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Rainy Day Funds: Can They Make a Difference in Europe?

Fabrizio Balassone, Daniele Franco and Stefania Zotteri*

Abstract

Rainy Day Funds (RDFs) have an important role in the USA. They allow States – which usually have rules requiring a balanced budget for current revenue and spending – to limit procyclical fiscal policies. This paper examines the possible role of RDFs in the European fiscal framework. The analysis suggests that RDFs would not fundamentally alter the incentive problems at the root of the difficulties in the implementation of the Stability and Growth Pact. Moreover, RDFs are not an option for countries with high deficits. However, for low-deficit countries, RDFs can lessen the rigidity of the 3 per cent threshold in bad times. RDFs could be introduced on a voluntary basis at the national level and could contribute to make the rules more country-specific. The introduction of RDFs would require a change in the definition of the “Maastricht deficit”: deposits and withdrawals should be considered respectively as budget expense and revenue. In this way, the balances held in RDFs could be spent in bad times without an increase in the deficit. To ensure that RDFs are not used opportunistically, deposits should only be made out of budget surpluses and circumstances allowing withdrawals should be specified ex ante.

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1. Introduction

The long debate on European Union (EU) fiscal rules has highlighted their weak points, including the lack of strong incentives for fiscal discipline in good times and the related possibility that in bad times countries have to choose between implementing procyclical policies and trespassing the 3-percent-of-GDP deficit threshold. The experience of US States with Rainy Day Funds (RDFs) has suggested that they may be fruitfully introduced also in Europe.¹

Almost all States in the USA have legal provisions mandating that the budget should be balanced on a yearly basis. Although different from European fiscal rules, this balanced-budget requirement has similar implications. In good times it will be relatively easy to comply with the rule as revenue will be abundant. However, keeping a balanced budget through a downturn will entail procyclical tax increases and/or expenditure cuts, unless significant surpluses are run in the upturn. To deal with this problem, starting mainly from the late seventies, US States have been adopting RDFs.² The idea is rather intuitive and appealing: money is saved and accumulated into the fund in good times, whereas money is withdrawn and spent in bad times. This can allow the State to stick to the balanced-budget requirement while avoiding increasing taxes and/or decreasing expenditures in bad times.

This paper addresses the following questions: can RDFs tackle the incentive problem at the heart of the Stability and Growth Pact (SGP) difficulties? Can RDFs make the European framework more flexible? What changes would be required in the EU framework to make RDFs an effective instrument?

The analysis suggests that RDFs would not fundamentally alter the incentive problems of the SGP. Moreover, RDFs are not an option for countries with high deficits (even in good times, there would be no surplus to be saved). However, for low-deficit countries, RDFs can alleviate the rigidity of the 3 per cent threshold in bad times. RDFs could be introduced on a voluntary basis at the national level and could contribute to make the rules more country-specific. The introduction of RDFs would require a change in the definition of the “Maastricht deficit”: deposits and withdrawals should be considered respectively as budget expense and revenue. In this way, the balances held in RDFs could be spent in bad times without an increase in the deficit. To ensure that RDFs are not used opportunistically, deposits should only be made out of budget surpluses and circumstances allowing withdrawals should be specified *ex ante*.

The paper is organized as follows. Section 2 compares the US and the European set-ups highlighting similarities and differences. Section 3 reviews the available evidence on US

¹ Buti *et al.* (2003) suggested the introduction of RDFs in the EU. They noted that, while the possibility to establish RDFs would not tackle at the root the incentive problem that governments have in good times, the flexibility that they would provide would allow a tightening of sanctioning procedures for countries exceeding the 3 per cent limit. Sapir *et al.* (2003) noted that a voluntary system of RDFs could improve the incentives to secure surpluses in good times while increasing the room for manoeuvre in bad times. They concluded that the advantages of this step should be assessed against the cost of revision of national accounting rules.

² In the US the main rationale for introducing RDFs lies more with the need to avoid discontinuities in tax and spending programs, than with the macroeconomic consequences of fiscal policy. The cyclicity of fiscal policy at the State level is not really a big issue in the US. Indeed, the fiscal impulse will be determined by the federal government which is not bound by any fiscal rule and can undo the State’s fiscal stance.

States fiscal performance to see whether and under what conditions RDFs significantly improve fiscal performance. Section 4 discusses the possibility to introduce RDFs in the European framework and what can be expected from such an innovation. Section 5 concludes and indicates issues for future research.

2. Fiscal rules in the USA and the EU: similarities and differences

The European fiscal framework was developed gradually. The Maastricht Treaty (1992) set the fiscal criteria to be met by EU member states in order to join the European monetary union (EMU). According to the Treaty, member states have to avoid “excessive deficits”, defined as situations where: (a) government deficit exceeds 3 per cent of GDP (unless the extra deficit is exceptional, temporary and small), or (b) government debt is higher than 60 per cent of GDP and is not declining at a satisfactory pace. These same criteria were intended to regulate the fiscal behaviour of member states after they joined EMU.³

The SGP – 1997 and 2005 – complemented the Treaty with a view to reconcile permanent restraint on deficit and debt levels with margins for fiscal stabilization. More specifically, the Pact introduced the new objective of a medium-term budgetary position close-to-balance-or-in-surplus (CTB), where medium-term can be interpreted as the length of the economic cycle and the CTB objective as a target in cyclically adjusted terms (net of the effect of temporary measures).

The CTB medium-term target is intended to provide margins for stabilization policy during “normal” cyclical fluctuations (changes in the output gap) without breaching the 3 per cent deficit threshold (fig. 1). Additional room for manoeuvre in the face of other unfavourable events is provided by specific provisions governing the possibility to trespass the 3 per cent deficit threshold. The excess over 3 per cent must in any case be exceptional, small and temporary.⁴

In the USA, almost all States have a balanced-budget requirement.⁵ Though some deficit financing is allowed, this is subject to strict limits. Therefore many States also have an RDF as a means to avoid tax increases and/or spending cuts in bad times while complying with the balanced-budget requirement. RDFs are seen as a means to avoid abrupt changes in tax and spending policy rather than as a means to allow active fiscal stabilization.⁶ The

³ The development of and rationale for these rules are discussed, e.g., in Buti and Sapir, 1998; Brunila *et al.*, 2001; Buti and Franco, 2005.

