sub-national governments become a necessary conduit for setting up an efficient solution for equating benefits and cost. Assignment of functions in fiscal federation result from the “Decentralization Theorem”. The magnitude of the welfare gains from such decentralization depends on several factors including the variation in demands across jurisdictions, jurisdictional cost differences, and the price elasticity of demand.

States can compete in the provision of public goods (quantity/quality) and also use tax competition between regions. Economic agents can choose the preferred combination of public

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<sup>6</sup> An interesting question that is often raised is: will a federal state have higher growth than a comparable unitary state (a state that is characterised by uniform public good provision and uniform taxation): Empirical and theoretical studies find evidence/ provide reasons that federalism can indeed have beneficial effects on growth (see e.g Thiessen (2003)). Prohl and Schneider (2009) find for OECD countries, more decentralisation is associated with a smaller size of government. In addition, Shah (1998) finds for a set of 80 countries a positive relation between fiscal decentralization and the quality of governance indices, and concludes that decentralized fiscal systems offer a greater potential for improved macroeconomic governance than centralized fiscal systems.

goods and taxation by ‘voting with their feet’: but this can lead to both efficiencies and inefficiencies. Goodspeed (1998) underlined that “the horizontal tax competition can result in an efficient allocation of resources if the taxes used are benefit taxes. If taxes do not reflect benefits, however, Oates (1999) suggests that externalities are created so that tax prices diverge from social marginal cost”.

A fiscal federation is characterised for a (latent) need for significant *intergovernmental grants* – i.e. transfers- to close revenue gaps left as a result of the efficiency -, equity – and stabilisation functions. This therefore implies redistribution of fiscal revenues from federal government back to the regions. Considerable attention has been devoted to the appropriate design of such grants, as well as to empirical analysis of their effects on local spending patterns. Transfer systems can be conditional or unconditional, open or closed, matching or non-matching. Transfers imply redistribution reflecting solidarity mechanism and also contain a stabilization element reflecting automatic stabilization/insurance to shocks function in a federation.

However, transfers also foster dependence, inactivity or “Mezzogiorno” problems. In addition, (soft) budget constraints, bail-outs and fiscal sustainability play a role: fiscal transfers may create moral hazard problems. Vertical fiscal imbalances in a federation have potentially disastrous consequences if such moral hazard problems are not tackled. In short: transfers in a federal systems are likely to result in a trade-off between risk-sharing and moral hazard: more transfers will foster risk-sharing but aggravate moral hazard problems.

Note finally that political federalism, -the more or less analogue to fiscal federalism- clearly adds an additional layer of complication by dropping the assumption that central governments are omniscient social planners. Rather, policymakers are primarily politicians in this framework, motivated by prospects of re-election, the “perks” of office (which could include private returns from its corrupt use), lobbyist contributions, and other factors in addition to (or instead of) general social welfare. Administrators at all levels may or may not have the capacity and power to enforce the policies they deem desirable. Policymakers may or may not have complete information for determining which policies are desirable. Political aspects of budgetary governance will be discussed more in detail in Section 4.

Oates (2005) distinguishes a recent wave of new fiscal federalism literature, the s.c. *second-generation theory of fiscal federalism* with broader perspectives that draws on fields outside public economics: principal-agent problems, the economics of information, the new theory of the firm, organization theory, contract theory and public choice. This new fiscal federalism literature extends the earlier results from the theory fiscal federalism –summarized above- to entirely new insights on centralization and decentralization in government and draw their implications for the structure of the public sector, fiscal institutions, and policy-making.

The traditional fiscal federalism relied on Pareto-principles in policy-making and ignored public-choice aspects: rather than optimizing, benevolent agents, public choice, however, considers that public agents can best be characterized as seeking to maximize the size of their budgets and other forms of private gains. In the second generation fiscal federalism, many efficiency

principles of the traditional fiscal federalism model, do no longer hold necessarily (or may in fact produce quite perverse results if adhered to/implemented).

New fiscal federalism is in fact based on two fundamental research insights. (i) It incorporates the theoretical and empirical work in *public choice* and *political economy* that focuses on political processes and the behaviour of political agents. Rather than maximizing social welfare, public officials are assumed to follow have their own objective functions that they seek to maximize in a political setting that provides the constraints on their behaviour. The political economy theory emphasises the common pool problem arising from politicians spending money from general tax revenues on targeted public policies. The group of those who pay for specific targeted policies (the general tax payer) is larger than the group of those who benefit from them. As a result, the net benefits accruing to the targeted groups and the net benefits for society as a whole diverge largely. This divergence induces the targeted groups and the politicians representing them to demand more spending on such policies than what is optimal for society as a whole. Thus, the common pool problem leads to excessive levels of public spending, deficits and debt if no adequate budget institutions are designed to tackle political economy aspects as emphasized by von Hagen and Harden (1994).

(ii) It also incorporates the literature on problems of information. In settings of asymmetric information, where some participants in public policy have knowledge of such things as preferences, cost functions, or effort, knowledge that is not available to other participants, optimal “procedures” or institutions are likely to be quite different from those in a setting of perfect information.

In this public choice/political economy and asymmetric information setting, one crucial result of the older fiscal federalism, the Decentralization Theorem will no longer necessarily hold: in the presence of ‘soft budget constraints’, the expectations of ‘bail-outs’ and other forms of risk-sharing, regional or local governments have the incentives to exploit the “fiscal commons” by effectively shifting the burdens of local programs onto the nation as a whole. Moral hazard and adverse selection problems will result in decentralized finance to be overly expansive as the burden of taxation is (expected to be) shifted onto residents of other jurisdictions. From this and other results, the new fiscal federalism literature concludes that perverse fiscal behaviour is essentially built into the system.

The new fiscal federalism literature is very relevant for the current EU: one of the fundamental challenges in the design of new European fiscal institutions will involve addressing asymmetric information and adverse incentive effects to avoid common-pool problems and other types of opportunistic efforts at decentralized levels that will tend to undermine budgetary sustainability at all levels. Safeguarding a federal governance system requires continuous efforts to counteract the various perverse incentives –both at the central and decentralized levels-. An important insight is that both a very weak central government and an overly powerful central force would undermine the delicate balance of powers in a federation and are likely to lead to failure in the end.

### **3.2 An application of fiscal federalism to the EU case: The EU budget and Eurobonds.**

Spending in the EU budget is dominated by redistribution -mostly based on agricultural and structural programs. Large sums of money are transferred from the Member States to Brussels and back to the Member States. Only little is spent for union-wide public goods. Roughly half of the EU budget is devoted to the Common Agricultural Policy and the other half to the Structural and Cohesion Funds. Currently, the EU budget is mainly financed by two sources of revenues: revenues of customs and other levies and a contribution by Member States calculated on their respective standardized VAT base. The EU, thus does not have a real power to tax, nor much autonomy in raising funds. In addition, the EU is not allowed to issue debt.

Using criteria of fiscal federalism, Alesina, Angeloni, and Schuknecht (2005) employ quantitative measures to analyse the degree of EU involvement and to quantify the desirable allocation. Their conclusion is that there is a mismatch between the desirable EU involvement and the status quo on several fields.

Recent negotiations<sup>7</sup> about the *EU budget* for the 2014-2020 took place in the difficult conditions of the financial crisis and its fall-out, including very narrow budgetary space and economic slowdown. The European Commission proposed a budget for 2014-20 worth roughly €1033 billion in commitment appropriations (1.08 percent of EU gross national income). The negotiations were characterised by a deep division between a group of Member States that plead for an increase in the EU budget and increases in the scale and scope of EU policies and another group of Member States that envisages to curtail EU budget and policies. Not surprisingly, the division line between Member States revolves more or less between Member States that are net contributors and net receivers to/from the EU budget. Deltas and Van der Beek (2003a, b) model changes in inter-governmental net transfers as the result of key characteristics of a federation, such as changes in population and per capita income of constituent states, the composition of the federation, and changes in the decision making structure and apply this framework to the net transfers from the EU budget. It is found that basically two-thirds of the net transfers is explained by increases in cohesion policy measures, by deliberate policy therefore. The remaining one-third is explained by objective factors like population and changes in decision making structures.

Decisions on the EU budget are –like any other decision making on EU policies- the result of the complex decision making process of the EU. The complexity results from a delicate inter-institutional balance of power between the crucial players, European Commission, European Council and the European Parliament. Giuriato (2009) considers these interactions inside the EU institutions in the context of the formation of the EU budget using a game-theoretic approach and shows how the balance of power has shifted over time as a result of changes in the institutional framework. A second layer of complexity comes from the assignment of voting powers to Member States representatives and voting rules that are embedded in decision

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<sup>7</sup> See European Council (2012) for details on the negotiations.

making. Using theories on coalition formation, voting rules and voting power, see e.g. Widren and Heinemann (2002) and several other studies have analysed the EU decision making process and changes in the relative power of individual Member States using power indices.

Aksoy and Rodden (2009) analyse how the relative overrepresentation of small Member States in legislative bargaining also helps to explaining budgetary outcomes which favour relatively small Member States in the budgetary allocation in the EU using a dataset that covers the period between 1977 and 2006. Overrepresentation of small states is most pertinent when all states have veto authority in the Council, and reduces when changes to the status quo require only a (qualified) majority like in the European Parliament. Since Unanimity rules still apply for a wide range of issues, the importance of small Member States is not to be underestimated. The relative benefits to small states in the process of EU legislative bargaining derives from models of vote-buying in the process of coalition-building. Vote-trading is enhanced by the fact that the salience of each issue varies greatly across countries, and member states are rather well informed about each other's preferences. Moreover, a small number of players interact repeatedly over a long period of time, which might encourage reputational sanctions or norms of mutual trust that help cement non-simultaneous vote-trading deals.

Given all these aspects, it seems necessary to many that reforms of the EU budget will be undertaken. Two political proposals for an EU budget reform have been made recently: the "Sapir Report" (Sapir et al., 2004) and the "Boege Report" (European Parliament, 2005). Both reports agree that a shift of spending from redistributive agricultural programs to public good provision would be welfare-enhancing. The Sapir Report demands that 45 percent of total spending should in the future be used for public good provision (especially in infrastructure and research), 35 percent for "industrial convergence" and only 20 percent for restructuring programs including agriculture. The Boege Report focuses more on changes on the revenue side. The most important demand is that the Member States shall co-finance 25 percent of all agricultural spending of the EU. If total spending of the EU remains stable, this should increase the room for EU spending on public goods.

A second example that illustrates the fiscal federalism in the EU is the recent discussion about 'Eurobonds'. The financial crisis caused substantial risk premia on sovereign bonds/speculation and contagion in euro area bond markets. This has in theory a potentially positive effect by disciplining governments that are not enough fiscally prudent (and rewarding those that do exert fiscal caution). In practice, however, if reflecting unfounded speculation such risk premia and contagion are not efficient and potentially detrimental. The presence of both positive and negative effects from bond markets in a monetary union has led to discussion of 'good' vs. 'bad' bond market equilibria. *Eurobonds*, i.e. a federalisation/mutualisation of sovereign bonds issuances –subject to conditions and constraints- could provide a straightforward exit from bond market turmoil in the euro area. Such a mutualisation or federalisation of debt issuance and the creation of a common sovereign bond market in the euro area would also be instrumental to

other objectives in terms of economic and monetary union, fiscal union, banking union and political union.<sup>8</sup>

The possibility of Eurobonds has been well-established by now and would constitute a crucial milestone from the fiscal federalism perspective. Several proposals for common euro area sovereign securities have been proposed that vary significantly in the various details, modalities of common debt issuance. See European Commission (2011) and Claessens et al (2012) for a detailed discussion of the different proposals. Claesens et al. summarize in Table 2 the potential benefits from Eurobonds –the European Commission uses the term Stability bonds to avoid any mixing up of fiscal stability and stability of the euro-:

Table 1 **Objectives of Common Debt Issuance**

<b>Fiscal risk-sharing and fiscal discipline</b>	
Fiscal risk-sharing	<ul style="list-style-type: none"> <li>- monetary union requires some fiscal risk-sharing. This can be achieved through common debt in the form of ex-ante (borrowing cost and transfers) or ex-post (default) mechanisms</li> <li>- issuing debt jointly can reduce borrowing costs for currently stressed sovereigns, with gains at aggregate level</li> </ul>
Fiscal discipline	<ul style="list-style-type: none"> <li>- current methods of fiscal discipline have shown limits; common debt issuance with enhanced institutions and ex ante surveillance, and a better role for price signals could strengthen fiscal discipline</li> </ul>
<b>Financial stability</b>	
Bank-sovereign loop	<ul style="list-style-type: none"> <li>- home bias in sovereign debt holdings (that liquidity support measures (e.g., LTRO) may have increased) makes for perverse bank-sovereign links; common asset/pooling risks can reduce it</li> </ul>
Provision of a safe asset	<ul style="list-style-type: none"> <li>- when risk (perceptions) change, flight to quality leads to large, destabilizing changes in yields and capital movements; a large common safe asset can reduce these risks</li> <li>- with larger asset and better reserve currency, liquidity benefits can accrue to euro area and possibly help with global imbalances</li> </ul>
<b>Monetary policy transmission and financial markets' functioning</b>	
Monetary transmission mechanism	<ul style="list-style-type: none"> <li>-monetary policy transmission mechanisms are impaired; a unified bill/bond market can help restore them</li> </ul>
Financial markets functioning	<ul style="list-style-type: none"> <li>- financial markets are increasingly fragmented along national lines; a reduction in country risks and common bill/bond markets can help revive the benefits of financial integration</li> </ul>

Source: Claessens et al. (2012)

Eurobonds can potentially serve two functions: in the short-term, stabilize financial markets and banks and, in the medium-term, help to improve the euro area economic governance framework

<sup>8</sup> Arguably, the financial support measures in the form of the EFSF and ESM can already be interpreted as of form of debt federalisation/mutualisation of sovereign bonds.

through enhancing fiscal discipline and risk-sharing, and to improve monetary policy transmission and financial markets' functioning given a deepening of euro area bond markets.

*Valuable insights can from adopting a fiscal federalism approach to budgetary governance in the EU. The recent European debt and economic crisis hints at the problems from an unfinished budgetary and governance framework. Two recent debate where fiscal federalism aspects feature prominently are the debate on the EU Budget and on the potential introduction of Eurobonds.*

#### **4. A Public Policy and Political Perspective on Budgetary Governance: Multi-Level Governance and Open-Coordination and the EU.**

The EU budgeting and governance framework is embedded in the general EU policymaking framework. The setup of the EU's institutional framework of decision making and legislative process and its possible consequences for policy-making and the effects of changes in the institutional framework (e.g. the Treaty of Nice of 2001) has been studied in detail, see e.g. Hix (1999), Steunenberg (1994).