⁴ The recent revision of the SGP increased its flexibility but did not affect the trust of the fiscal framework. With the revision, CTB medium-term targets vary across countries depending on debt level and potential growth and the set of circumstances allowing the nominal deficit to exceed 3 per cent of GDP has been enriched.

⁵ Even if most US States share many features concerning fiscal policy, there is a high degree of heterogeneity in the way the fiscal framework is actually implemented. In particular, the specifications of the balanced-budget requirement vary significantly across States. Some have a simple *ex ante* provision (i.e. a budget proposal cannot be approved unless it foresees a balance between revenue and expense). Others have an *ex post* requirement, whereby any revenue shortfall or spending overrun with respect to the approved budget cannot be fully financed through borrowing and must be compensated by tax increases and/or spending cuts. See Laubach (2005). In this paper, when we refer to the US States in general, we actually refer to the most common fiscal features.

⁶ See Knight and Levinson (1999) and McGranahan (1999).

idea is simple: money is set aside into the fund in good times and it is withdrawn in bad times.

The typical state budget is made up of a general fund, which is financed through taxes and fees and pays out current expenditure, a capital fund, which is financed through debt and motor fuel taxes and pays out infrastructure investments and an RDF. The balanced-budget requirement usually refers to the general fund and the corresponding balance is measured including transfers to/from the RDF.

This set-up resembles the European one: net of operations with the RDF, the general fund will run surpluses in good times and deficit in bad times, resulting close to balance (recall that some deficit financing is allowed) on average across good and bad times (fig. 2).

However, there are three important differences. First, contrary to what happens under European provisions, the US balanced-budget requirement does not apply to capital spending, so that it ultimately implements a “golden rule over the cycle”,⁷ closer to the fiscal rules adopted in the UK.⁸ Second, the maximum deficit allowed in bad times is not fixed *ex ante* (as with the 3 per cent ceiling in the Maastricht Treaty), but depends on the resources accumulated in good times. Third, the surpluses obtained in good times must be saved in the RDF and cannot be used otherwise, while in the European framework surpluses can either be used to reduce outstanding debt or to acquire financial assets.⁹

Fig. 1 - EMU Fiscal Rules: a Stylized Representation

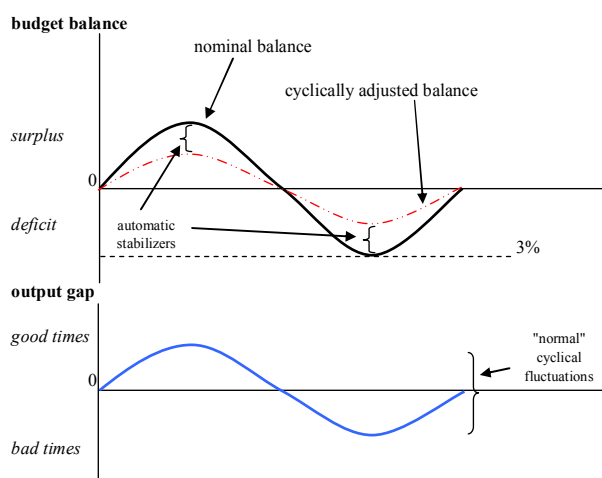
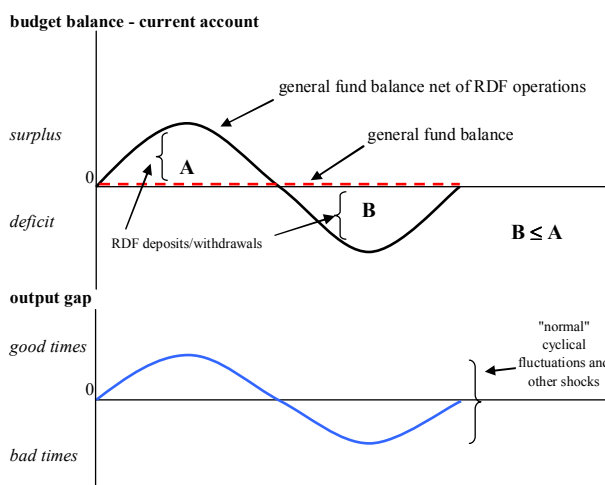


Fig. 2 - Balanced-Budget Requirement and Rainy Day Funds in the USA



It should also be noted that the definition of good and bad times is not the same in the two set-ups. In the US context, the definition of the type of shocks (bad times) against which RDFs are meant to provide shelter is not unequivocal. In particular, a broad and a strict definition can be distinguished (Hou, 2005). According to the former, bad times are those

⁷ Specific provisions regulate deficit financing of the capital fund in US States.

⁸ The Code for Fiscal Stability (HM Treasury, 1998) defines a fiscal framework based on two rules: (a) the “golden rule” mandating that the public sector current balance be non-negative on average over the economic cycle; and (b) the “sustainable investment rule” requiring that the ratio of net public sector debt to GDP be kept at a stable and prudent level (currently set at 40 per cent).

⁹ Indeed, because of the limit applying to gross debt, in the European framework there is an incentive for high-debt countries not to accumulate financial assets.

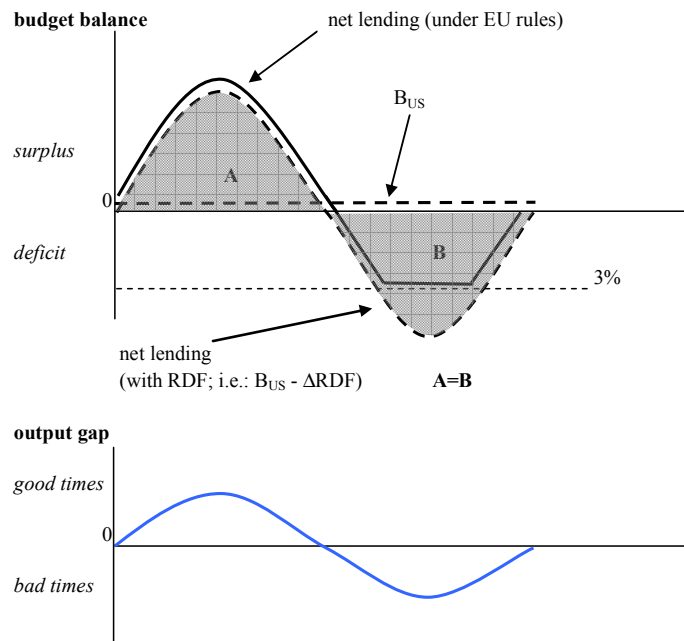
when a gap between revenue and expenditure opens either because of the adverse cyclical conditions or because of any unexpected adverse shock. The stricter definition limits bad times to the presence of adverse cyclical conditions. The SGP provision identifies as exceptional both unusual events outside the control of the Member State and severe economic downturns.

In the European framework the budget deficit/surplus is defined according to the rules set out in the national accounts (ESA95):¹⁰ net lending/borrowing (NL) is the balance of non-financial transactions ($NL=R-G$, with R indicating revenue and G expenditure) on an accrual basis, whose counterpart – on the financing side – is the change in the government net financial asset position ($\Delta NA=\Delta A-\Delta L$, with ΔA indicating the change in financial assets and ΔL the change in financial liabilities). According to the Maastricht Treaty, net borrowing should never exceed 3 per cent of GDP:

$$(1) \quad NL = R - G = \Delta A - \Delta L = \Delta NA \geq -3\%$$

In this framework, deposits to/withdrawals from an RDF (ΔRDF) would be included among changes in financial assets ($\Delta A=\Delta RDF+\Delta OA$; where OA stays for “other financial assets”). Changes in the balance of the RDF, like any other change in financial assets do not affect the deficit level, but the composition of its financing. If there is a deficit ($R<G$) and the government reduces its holding of financial assets (including the balance of the RDF) to finance such deficit ($\Delta A<0$), then the need to issue further debt (ΔL) will correspondingly be reduced, but the difference between R and G will not be altered.

Fig. 3 - Budgetary margins in bad times:
RDF vs. the 3 per cent threshold



¹⁰ See Eurostat (1995) and (2000).

The US balanced-budget requirement applies to a different balance, which we may denote as B_{US} and characterize as:¹¹

$$(2) \quad B_{US} = R - G - \Delta RDF = \Delta OA - \Delta L = 0$$

Comparing (1) – from which $R-G=NL$ – and (2) – from which $R-G-\Delta RDF=0$ – we see that $\Delta RDF=NL$. This highlights the similarity between the US framework and the European one, but also points to one of the important differences we mentioned before: while in the latter there is an *ex ante* limit to net borrowing (the 3 per cent of GDP threshold), in the former net borrowing is only constrained by the extent of savings set aside in the RDF (fig. 3).

The requirement that B_{US} be always balanced implies that RDFs cannot be financed by issuing bonds. This is important to avoid a ratchet effect in gross (and net) financial liabilities.

Figure 4 compares the dynamics of budget balances (both NL and B_{US}), RDF balances and financial liabilities (gross and net) under two different regimes: one in which deposits into the RDF can only be made out of surpluses and another in which additional deposits can be financed by issuing bonds.

Under the first regime (see the solid lines in Figure 4), net lending and net borrowing balance out over the business cycle (top panel) and B_{US} is always balanced (second panel). The balance held in the RDF grows during good times and is spent in the subsequent downturns (third panel). Gross debt is constant at its initial level (fourth panel) and net debt falls during upturns (as assets are accumulated) to return to its initial level during downturns (fifth panel).

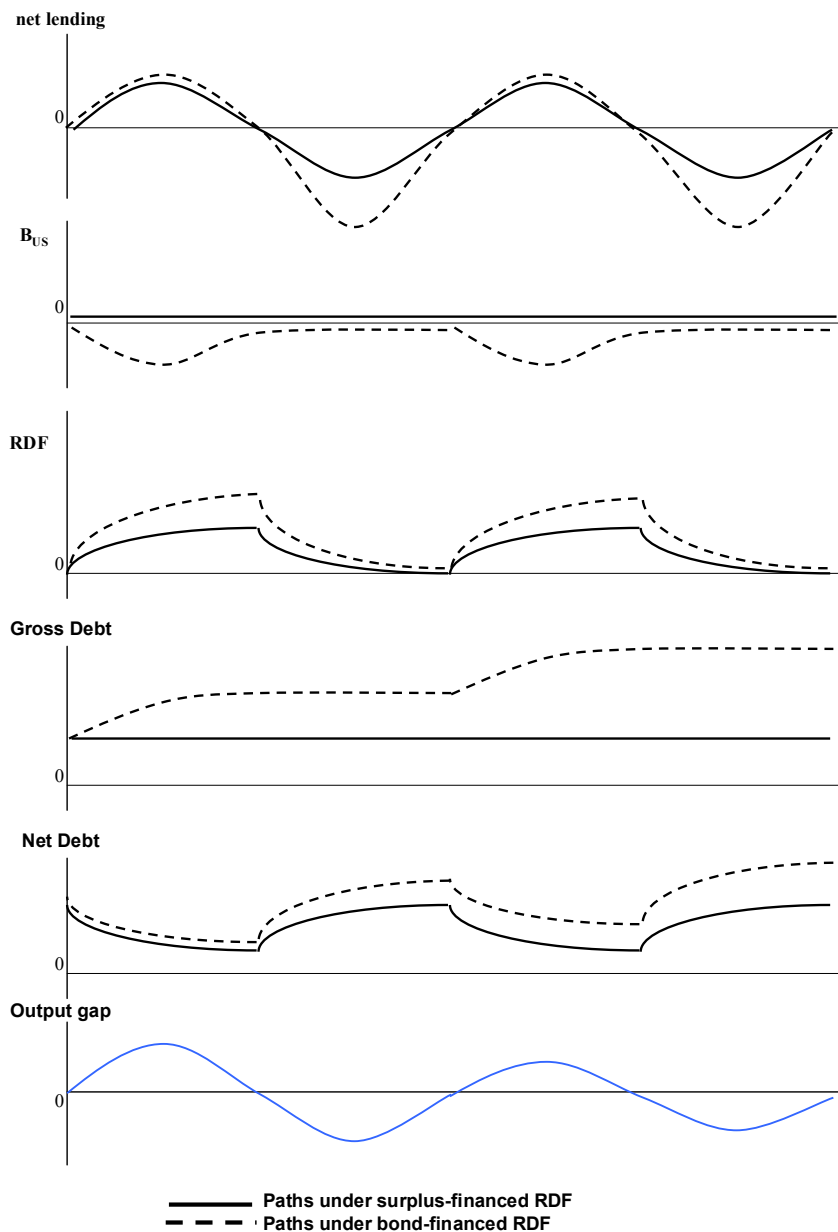
Now suppose that additional deposits into the RDF, bond-financed, are allowed (see the dotted lines in Figure 4), so that the balance held in the RDF at the end of the upturn exceeds cumulated surpluses (third panel). Compared to the other regime, this will have no bearing on net lending as $R-G$ is unchanged (top panel), but B_{US} will record a deficit as deposits into the RDF exceed $R-G$ (second panel). At the same time, gross debt will rise as new bonds are issued (fourth panel), while the path of net debt will be unaffected as new bonds are offset by deposits into the RDF (fifth panel). With the onset of the downturn, if net borrowing is allowed to rise up to the level of the RDF, it will exceed net lending obtained in the upturn (top panel), even though B_{US} is balanced as $R-G=\Delta RDF$ (second panel). Since no new bonds are issued, gross debt will remain at the level reached at the end of the upturn (fourth panel), but net debt will rise above its original level (fifth panel) as the bonds issued in the upturn are no longer offset by the balance held in the RDF (third panel). As this pattern repeats over time, both gross and net financial liabilities keep growing.