In principal, the EU decision making process resembles broadly the processes in most democratic nation states. The European Parliament and the European Council constitute the two principal legislative bodies. EU voters directly elect the Parliament, and the member countries are represented in the Council. The Commission is the EU's executive and has monopoly proposal power. It is appointed by the Parliament and the Council. The Commission consists of one member of each of the EU countries. The Commission and the Parliament use simple majority rule, the Council uses qualified majority rule. Most important EU legislation is passed under the co-decision procedure: Commission proposals need the approval of the Council and the Parliament, and the Council and the Parliament can together amend them.

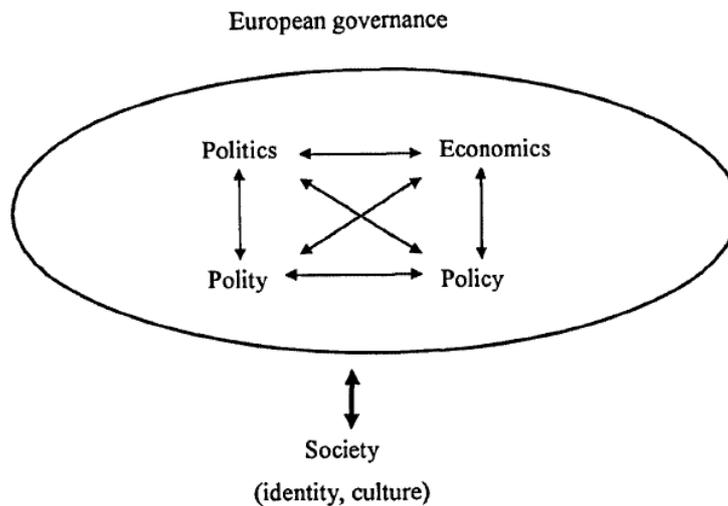
From these principal features it follows that the allocation of seats across member countries – which clearly favours small countries- may contribute to undemocratic policies in the sense of deviating from the EU median voter. Another element that could contribute to a democratic deficit in EU decision making is that only the European Parliament is directly elected.

Theories of governance, budgeting, public policy and political economy provide important insights in the political aspects of budgetary governance in the EU. Governance concerns the control of systems and the technologies by which control is achieved. Governance not only concerns government and policy but also the interaction between public authorities and non-governmental, functional actors like companies, trade unions and other associations. In democratic, market-based economies, regulation is the most important model of a control system. In regulatory frameworks, legal rules enable to set control norms and to delegate rule-making power to institutions or agencies that manage sub-systems. Monitoring functions can be implemented to detect and sanction deviations from rules and standards. Modern governance, -

e.g. by EU institutions- is highly complex and fragmented. This explains also why governance reform in the EU is such a difficult and long-term process.

Schobben (2000) depicts the economic, political, juridical and social dimensions of the European governance process as follows:

Figure 3 **The European governance process**



Source: Schobben (2000).

#### 4.1 Budgeting and Public Policy

The government budget reflects the means by which the objectives of government (and society for that matter) are achieved. *Public budgeting systems* have three primary purposes: control, management, and planning (Schick, 1966). Public budgeting is not only about accounting and financial management inside government; it also is about accountability and governance.<sup>9</sup> The budget can prioritize, allocate, economize, or control and otherwise “fit” the appropriate policy tool to the problem at hand.

*Budget control* is both budget formulation control and control in the budget execution process. Miller et al. (2001) assume a government budget control system having five major components: focus, estimation, scarcity, criteria, and choice. These components refer to the parts of the role played by guardians as they view the proposals of advocates in the formulation of the budget.

<sup>9</sup> In most private organizations the primary instrument of management control is *responsibility budgeting*. In responsibility budget formulation, an organization’s policies, the results of all past policy decisions, are converted into financial budgets and targets that correspond to the domains of administrative units and their managers. Under responsibility budgeting, work is arranged into administrative units according to mission, function, and/or region. An organization’s administrative units and their relationships to each other—the structure depicted in organization charts—constitute its administrative structure. Responsibility budgeting requires authority and responsibility to be allocated to individuals within the organisation. This constitutes an organization’s responsibility structure. Finally, responsibility budgeting requires a system of measuring and evaluating performance information on inputs, costs, activities, and outputs. This is the organization’s account or control structure.

These components are budget decision-making steps and are therefore components of a larger decision-making system. In this larger framework, policymaking at times dominates budgeting and at other times is dominated by budgeting.

*Fiscal institutions* (structures, procedures, laws, organizations) are also crucial in budget control: work by Poterba and von Hagen (1999) has provided many possible avenues for defining and measuring both institutions and estimating their effects.

Public budgeting has been studied from three perspectives: economics, management, and political science. Studies rooted in economics tend to focus on the nature of public goods and the allocative efficiency of the mix of goods and services provided by government. Various decision rules and allocation processes are examined for their relative utilities in this regard. Political scientists highlight the political dimensions of the resource allocation process, and the budget's role in the policy making process. The political perspective has been dominated by the theory of "incrementalism" which assumes that budgets change only marginally from year to year, and major reallocations can be costly and should be avoided in light of the state of knowledge regarding public sector policy issues; the resource allocation process is a fragmented, bottom-up process characterized by deference to substantive expertise and previous allocations. Wildavsky's (1964) model of 'incrementalist budgeting' therefore explains the government expenditure bias in budgeting from a 'incrementalist' mindset in bureaucracy. Finally, the organization-based approach to the development of budget theory focuses on how the nature of the public organization affects the resource allocation process and how the nature of the resource allocation process affects the operations of the public organization.

Political economy delivers several important additional insights on the budgeting process and outcomes. Niskanen's (1971) argument of the budget maximizing bureaucracy and administration points at the adverse incentives in government. He characterized bureaucrats as rational, self-interested, and monopolistic controllers of marginal cost and performance information; bureaus as monopolistic suppliers of services and inefficient budget maximizers; and legislatures as the sole buyers of the services. Niskanen's agency dominance perspective has been developed and respected by many advocates of public choice. Becker (1975) emphasises the importance of lobbying interest (pressure) groups in the budget process. Successful fiscal consolidation will therefore partially also depend on addressing these aspects and taking into account the political context.

#### *Program, Performance and Outcome Budgeting*

Program budgeting (Schick 1996) aims at rationalising policy-making by providing (i) data on the costs and benefits of alternative ways of attaining proposed public objectives and (ii) output measurement to facilitate the effective attainment of chosen objectives. Program budgeting is a planning oriented budget approach: the planning approach is organised by program rather than by department of fiscal input or output. From one perspective, program budgets more effectively align budget information with strategic objectives and illustrate the consequences of budget decisions. By grouping line items that attempt to achieve the same strategic objective into programs, the focus of senior decision makers moves from the narrow to the broad. Program

budgets can thus serve four distinct (and sometimes complementary) objectives by: (1) facilitating a cost effectiveness comparison between alternative systems; (2) improving technical efficiency by providing discretionary authority to lower-level managers; (3) clarifying the life-cycle costs of decisions; and (4) structuring planning, programming, and budgeting decisions in a multi-year framework.

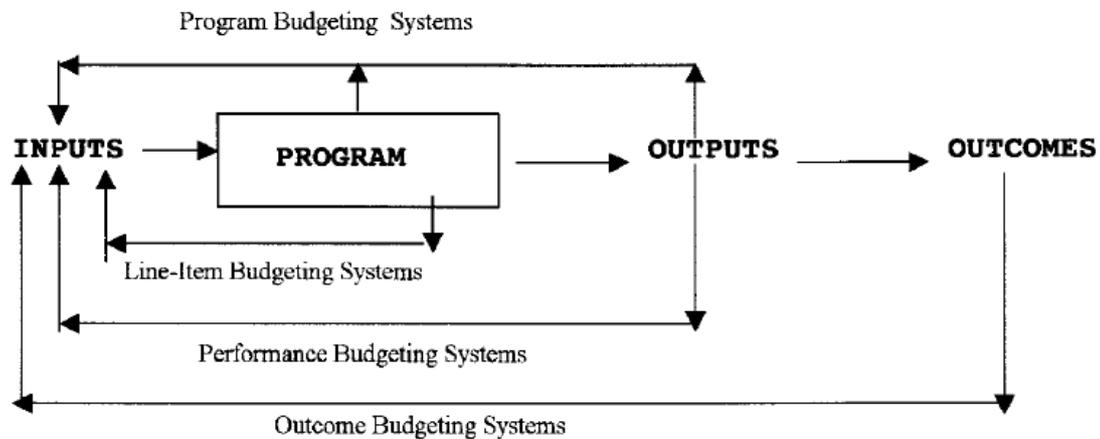
Program structure development thus has two distinct approaches. The first approach argues that programmatic classification should reflect policy objectives across organizational boundaries. The second argues that it should closely mirror the existing organizational structure. From the first perspective, the program structure should be the dominant classification serving as the basis for policy decisions and resource allocations. From the second view, conforming programs to existing institutional boundaries simplifies the program structure and aligns it with organizational incentives. Each outlook comes with a cost; for example, programs that span organizational boundaries have proven difficult to implement. On the other hand, programs constrained within organizational boundaries diminish the government's capacity to analyze and coordinate objectives that two or more ministries might share. Others have argued that classifying programs within organizations robs program budgeting of its essential purpose. Curiously, advocates of both approaches argue that the resulting program structure represents policy objectives.

Recently, governments have begun to implement program budgeting based on the recognition that an organization's structure is a reflection of line ministries' policy objectives. Several Organization for Economic Cooperation and Development (OECD) members have reclassified their budgets on the basis of programmatic criteria and have developed multi-year estimates for programs.

*Performance budgeting* presents government program input and output, thus allowing easy verification of the program's economy and efficiency". Osborne and Gaebler (1992) define *outcome budgeting* as: "A budget system that focuses on the outcomes of the funded activity".

Figure 4 compares these Public Budgeting Systems:

Figure 4 **Comparison of Public Budgeting Systems**



<b>Budgeting System</b>	<b>Purpose</b>	<b>System Foci</b>	<b>Target Audience</b>
Line-Item	Control	Inputs/Program	Internal
Performance	Management	Outputs/Inputs	Internal
Program	Planning	Inputs/Program/ Outputs	Internal/ External
Outcome	Outcome Performance, Transparency & Communication	Outcomes/Inputs	External/ Internal

Source: Osborne and Gaebler (1992),

## 4.2 Multi-Level Governance and Open-Coordination in EU Governance

Marks (1993) defined *multilevel governance* as: “a system of continuous negotiation among nested governments at several territorial tiers -supranational, national, regional, and local- as a result of a broad process of institutional creation and decisional allocation.’ Multi-level governance in policy and regulation therefore characterizes the complex and changing relationships in policy and regulation between actors situated at different territorial levels, both from the public and the private sectors.<sup>10</sup> It describes the systems of continuous negotiation among nested governments and other stakeholders at several territorial tiers and described how

<sup>10</sup> See e.g. Rodrigo et al (2009), Marks (1993), Chowdury and Wessel (2012) and Scott (2002) for a detailed analysis of multi-level governance.

supranational, national, regional, and local governments are enmeshed in territorially overarching policy networks. Multi-level governance results in a multilateral negotiation game, in which redistributive and ideological conflicts have to be resolved/compromised and where several players possess veto-power.

Marks and Hooghe (2003) distinguish between Type I and Type II versions of multilevel governance. Type I resembles federal arrangements and intergovernmental arrangements and is characterised by general purpose jurisdictions, where functions are bundled, and there are multiple (but limited) levels of government within a system-wide architecture. Type II is characterised by functionally specific jurisdictions, operating at different territorial levels in a flexible manner.

While more and more scholars use the idea of multi-level governance, the concept itself remains ill-defined. In particular, it is not quite clear whether multi-level governance would increase or reduce the efficiency and effectiveness of policy-making in the EU. While it is often praised for advancing flexibility, plurality of actors and cooperation can create problems of over-complexity, blurring of responsibilities and the danger of stalemates with increasing number of veto-points in the multi-level structure of the EU.

Regional development policies in the EU are a good example of the use and usefulness of multi-level governance. Until the early 1980s, the prevailing approach to dealing with disparities between regions was redistribution. Central governments provided grants to attract firms to less developed regions and to support regional and local government investments in infrastructure. In an increasingly globalized economy, the theoretical justification and the practical effects of this policy became doubtful. According to new theories of regional economics, development is improved if regions focus on specific clusters of industries, implement strategies of flexible specialization and foster 'endogenous' potentials of locations. This regionalization imperative was supported by the European Commission.

At the outset European regional policy consisted of the allocation by 'Europe' of funds to national governments. However, in 1988, a reform introduced new implementation procedures for the structural funds. This reform created a process of multi-level policymaking, which is characterized by the following attributes: (i) The coordination of different structural funds, the European Regional Development Funds (ERDF), the European Social Funds (ESF), the guidance section of the agricultural funds (EAGGF) and the Cohesion Funds. The aim is to implement an integrated approach to policy-making. (ii) Grants to regions or firms are only provided on the basis of multi-annual programmes. Regions are obliged to elaborate development plans, which include goals and key projects. (iii) Improvement in vertical intergovernmental coordination: the reform introduced the partnership principle which gives the regional actors an effective role in decision-making on the use of available regional policy grants. Subsidies to selected regions are granted on the basis of Regional Development Plans and Operational Programmes, which are elaborated at the national and regional level. (iv) All projects assisted by the EU have to be co-financed by national or regional governments. EU regional policy can be characterized as a system of joint finance, linking budgetary policies of different levels of government. In this way, EU grants mobilize money from national or regional

budgets and direct it to regions in need. (v) The rules of the structural funds require (since 1993) that regional administrations should include private actors (economic and social partners) in the decision-making process in order to achieve broad support for policy goals and to gain comprehensive information on development potentials. The EU thus encourages the emergence of policy networks in the regions.

The *Open Method of Co-ordination* (OMC) was first introduced in the EU at the Lisbon Summit of March 2000. Its objective is not to prescribe uniform rules or to deliver policy outcomes as in the traditional EU governance framework. Instead, it organises a learning process in order to promote the exchange of experiences and best practices. It focuses on creating soft law mechanisms designed to achieve some convergence of results while permitting a diversity of national policies. A key role is played by a supranational actor: it seeks to coordinate national policies through a system of benchmarking, best practices and recommendations. In other words it does not reduce power at the national level empowers the European institutions with very specific tasks central to the whole process. Notwithstanding the potential advantages and benefits, the OMC raises many questions: how to measure outcomes and indicators, or e.g. efficiency of structural policies, when is benchmarking an adequate incentive scheme, how to define 'best practices' and how to relate to them, how to deal with steering problems etc.?

Related to OMC's are the Enhanced Cooperation Agreements (ECAs) that enable subsets of Member States to go on with integration on some particular issue, following ex ante agreed upon decision and governance rules. These sub-unions have been introduced with the Amsterdam Treaty and further regulated by the Treaty of Nice.