¹¹ This is a simplification for the sake of comparability. The US balanced-budget requirement leaves the overall deficit (and its financing) undetermined. It is more precisely defined as:

$$B_{US} = R_c - G_c - \Delta RDF = 0$$

Where R_c and G_c indicate current revenue and expenditure, respectively.

Fig. 4 - Bond financing of RDF and debt dynamics



3. RDFs and the cyclical policy of fiscal policy

In the US framework, before the introduction of RDFs, nothing prevented governments from accumulating resources in the general fund. Indeed, almost all States allow surpluses to be carried over from one year to the next (McGranahan, 1999).¹² Yet they were not doing so and the introduction of RDFs was justified as a means to achieve a higher degree of fiscal responsibility in good times.

But how? Indeed, if the structure of the RDF is similar to that of the general fund – i.e. the funds are deposited and withdrawn at the legislature’s discretion – an RDF would not have

¹² Nearly all balanced-budget rules are written in stock terms rather than in flow terms (Wagner, 2003; Wagner and Sobel, 2006).

any actual effect on the ability of the State to cope with bad times: it would simply play part of the general fund role.

The criteria according to which funds are deposited into and withdrawn from RDFs vary significantly across States and in some cases they are fully discretionary (Appendix 1).¹³ Typically, three mechanisms are used: (a) residual determination of RDF deposits/withdrawals based on general fund year-end surpluses/deficits; (b) determination by legislative appropriations; and (c) determination through a mathematical formula.¹⁴ More than one mechanism can be used at the same time.¹⁵

Residual determination of deposits/withdrawals and determination by legislative appropriation make an RDF little different from the general fund and can be considered “weak rules”. Reference to a mathematical formula, on the contrary, reduces discretion and can be seen as a “strong rule”. In principle, only RDFs based on strong rules can ensure time consistency of policies and allow a State to be better equipped for the next downturn. Much as with the SGP, the issue lies with the credibility/enforceability of the provisions.

The empirical evidence on the impact of RDFs on the fiscal behaviour of US States over the cycle is mixed. The majority of States appears to fail accumulating sufficient reserves during good times, resulting in procyclical policy in downturns to comply with balanced-budget rules.¹⁶

Tests which do not differentiate between weak and strong rules tend to suggest that the introduction of RDFs made little difference in fiscal behaviour (e.g. Wagner, 2003). Highlighting differences in provisions accompanying RDFs, other studies have found that the fiscal performance of States with RDFs based on strong rules tends to be better than average (Sobel and Randall, 1996; Wagner and Elder, 2005; Wagner, 2004).

Results from a panel analysis over 1984-97 by Knight and Levinson (1999) suggest that total balances are: (a) better in States with RDFs than in States without RDFs; and (b) better in States whose RDFs have strict deposit and withdrawal rules (and no maximum size) than in States whose RDFs are run on the basis of legislative discretion. However, Wagner (2003) subsequently showed that the analysis in Knight and Levinson (1999) did not take into account non-stationarity of variables and once this is properly treated, found no evidence that the presence of an RDF has an impact on total government balances. Nevertheless, Wagner (2003) does find evidence that total balances are better when withdrawals from an RDF are regulated by supermajority rules.¹⁷

¹³ In some States, RDFs balances cannot exceed a predetermined threshold.

¹⁴ In a few cases deposits to the RDF are tied to specific revenue. This is the case of the oil taxes and of other mineral taxes in Alaska and Texas. Such cases are often not included in empirical analyses of US RDFs since they are regarded as exceptions. Indeed, funds tied to nonrenewable resources face very specific problems. Government revenue stemming from the exploitation of non-renewable resources differs from other revenue as it partly represents a depletion of assets. Secondly, using non-renewable resources raises important intergenerational issues (see Davis *et al.*, 2003).

¹⁵ For example, this is the case of Kentucky Budget Reserve Trust Fund, i.e. the Kentucky’s RDF, which can be replenished by the allocation of any end-of-year surplus as well as by direct appropriation.