*The EU budgetary governance framework needs to be oriented more towards the actual budgeting processes and the political context in which it takes place. It is moreover likely that principles underlying governance may change over time, in particular a change from traditional nation states 'command and control' is likely to forms of multi-level governance and open-coordination approaches.*

## **5. A Systems Design and Control Perspective on Budgetary Governance: Dynamic Hierarchical Control and the EU.**

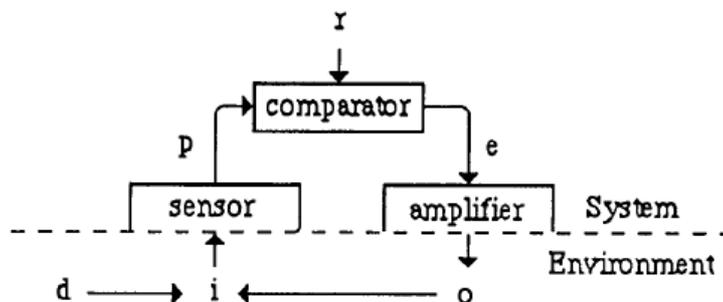
One of the major weaknesses in the existing budgetary governance framework in the euro area appears to be a lack of effective monitoring, timely and systematic diagnosis and evaluation and implementing consequent feedback-control mechanisms when considered necessary. The existing governance framework also does not recognize the essentially network-based character of budgetary management in a supranational setting with 27 highly integrated Member States. While realising the complexity of the euro area economy, it appears that control and systems theory could provide valuable principles in budgetary management in the form of

applications of its tools and concepts, in particular in a setting of hierarchical relations and network structures.

## 5.1 Control and Systems Theory: An Outline

Control and systems theory analyses complex causal relations in physical and technical systems, think e.g. of a nuclear plant in the course of producing electricity. It is crucial that the managing engineers remain in control of all systems not only under small disturbances where the systems behave in a approximately linear manner but also in the presence of larger disturbances where nonlinearities may start to drive the system and systemic risk is present. With the use of analytical and numerical methods, control theory seeks to derive impulse-response functions on which control strategies can then be designed according to certain efficiency or utility criteria for performance evaluation. *Block-diagrams and Signal-Flow graphs* are the graphical representation of the systems and their operating. The *Transfer Function* describes the relation between inputs and outputs (or “signals”) of the system, taking account the *controllability and observability* characteristics of the system. The *Impulse Response Function* describes the effects of a unit pulse on outputs of the system. A *state-space* representation of the system, finally, gives a complete description of the system at a given time and its transition from one state to another. *Stability, robustness and internal and external stabilizability* are important performance measures of the system. *Feedback control* designs control strategies as feedback on states of the system.<sup>11</sup>

Figure 5 **Basic Control System**



Source: Levine (1996).

The components of a basic control system are shown in Figure 5. The sensor converts an input variable,  $i$ , into a perceptual signal,  $p$ . The comparator subtracts the perceptual signal from a

<sup>11</sup> In case of a linear systems all these aspects are essentially well defined and implementable. In a nonlinear system, these aspects are much more complicated and phenomena like multiple equilibria, path-dependency and chaotic dynamics may be present. To the extent that a nonlinear system is only a small distance from equilibria, a linearization of the nonlinear system around equilibrium may be adequate. Arguably, the current financial crisis represents a large shock and approximating the adjustment towards equilibrium with the use of linear approximations of otherwise nonlinear models seems rather dubious.

reference signal,  $r$ , to produce an error signal,  $e$ . The amplifier converts the error signal into an output variable,  $o$ . Signals are quantities that vary inside the control system; variables are quantities that vary outside the control system. What constitutes an input and an output variable depends on the location of this basic system in a *control hierarchy*. If the system is at the lowest level of the hierarchy, then input and output are physical variables in the environment. If the control system is higher in the hierarchy, then input and output are signals coming from and going to lower level control systems; the lower level systems are the "environment" of the higher level systems. Regardless of their position in the hierarchy, all control systems are designed to do the same thing—keep the input variable,  $i$ , in a predetermined state specified by the reference signal,  $r$ . The problem of control arises because the value of the input variable is affected by system outputs as well as *disturbances*,  $d$ . A disturbance is any external influence on the input variable that is not caused by the system itself. When set up properly, a control system produces outputs that counteract the effects of disturbances on the input. The input variable, which is maintained at a value that corresponds to that specified by the reference signal, is called the controlled variable. The value of the input that corresponds to the setting of the reference signal is the reference state of the controlled variable. The reference state is constant if the reference signal is constant, and it varies if the reference signal varies. However, constant or varying, the controlled variable is kept in the reference state, continuously protected from the effects of disturbance by the output of the control system.

*Network structures* that connect many or all nodes of an organization are interacting in disseminating and sharing (almost continuous) flows of information in the network.<sup>12</sup> Object-Oriented Modeling models the interconnections of systems by considering: knowledge encapsulation and interface points, topological interconnections, hierarchical connectedness, object instantiation, class inheritance and generalized network capabilities include nodes that offer variable number of connections to them.

The complexity of aggregate systems and their behaviour—think e.g. again on the operating of a nuclear power plant—is in particular fostered by the presence typically of different layers of smaller systems, processes with their own dynamics and organisation whose actions are controlled by hierarchical relations; i.e. creating networks of systems. *Hierarchical control*<sup>13</sup> is accordingly defined as: “The organization of controllers in a large-scale system into two or more levels so that controllers in each level send control signals to controllers in the level below and feedback or sensing signals to controllers in the level above. Also known as control hierarchy.” (McGraw-Hill Science & Technology Dictionary).

Jones and McLean (1986) use hierarchical control to develop a generic model of fully automated and integrated manufacturing systems in the form of a generic architecture for real-time production control.

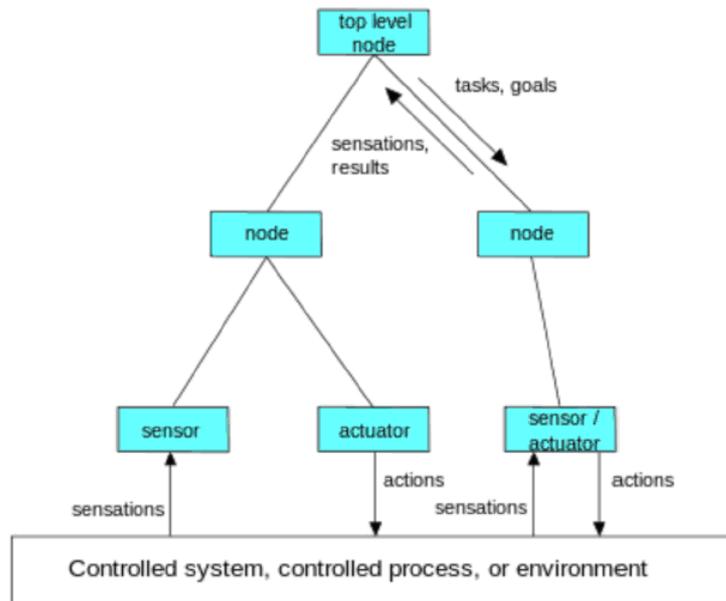
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<sup>12</sup> For a much more detailed introduction to control theory and networks systems, the reader is referred to handbooks on control theory, see e.g. Wolf (1974), Marko (1977), Strang (1986) and Levine (1996). Examples of applications include e.g. Rohloff et al (2004) on dynamic resource allocation.

<sup>13</sup> See Wilson (1979) on the principles of hierarchical control.

A human-built system with complex behaviour is also often organized as a hierarchy. For example a command hierarchy like an army has among its notable features the organizational chart of superiors, subordinates, and lines of organizational communication. Hierarchical control systems are organized similarly to divide the decision making responsibility. A “tree diagram” summarizes the operating of such a hierarchical control system:

Figure 6 **Hierarchical control systems**



Source: Findeisen (1980).

Each element of the hierarchy is a linked node in the tree. Commands, tasks and goals to be achieved flow down the tree from superior nodes to subordinate nodes, whereas sensations and command results flow up the tree from subordinate to superior nodes. Nodes may also exchange messages with their siblings. The two distinguishing features of a hierarchical control system are related to its layers. Each higher layer of the tree operates with a longer interval of planning and execution time than its immediately lower layer.

The lower layers have local tasks, goals, and sensations, and their activities are planned and coordinated by higher layers which do not generally override their decisions. The layers form a hybrid intelligent system in which the lowest, reactive layers are typically automated. The higher layers, having relaxed time constraints, are capable of reasoning from an abstract world model and performing planning. A hierarchical task network is a good fit for planning in a hierarchical control system. Besides artificial systems, an animal's control systems are proposed to be organized as a hierarchy. In perceptual control theory, which postulates that an organism's behaviour is a means of controlling its perceptions, the organism's control systems are suggested to be organized in a hierarchical pattern as their perceptions are constructed so.

## **5.2 Control and Systems Theory: Application to Fiscal Governance in the EU**

In a stylized manner, the EU can be considered as an interesting example of a hierarchical control framework. The local-, regional-, and national economies and government budgets can be seen as interconnected subsystems that are governed/controlled by the respective policymakers that decide on the use of policy instruments under their control given their objectives and constraints, including requirements imposed from higher level hierarchies. Iterative information flows enables the policymakers to implement feedback controls and to connect with other subsystems and communicate to higher levels in the systems hierarchy. The EU control system is moreover changing over time as subsystems become more integrated, regulation and decision making competences change. At the aggregate level, the highest level of the hierarchy, the European Union as a supranational authority would act as an overall coordinator.

Weeren (1995) considers hierarchical control from the perspective of cooperative and non-cooperative strategies: players/different systems in the hierarchy may/ or may not be cooperative when acting. Clearly, a non-cooperative mode of control leads to inefficient outcomes as players do not incorporate the externalities relating to their actions on other actors. A cooperative mode of interaction does enable to internalize these externalities thereby improving upon outcomes in a non-cooperative mode of play. With more subsystems/players, the hierarchical control problem clearly becomes more and more complex, and also the need for adequate feedback control at the higher levels of hierarchy increases. In the non-cooperative mode also adverse incentive effects increase with increasing complexity as externalities from players' action and adverse incentive effects tend to increase.

*Budgetary governance in the EU is different from management of nuclear plants or automated manufacturing systems. Control and systems theory, nevertheless, has many relevant and interesting insights relating to design and control of large scale network systems. Hierarchical control theory has potentially valuable insights for EU budgetary governance by taking into account control issues relating to hierarchical relations. These lie in particular in seeking to develop automated control systems that help policymakers at the EU and national level to control budgetary flows and process outcomes.*

## **6. A Macro-Finance Perspective on Budgetary Governance: Budgetary Stress Testing, Budgetary Spillovers, Budgetary Resilience and Budgetary Early Warning Systems in the EU.**

Europe's recent financial, budgetary and economic crisis has forcefully shown that macroeconomics, public finance and finance are intrinsically linked and need to be treated

likewise in budgetary governance. Recently, more interest is observed on integrating macro and finance in budgetary governance. To do so, complex methodologies concerning budgetary stress-testing, budgetary early warning systems and budgetary resilience need to be developed and integrated into the budgetary governance framework.

## 6.1 Macro-Finance Aspects of Budgetary Governance: An Outline

In an early assessment of the financial crisis, the EU Commission (2009) called for a coordinated framework for crisis management that contributes to three issues: (i) *Crisis prevention* (in particular policies to boost potential economic growth and competitiveness could also bolster the resilience to future crises). (ii) *Crisis control and mitigation* (its main objective is to stabilise the financial system and the real economy in the short run. It must be coordinated across the EU in order to strike the right balance between national preoccupations and spillover effects affecting other Member States). (iii) *Crisis resolution* (its objective being to bring crises to a lasting close, and at the lowest possible cost for the taxpayer while containing systemic risk and securing consumer protection. This also relates to reversing temporary support measures – i.e. an orderly exit strategy- as well action to restore economies to sustainable growth and fiscal paths).<sup>14</sup>

The European Commission has recently analysed possible tools to strengthen its capacity to detect fiscal distress in member states. E.g. in its 2011 report on Public Finances in EMU (EU Commission 2011), four possible approaches are proposed: (i) a model that investigates the *potential impact* of the balance situation of banks on public finances based on a value-at-risk analysis; (ii) *an early warning tool* which determines thresholds of fiscal distress for a set of fiscal and financial-competitiveness variables based on the signalling approach; (iii) an estimation of country-level *fiscal reaction functions* in order to evaluate the feasibility of fiscal consolidation programmes; (iv) a general equilibrium approach that identifies governments' maximally collectable tax revenue by taking into account the *feedback effects* between consolidation measures on the revenue side and the economy.

So far, policy makers in Europe have had no choice but to employ the existing mechanisms, models and procedures. However, the existing framework for financial crisis prevention, detection, control and mitigation appeared, with hindsight, to be underdeveloped. The beginnings of an improved, more elaborated framework are therefore emerging currently, building on existing methods, institutions and legislation, and complemented by new initiatives, as outlined above.

Although some observers pointed to large global unbalances before the crisis, hardly anyone could have predicted the timing and size of the current crisis. The failure to predict the crisis and its further spreading can at least partly be explained by the lack of adequate economic models.

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<sup>14</sup> Crisis detection is possibly to be added as a separate issue as it is by no means easy to identify crises as they evolve in real time. With the benefit of hindsight it is always easier ex-post to single out crises moments of course.

Existing models failed to, first, predict the moment of the crisis and secondly, the way in which the crisis affected various countries. Current well-established economic models appeared to be neither able to predict the impact of major shocks nor to distinguish between shocks and the transmission of shocks across countries via various channels, in particular due to the presence of real and financial spillovers.

Therefore, parallel to changes in macroeconomic policies, also in the analytical toolbox substantial investments are needed: standard macroeconomic models – even if upgraded to highly sophisticated DSGE models<sup>15</sup> – are not well-suited/designed to analyse the financial crisis and its effects in the Euro area. One needs to rethink the longstanding economic paradigm and its well-accepted models. A new and alternative approach, that captures the insights derived from the ongoing financial-economic crisis, has to be developed. In particular for the European Union with its complex governance structure, divergent macroeconomic performance and various spillovers, developing such an alternative is challenging.

Such a new approach needs a *comparative perspective*. Since the European crisis has affected European Union Member States sometimes in similar, sometimes in quite different ways, a comparative perspective is to be preferred over a single-country analysis. The awareness that a comparative perspective is necessary for systematic and consistent policy analysis and policy advice, is also witnessed by more attention to comparative aspects in many EU policy strategies and analyses, a good example being the recent introduction of the Macro-Economic Imbalance Procedure.

For a proper analysis of the incidence of the crisis, a clear separation between *shocks and transmission of shocks* is important. In this manner one is able to distinguish between causes and effects, to carry out adequate policy analysis and to formulate appropriate policy recommendations. The distinction between shock and transmission is also clearly made in the methodologies of theoretical and empirical macroeconomics.