¹⁶ See, for instance, Sobel and Holcombe (1996), Levinson (1998) and Lav and Berube (1999).

¹⁷ Moreover, Wagner (2004) also finds that States experience a reduction in bond yields after the introduction of an RDF and RDFs with different types of deposit and withdrawal rules affect borrowing costs differently (States with strict-rule RDFs obtain the largest reduction in yields). This suggests that the markets perceive RDFs as tools to enhance fiscal soundness by improving the States’ ability to manage a fiscal crisis.

Another set of studies focuses on the behaviour of expenditure over the cycle and finds more evidence in support of a positive role of RDFs. Hou (2005) finds that own-source expenditures (i.e. those that are not financed by transfers from other government tiers) are least affected by adverse cyclical conditions in States with fiscal reserves in RDFs. Wagner and Elder (2005) find a significant reduction in the volatility of expenditure in those States with a strict-rule RDF.¹⁸

The difficulties in implementing “good” cyclical policies and the diversity of outcomes under similar fiscal rules are not an exclusive prerogative of the US. In Europe, the average sensitivity of government budgets to the output gap over the cycle appears to be lower than one would expect on the basis of automatic stabilizers alone and there is evidence that this reflects significant asymmetries across positive and negative cyclical phases. Specifically, discretionary policy tends to act procyclically in good times – thus offsetting the automatic stabilizers – and to be neutral in bad times.¹⁹ In general, there is little evidence that the introduction of fiscal rules, either with the Maastricht Treaty in 1992, or with the SGP in 1997, has affected the cyclical policy.

We estimated a simple fiscal reaction function for each of the original members of the euro area (excluding Luxemburg and Germany)²⁰ to assess the cyclical performance of fiscal policy in these countries.²¹

Results confirm a low average cyclical sensitivity of the budget and a certain degree of asymmetry. Moreover, they confirm significant differences across countries. The cyclical sensitivity of the budget is not statistically different from zero in Belgium, France, Italy and the Netherlands, suggesting that procyclical fiscal policy systematically offsets the effects of automatic stabilizers. In Ireland, Portugal and Spain the cyclical policy of the budget is found to be asymmetric: a countercyclical response to negative output gaps is accompanied by a procyclical or neutral response to positive output gaps. Only in Austria and Finland does the reaction of the budget appear to be consistently countercyclical across good and bad times (see Appendix 2 for details).

In France, Portugal and Italy the unsatisfactory cyclical performance of the budget is accompanied by inadequate progress towards achieving the objective of a budgetary position close to balance or in surplus. On the other hand, in Austria and Finland not only did the budget react appropriately to cyclical conditions, but progress towards a close to balance position was steady.

¹⁸ Gonzales and Paqueo (2003) obtain similar findings and show that the reduction in volatility mainly affects social spending.

¹⁹ See, for instance, Buti, Franco and Ongena (1998), European Commission (2001), von Hagen (2002), Balassone and Francese (2004) and IMF (2004 and 2006). While most of the evidence comes from panel studies, Balassone (2005) analyzes cyclical asymmetry in fiscal policy in a single country study of Sweden.

²⁰ The exclusion of Germany reflects technical difficulties related to the structural break due to the reunification. Results on a dataset truncated in 1990 suggest that fiscal policy was cyclically well-behaved in pre-unification Germany. Estimation of the reaction function over the subsequent 1990-2004 period provides no statistically significant result.

²¹ We plan to run a similar exercise on US states in a subsequent version of the paper.

Fig. 5 – Heterogeneity of budgetary outcomes in the euro area: net borrowing and cyclically-adjusted net borrowing

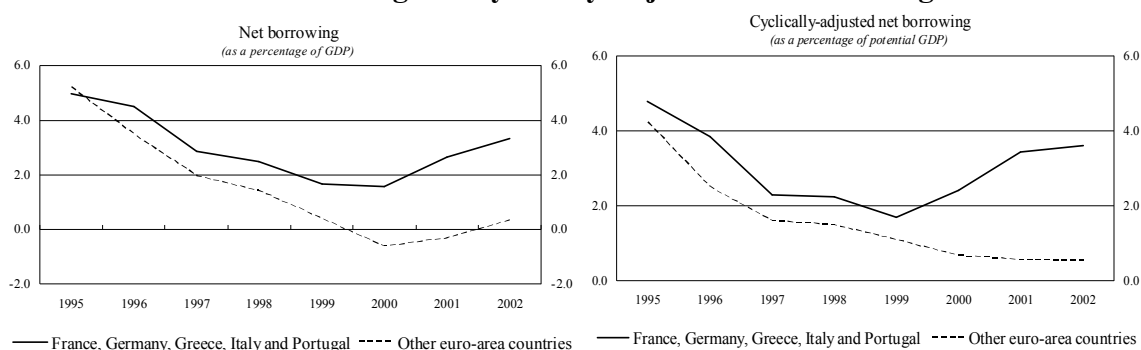


Figure 5 shows the degree of heterogeneity of budgetary outcomes in the euro area over 1995-2002. In 1995 the average net borrowing of France, Germany, Greece, Italy and Portugal (countries which were later to breach the 3 per cent deficit threshold) was much the same as that of the other euro-area countries, at about 5 per cent of GDP. In 2000, while the rest of the euro area scored a surplus, France, Germany, Greece, Italy and Portugal recorded an average deficit of 1.6 per cent of GDP. The opening of the gap was largely due to differences in policies. All countries improved their cyclically-adjusted balance until 1999. Thereafter, while the other countries kept progressing towards a CTB position, France, Germany, Italy, Portugal and Greece loosened their budgets by about 2 percentage points, to reach a cyclically adjusted deficit of about 4 per cent of GDP in 2001-02.

4. Can RDF make a difference in Europe?

The US experience shows that RDFs per se do not fundamentally alter the incentive problems underlying procyclical policies. It also shows that rule-based RDFs can help to reconcile soundness and flexibility. But in this case, much as with the SGP and with fiscal rules in general, issues of commitment, credibility and enforceability arise.