The global financial crisis and European debt crisis demonstrate the importance of *interlinkages* between countries in the transmission of shocks. *Macroeconomic spillovers* can take multiple forms: traditionally *trade-based spillovers* have been in the focus of interest. The current crisis has also highlighted the importance of *financial market spillovers and contagion* e.g. in the rapid spreading the initial shock in the US through global financial systems, in particular through interbank loan markets (see e.g. Upper (2007)). Another demonstration of the importance of these spillovers, is the spillover of the Greek sovereign debt crisis to other peripheral euro area countries, via bond markets (see e.g. Afonso et al. (2012)).

In the aftermath of the current economic and financial crisis, economists, policymakers/regulators and the financial sector are realising that there is a need to make *stress-test methodologies* a systematic element in analysis and decision-making.<sup>16</sup> Macro-economic stress test models analyse the effects of macroeconomic “stress” on corporate sector

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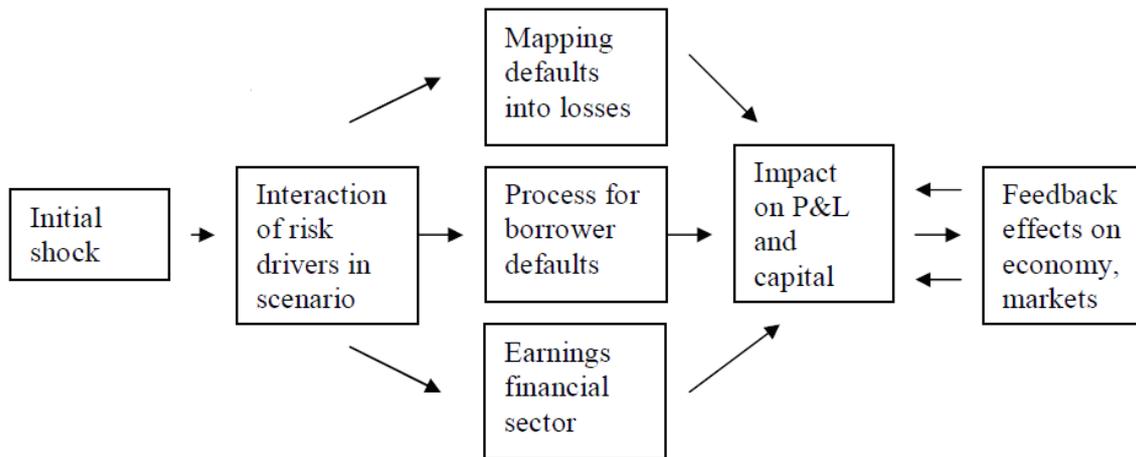
<sup>15</sup> See e.g. Smets and Wouters (2007) for the state-of-the-art DSGE model.

<sup>16</sup> See also Chan-Lau (2006) for details on designing stress-tests.

default rates, and on banks' credit risks that would stem on their turn from such corporate sector defaults and also the effects of deteriorating systemic risks and other adverse macroeconomic factors. Stress-tests seek to predict the impact of major negative shocks on financial sector profitability and lending. Financial sector distress has on its turn also clearly macroeconomic implications as the recent crisis has shown.

Systemic and macroeconomic risks in the financial systems and their potential consequences, therefore, are receiving more attention and the occurrence of large and persistent negative macroeconomic shocks and their effects are given much more consideration. In this vein, Hollo et al. (2012) provides an overview on stress-tests for the European financial system and constructs the ECB's Composite Indicator of Systemic Stress (CISS). The IMF (Cardarelli, Elekdag and Lall, (2009)) has developed a financial stress index (FSI) as an approximation to potential instability of financial markets. In an analogous manner, budgetary stress test show the impact of large, negative macroeconomic shocks on budgetary stability.

Figure 7 **Stress-testing framework**



Source: Bank of England

Related to stress tests, *early warning systems* (EWS) play a prominent role in both the academic literature and in practical policies to anticipate financial crises. One of the most simple and widely used methods to construct early warning systems is the signals approach developed by Kaminsky and Reinhart (1999). It assumes a strong non-linearity in the relationship between indicator variables and financial crises. Indicator variables send a signal, if their level crosses a certain threshold. The signal is interpreted as a sign for a looming crisis that can be expected to emerge within a predefined period of time. Clearly, the choice of adequate thresholds is of

crucial importance. If thresholds are set too high, looming crises might be overlooked (Type I errors). If thresholds are set too low, false alarms might be produced (Type II errors).<sup>17</sup>

Especially interesting in the context of this paper is the European Commission's Scoreboard of Macroeconomic Imbalances. It is based on a set of thresholds: Current account balance: Above +6% or below -4%, International investment position: -35%, Real effective exchange rate: -/+5% for euro-area countries, -/+11% for non-Euro-area countries, Export market shares: -6%, Unit labour costs: +9% for euro-area countries, +12% for non-euro-area countries, House price index: +6%, Private sector credit growth: +15%, Private sector debt: 160%, Public sector debt: 60%, Unemployment rate: 10%. It seems interesting to have a closer look at the performance of this EWS in the context of the financial and economic crisis.

*Resilience* is another important concept for macroeconomic and budgetary governance in the presence of large shocks: it has been used mostly in ecology where it refers to the ecological capacity to withstand and to absorb shocks.<sup>18</sup> In economics, resilience is not a standard concept. The recent financial and economic crisis suggests however that the resilience to shocks could be an important feature to understand how economies reacted to the turbulence of global financial shocks and continue to diverge in adjustment dynamics in the transition phase after the crisis. Resilience can explain how the economy is impacted by shocks and how fast it will recover from the shocks. Budgetary resilience measures how much government spending and revenues are affected by large negative shocks by looking to impact and transmission effects. Among the many factors that can contribute to resilience a number of categories can be identified: (i) variables measuring policy variables (in particular monetary policy and fiscal policy), (ii) variables measuring constraints for policy action (in particular public debt and external debt), (iii) variables measuring short-term trade or financial flows that can affect short-run post-crisis recovery (e.g. FDI, exports and portfolio investment flows), (iv) variables measuring other factors, like reforms and structural changes that affect adjustment capacities (e.g. IMF arrangements and ESM support, labour market reforms).

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<sup>17</sup> An early warning system thus can have four potential results: first, a signal is issued and a crisis follows (State A); second, a signal is issued and no crisis follows (State B); third, no signal is issued and a crisis follows (State C); fourth, no signal is issued and no crisis follows (State D). States A and D are the desired results; State C constitutes Type I errors; State B constitutes Type II errors. Thus,  $C/(A+C)$  is the share of Type I errors in pre-crisis periods, while  $B/(B+D)$  is the share of Type II errors for tranquil periods. The thresholds are set in a way that optimizes the forecasting performance within a sample. In most of the earlier contributions, the forecasting performance has been optimized by minimizing a noise-to-signal ratio (e.g. Kaminsky and Reinhart, 1999). In Demirgüç-Kunt and Detragiache (2000) and more recent contributions thresholds are set in a way that minimizes the weighted sum of two potential forecasting errors.

<sup>18</sup> A related concept is *vulnerability* to shocks which takes a more or less opposite perspective as resilience. Briguglio et al. (2007) define vulnerability in terms of inherent features and resilience in terms of policy-induced changes. Vulnerability would refer to permanent (or quasi permanent) features over which a country can practically exercise no control and therefore cannot be attributed to bad governance. Scores on resilience would reflect to some extent also the appropriateness of policy measures. Vulnerability and resilience indexes are constructed. The *vulnerability index* is linked to high degrees of economic openness, export concentration and dependence on strategic imports. The *resilience index* is linked to macroeconomic stability, microeconomic market efficiency, good governance and social development.