Nevertheless, the analysis in Section 2 suggests that there is one aspect in which RDFs could improve upon the current European framework. With RDFs the room for manoeuvre in bad times depends directly on surpluses accumulated in good times. In principle, this could allow more flexibility compared to the predetermined 3 per cent deficit ceiling of the Maastricht Treaty and would represent a further move towards a country-specific framework, away from the much criticized “one-size-fits-all” approach characterizing the original EU fiscal framework.

This Section considers if and how European countries can take advantage of the opportunity offered by RDFs within the framework defined by the Maastricht Treaty and the SGP. The following issues are examined: (a) Should RDFs be introduced at the European or at the national level? (b) How should the EU accounting and monitoring framework be modified to accommodate RDFs? (c) What restrictions should apply to deposits and (d) withdrawals, in order to avoid the opportunistic exploitation of RDFs? (e) Which countries could actually benefit from the RDFs?

RDFs: a national institution. – The reform of the SGP in 2005 aimed at increasing the flexibility of fiscal policy in EU countries. One-size-fits-all rules were not considered an

optimal solution, in particular with respect to the preventive arm of the Pact. Indeed the European Council has been calling for improvements in national fiscal frameworks, as a complement to the SGP reform.

In this environment the introduction of a new centralized and rule-based instrument is unlikely to find much support. Moreover, there is no reason to maintain that all countries should pursue an increase in the room for manoeuvre in bad times compared to what is allowed under current provisions. Therefore, RDFs should more appropriately be national tools.

Changes to the EU accounting/monitoring framework to accommodate RDFs. – As noted above, under ESA95 deposits to and withdrawals from an RDF would be recorded as changes in financial assets which do not affect the deficit level, but the composition of its financing.

Without a change in the definition of the “Maastricht deficit”, which is based on ESA accounting rules, national authorities would have little incentive to introduce RDFs. With respect to EMU fiscal rules, the only benefit of accumulating assets in good times would be the possibility to avoid increasing gross debt in bad times as RDFs balances could be used to finance the deficit instead. However, there would be no change with respect to the maximum allowed deficit (the 3 per cent ceiling).

A revised interpretation of ESA accounting rules could allow withdrawals from an RDF in bad times to be considered as additional revenue and thus reduce the deficit. This change may entail a revision of the EDP Protocol of the Treaty (European Commission, 2006).²²

A number of monitoring/regulatory issues would arise. To minimize monitoring costs and hazards, there should be only one RDF per member state. Detailed reporting concerning level, changes and investment out of RDFs balances should be provided. In particular, this reporting could be included in the bi-annual Notifications of fiscal data which member states currently provide to European authorities. To ensure that RDF balances represent genuine savings and that they are readily available in bad times, they should only be invested in liquid, low-risk assets. For instance, financial assets which may be problematic to dispose of, such as shares of publicly owned companies not included in general government, should not qualify for RDF investment. Eligibility for the exemption could be granted only to bonds with a certain minimal rating, possibly those which can be used as collateral for monetary policy operations, and to other low risk financial assets. Adequate governance provisions and a transparent investment strategy should be set in place before a fund qualifies as an RDF under the EU fiscal framework.

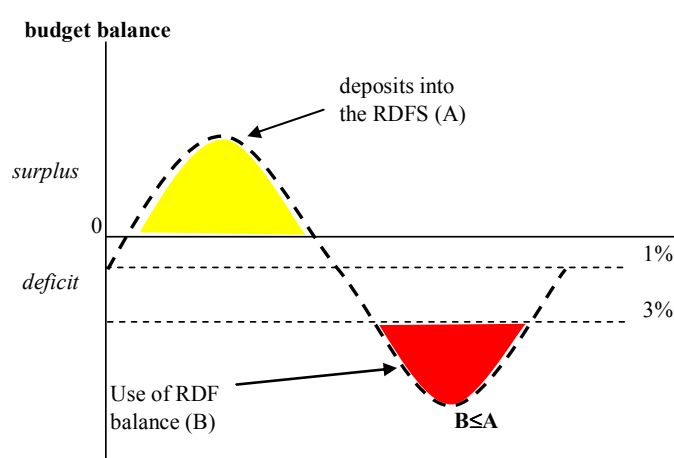
Restrictions on deposits: no debt financing. – As shown in Section 2, if bond-financed deposits into the RDF are allowed, gross debt will rise as new bonds are issued and remain constant when resources are drawn from the RDF. This pattern can repeat over time with gross and net financial liabilities gradually expanding. To avoid this ratchet effect on debt dynamics, RDFs should be exclusively financed out of surpluses.

²² Sapir *et al.* (2003) suggest that this change is worthwhile only if a critical number of governments are ready to introduce the RDFs. However, this consideration may unnecessarily restrict the minority of countries willing to create RDFs or in need of the extra flexibility that they may provide. Furthermore, once the provision is in place, other countries may be induced to follow.

Therefore, RDFs are not an option for countries with relatively high deficits. However, countries running a cyclically-adjusted deficit of 1 per cent of GDP (the medium-term objective indicated in the revised SGP for low debt/high potential growth countries) would be in a position to transfer resources to their RDF in good times (fig. 6).

Restrictions on withdrawals. – The conditions under which withdrawals from the RDFs are to be considered as budget revenue have to be decided *ex ante*. Member states should evidently not be allowed to use RDF balances for running a high deficit in good times. Restricting the use of RDF balances to significant downturns would prevent RDFs from contributing to unnecessary expansionary procyclical policies. However, if RDFs are to allow extra margins with respect to current provisions, such conditions should obviously be less restrictive than those already allowing the deficit to trespass the 3 per cent threshold.

Fig. 6 - RDF and cyclically adjusted deficits



In this respect, the recent reform of the SGP has somewhat reduced the added value that RDFs could offer in the European framework. The original SGP only allowed deficits in excess of 3 per cent under negative GDP growth rates of at least -2.0 per cent (-0.75 per cent in case of an abrupt slowdown or an accumulated loss of output relative to past trends). The new SGP allows deficits larger than 3 per cent whenever the rate of growth of GDP is negative (or there is an accumulated loss of output during a protracted period of very low annual GDP growth relative to potential). Nevertheless, there could still be situations which fall outside the new provisions and yet require additional budgetary flexibility (e.g. a short period of very low growth). Moreover, the SGP reform did not alter the requirement that the deficit should stay close to 3 per cent.

The introduction of additional numerical rules as means to regulate withdrawals from RDFs would be problematic. First, one should keep in mind the problems concerning the assessment of good and bad times in practice. Second, additional numerical provisions would counter the objective of increasing flexibility at the national level. The solution can be found in the ‘double-key’ procedural approach suggested by Sapir *et al.* (2003), according to which the decision to draw on the fund should require the approval of both the Member State and the Council (the latter based on a recommendation by the Commission). This procedure could also discipline the size of withdrawals. Basically, the Council should veto a gross misuse of RDF balances with negative externalities on the area.

Which countries would have benefited from RDFs? – Overall, the fifteen countries which were EU members in 1992 – the year of the Treaty of Maastricht – recorded 50 surpluses and 115 deficits over the period 1995-2005 (Table 1). The surpluses were recorded by nine

countries: Belgium, Ireland, Luxembourg, the Netherlands, Finland, Denmark, Spain, Sweden and the UK. If these countries had accumulated those surpluses in an RDF, they would now hold reserves ranging between Belgium's 0.5 per cent of GDP and Luxembourg's 28.5 per cent. Finland would have reserves close to those of Luxembourg (26.8 per cent of GDP). Ireland, Denmark and Sweden would have RDF's with balances well above 10 per cent of GDP. The Netherlands and the UK would hold balances of 1.7 and 3.6 per cent of GDP, respectively. The potential benefits from an RDF are larger for volatile economies, where the 3 per cent threshold is more likely to be binding in bad times (Table 2).

Table 1 - UE15 countries net borrowing over the period 1995-2005⁽¹⁾
(as a percentage of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Italy	7.4	7.0	2.7	2.8	1.7	2.0	3.1	2.9	3.5	3.4	4.1
France	5.5	4.1	3.0	2.6	1.7	1.5	1.6	3.2	4.2	3.7	2.9
Germany	3.2	3.3	2.6	2.2	1.5	1.1	2.8	3.7	4.0	3.7	3.2
UK	5.7	4.1	2.1	-0.1	-1.1	-1.6	-0.9	1.7	3.3	3.2	3.3
Spain	6.5	4.8	3.3	3.1	1.3	0.9	0.5	0.3	0.0	0.2	-1.1
Belgium	4.4	3.8	2.0	0.8	0.5	-0.1	-0.4	0.0	0.0	0.0	2.3
Denmark	2.0	1.1	-0.4	-1.0	-2.2	-3.2	-2.2	-1.2	-1.1	-2.7	-4.9
Greece	10.2	7.4	6.6	4.3	3.4	4.0	5.4	5.2	6.1	7.8	5.2
Ireland	2.0	0.0	-1.3	-2.4	-2.7	-4.6	-0.8	0.6	-0.3	-1.5	-1.1
Luxembourg	-2.4	-1.2	-3.7	-3.4	-3.4	-6.0	-6.1	-2.1	-0.3	1.1	1.0
Netherlands	4.3	1.9	1.2	0.9	-0.4	-1.3	0.2	2.0	3.1	1.8	0.3
Portugal	5.2	4.5	3.4	3.0	2.7	3.2	4.3	2.9	2.9	3.2	6.0
Austria	5.6	3.9	1.7	2.3	2.2	1.9	0.0	0.5	1.6	1.2	1.5
Finland	6.2	3.5	1.2	-1.7	-1.6	-6.9	-5.0	-4.1	-2.5	-2.3	-2.7
Sweden	7.0	2.7	0.9	-1.8	-2.5	-5.0	-2.6	0.2	-0.1	-1.8	-3.0

(1) A minus sign indicates a surplus. Data do not include UMTS proceeds.

Table 2 - Cumulated surpluses, average gross debt and real GDP volatility in EU15 countries

	Cumulated surpluses 1995-2005 (1)	Average gross debt 1995-2005 (1)	Real GDP volatility 1960-2005 (2)
Italy	0.0	111.5	2.4
France	0.0	59.3	1.8
Germany (3)	0.0	61.0	2.2 - 1.1
UK	3.6	43.7	1.8
Spain	1.1	56.8	2.7
Belgium	0.5	110.2	2.0
Denmark	18.8	54.0	2.3
Greece	0.0	110.7	4.2
Ireland	14.6	46.7	2.9
Luxembourg	28.5	6.9	3.3
Netherlands	1.7	59.8	1.9
Portugal	0.0	56.3	3.2
Austria	0.0	65.4	1.9
Finland	26.8	47.1	2.9
Sweden	14.9	59.7	2.0

(1) As a percentage of GDP. – (2) Standard deviation. – (3) The first data for real GDP volatility refers to the pre-unification period; the second data for real GDP volatility refers to the post-unification period.

This evidence shows that RDFs could already have a significant number of users. If most countries were to reach their medium-term objectives (which should not exceed a 1 per cent of GDP deficit) the number of potential users of RDFs would be even larger. The size of balances that could be accumulated by some countries confirms the need for guidelines governing withdrawals.

5. Conclusions

RDFs are not a magic wand. They do not tackle at the root the incentive problem that governments have in good times. They are of no use for countries which are permanently in a deficit position. However, they can improve the room for manoeuvre for virtuous countries.

To seize the benefits of RDFs in the European context, the definition of “Maastricht deficit” should be appropriately modified. Accompanying provisions should be carefully devised to avoid that RDFs become a means to circumvent fiscal rules. A crucial issue is the restrictions on deposits: only surpluses should be acceptable.

The extra flexibility provided by RDFs would allow a tighter implementation of the procedure for countries exceeding the 3 per cent limit.

RDFs would only be a viable instrument for countries which are close to the medium-term target of close to balance. The benefits of RDFs would be higher, the higher the volatility of GDP.