Interestingly, a few studies have made the resilience concept more concrete in case of macroeconomic shocks, see especially Deserres (2007), Guay and Pelgrin (2007) and Duval and Vogel (2007). All studies use SVAR models to determine resilience. Deserres (2007) and Guay and Pelgrin (2007) use the impulse-response functions to shocks of different countries to compare the resilience against shocks of countries.

The financial crisis clearly requires new thinking about crisis-related economic phenomena like shocks, transmission and spillovers. At the same time, previously developed, but so far less important methodologies become important building blocks in a renewed macro-economic thinking. However, the current literature is rather fragmented. Various methodological aspects are well covered, but so far no attempts have been made to integrate these different elements into one methodological approach.

## **6.2 A Macro-Finance Approach to Budgetary Governance in the EU**

This section outlines a methodological toolbox which can be used to analyse and compare the impact of actual as well as potential macroeconomic shocks in various EU member states, in the context of the current financial, budgetary and economic turbulence.

The analysis of the current European economic and budgetary crisis requires a multi-faceted approach towards analysing crisis impact and transmission. It needs to integrate into one framework, several aspects and tools that have proven their own importance/merits in analysing financial and macroeconomic adjustment. Due to the crisis various long-standing methodologies are indeed in need of an update –be it at the methodological front or in their application in the context of the recent experiences with financial market turbulence and economic slowdown-. New evidence and additional insights are therefore be expected from this integration. In this section we provide a brief state of the art on a few aspects that are important in the project design.

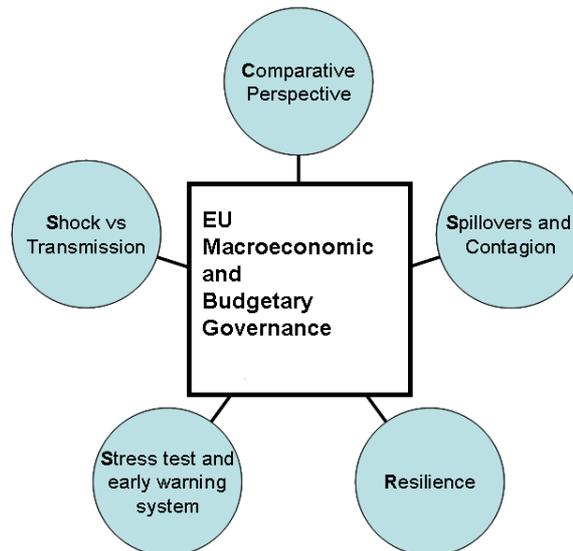
Budgetary governance would benefit from an integrated analytical framework that enables to analyse events like the recent financial crisis and economic slowdown in the EU by integrating the following aspects: (i) it takes a Comparative perspective; (ii) it enables to systematically identify Shocks versus the transmission of shocks; (iii) it takes systematically into account the presence of real and financial Spillovers in EU economies; (iv) it integrates Stress test models and early warning systems methodologies into macroeconomic analysis to detect, predict and explain stress in fiscal balances, financial markets and the real economy; (iv) it analyses factors that contribute to Resilience, to budgetary, financial and real economy stress factors, by considering the comparative EU evidence on institutions and institutional reforms.<sup>19</sup>

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<sup>19</sup> Related proposals and recommendations are also found in Kastrop et al. (2012), Kenny (2011), IMF (2009), Gray et al. (2008),

Figure 8 gives a graphical presentation of a budgetary governance framework in the EU in the context of financial crisis.

Figure 8 **An Analytic Framework of Governance in the EU**



A crucial innovation of this approach consists of the integration of five research aspects into one overarching framework to analyse macroeconomic adjustments and governance in the context of the recent economic and financial crisis. This approach is likely to lead to more insights into the onset and evolution of the European crisis and also to insights that cannot be gained when one would restrict to one aspect only.

*A macro-finance framework that embeds aspects such as spillovers, stress-testing, early warning and resilience, will constitute a valuable tool in EU budgetary governance in particular in a context of large shocks and (systemic) imbalances. Several promising approaches have recently been approached, inspired by the current crisis.*

## Conclusion

This paper has indicated approaches that could contribute to transform budgetary governance in the euro area from the current ad-hoc -, procedural -, indicator and rule based, approach to a integrative, process-oriented, diagnostic and self-correcting framework. Such an approach seems not only more effective in dealing with imbalances but also logical/required in an evolution towards economic -, fiscal-, monetary and bank-, social -, and political union (if this is the direction the euro area would decide to take). If the financial, budgetary and economic crisis has also positive aspects, it must be that it has contributed to a greater awareness of and insights into the needs to and benefits from reforming governance structures.

We surveyed the recent reforms to the existing budgetary governance framework. Changes to the Excessive Deficit Procedure and new instruments like the Macroeconomic Imbalance Procedure appear to be relatively small steps forward compared to the challenges ahead. .

Next, we considered a number of theoretical approaches that take fundamentally different perspectives on EU budgetary governance. We tried to demonstrate how these approaches could benefit to strengthening EU budgetary governance. Fiscal federalism focuses on the economic principles of government organisation, budgeting, and the assignment of allocation -, redistribution - and stabilization functions across different layers of government. EU budgetary governance would benefit from aligning it closer to the fiscal federalism. As concrete illustrations we took a closer look at the EU budget and the possible introduction of Eurobonds.

Theories from political science and public policy can also be highly relevant for EU budgetary governance. Our conclusion from outlining a few budget approaches and the framework of multi-level governance was that the EU budgetary governance framework needs to be oriented more towards the actual budgeting processes and the political context in which it takes place.

Managing a nuclear power plant, an army or other complex systems is clearly very different from managing EU budgetary governance framework. Nevertheless, we found that control and systems theory could provide useful principles, e.g. in providing concepts to deal with complex hierarchical systems, delineating information flows in large-scale control networks, automating of control processes in real time, considering stability and robustness aspects etc.

Finally, Europe's financial, budgetary and economic crisis has shown the need to add more diagnostic tools to the EU budgetary governance framework. A macro-finance framework that embeds aspects such as spillovers, stress-testing, early warning and resilience, will constitute a valuable tool in EU budgetary governance in particular in a context of large shocks and (systemic) imbalances.

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## **Project Information**

### **Welfare, Wealth and Work for Europe**

#### **A European research consortium is working on the analytical foundations for a socio-ecological transition**

##### **Abstract**

Europe needs change. The financial crisis has exposed long-neglected deficiencies in the present growth path, most visibly in the areas of unemployment and public debt. At the same time, Europe has to cope with new challenges, ranging from globalisation and demographic shifts to new technologies and ecological challenges. Under the title of Welfare, Wealth and Work for Europe – WWWforEurope – a European research consortium is laying the analytical foundation for a new development strategy that will enable a socio-ecological transition to higher levels of employment, social inclusion, gender equity and environmental sustainability. The four-year research project within the 7<sup>th</sup> Framework Programme funded by the European Commission was launched in April 2012. The consortium brings together researchers from 33 scientific institutions in 12 European countries and is coordinated by the Austrian Institute of Economic Research (WIFO). The project coordinator is Karl Aiginger, director of WIFO.

For details on WWWforEurope see: [www.foreurope.eu](http://www.foreurope.eu)

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