The paper has not discussed the possibility of using RDFs at the subnational level (Balassone *et al.*, 2004). Given the current definition of “Maastricht deficit”, the availability of liquid balances in subnational RDFs could complicate compliance with European fiscal rules: an unexpected withdrawal from RDFs by subnational governments could push the general government deficit above the 3 per cent threshold. This may explain why RDFs are not that popular in Europe. The issue could be reopened by the change in the definition of Maastricht deficit needed for the viability of national RDFs, since it would be difficult to apply different rules to subnational RDFs.

The development of local RDFs could contribute to limiting procyclical policies and help subnational governments to respect national budgetary rules (such as domestic stability pacts). Nevertheless, there would be problematic implications. The existence of many RDFs within a single country would burden monitoring at the EU level. Since a general government deficit is consistent with surpluses among subnational governments, the possibility arises that the principle according to which RDFs should only be financed out of general government surpluses is violated. Moreover, the regulation of withdrawals would become more difficult as several cycles would become relevant, not just the national one.

Moreover, the paper has not dealt with the details of how RDFs could work in practice in EU countries and with several possible lessons which can be learnt from the US experience (e.g. with reference to the portfolio composition and the rates of return on assets held in RDFs and to ways of monitoring RDFs so as to avoid any opportunistic use).

These considerations point to the need for further work concerning the introduction of RDFs and the related changes in the EU fiscal framework.

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APPENDIX 1 – US States’ stabilization funds: main features⁽¹⁾

US State	Name of the fund	Deposit Method	Withdrawal Method	Limit⁽²⁾	First year in place	First year with a positive balance
Alaska	Constitutional Budget Reserve Fund	Mineral litigation settlements	Legislative appropriation	No limit	1990	1992
Arizona	Budget Stabilization Fund	Formula	Formula	5 per cent	1991	1994
California	Special Fund for Economic Uncertainties	Year-end surplus	Budget deficit	No limit	1976	1977
Connecticut	Budget Reserve Fund	Year-end surplus	Budget deficit	5 per cent	1979	1981
Delaware	Budget Reserve Account	Year-end surplus	Budget deficit	5 per cent	1977	1979
Florida	Budget Stabilization Fund	Year-end surplus	Budget deficit	20 per cent	1959	1965
Georgia	Revenue Shortfall Reserve	Year-end surplus	Legislative appropriation	No limit	1976	1976
Hawaii	Emergency and Budget Reserve Fund	Legislative appropriation	Legislative appropriation	No limit	2000	-
Idaho	Budget Stabilization Fund	Legislative appropriation	Legislative appropriation	No limit	1984	1984
Illinois	-	Year-end surplus	Legislative appropriation	4 per cent	2000	-
Indiana	Countercyclical Revenue and Economic Stabilization Fund	Formula	Formula	7 per cent	1982	1985
Iowa	Economic Emergency Fund	Legislative appropriation	Legislative appropriation	5 per cent	1992	1993
Kentucky	Budget Reserve Trust Fund Account	Year-end surplus	Budget deficit	5 per cent	1983	1987
Louisiana	Revenue Stabilization and Mineral Trust Fund	Year-end surplus	Budget deficit	No limit	1966	1967
Maine	Maine Rainy Day Fund	Year-end surplus	Legislative appropriation	4 per cent	1985	1985
Maryland	Revenue Stabilization Fund	Formula	Legislative appropriation	No limit	1985	1987
Massachusetts	Commonwealth Stabilization Fund	Year-end surplus	Budget deficit	5 per cent	1985	1987
Michigan	Countercyclical Budget and Economic Stabilization Fund	Formula	Formula	25 per cent	1977	1978
Minnesota	Budget Reserve Account	Year-end surplus	Budget deficit	5 per cent	1984	1996
Mississippi	Working Cash-Stabilization reserve Fund	Year-end surplus	Budget deficit	7.5 per cent	1982	1983
Missouri	Budget Stabilization Fund	Legislative appropriation	Budget deficit	5 per cent	1992	1992
Nebraska	Cash Reserve Fund	Year-end surplus	Budget deficit	No limit	1983	1984

Nevada	Fund to Stabilize the Operation of the State Government	Formula	Budget deficit	8 per cent	1991	1994
New Hampshire	Revenue Stabilization Reserve Account	Year-end surplus	Budget deficit	5 per cent	1987	1987
New Jersey	Surplus Reserve Fund	Year-end surplus	Budget deficit	5 per cent	1990	1993
New York	Tax Stabilization Reserve Fund	Year-end surplus	Budget deficit	2 per cent	1946	1946
North Carolina	Savings Reserve Account	Year-end surplus	Legislative appropriation	5 per cent	1991	1991
North Dakota	Budget Stabilization Fund	Year-end surplus	Formula	No limit	1987	1990
Ohio	Budget Stabilization Fund	Year-end surplus	Legislative appropriation	4 per cent	1981	1981
Oklahoma	Constitutional Reserve Fund	Year-end surplus	Budget deficit	10 per cent	1985	1988
Pennsylvania	Tax Stabilization Reserve Fund	Year-end surplus	Budget deficit	3 per cent	1985	1986
Rhode Island	Budget Reserve and Cash Stabilization Account	Year-end surplus	Budget deficit	3 per cent	1985	1985
South Carolina	General Reserve Fund	Year-end surplus	Budget deficit	5 per cent	1978	1978
South Dakota	Budget Reserve Fund	Year-end surplus	Budget deficit	5 per cent	1991	1992
Tennessee	Reserves for Revenue Fluctuations	Formula	Budget deficit	5 per cent	1972	1972
Texas	Economic Stabilization Fund	Year-end surplus	Budget deficit	10 per cent	1988	1990
Utah	Budget Reserve Account	Year-end surplus	Budget deficit	8 per cent	1986	1987
Vermont	General Fund Budget Stabilization Reserve	Year-end surplus	Budget deficit	5 per cent	1987	1988
Virginia	Revenue Stabilization Fund	Formula	Formula	10 per cent	1992	1993
Washington	Emergency Reserve Fund	Year-end surplus	Legislative appropriation	5 per cent	1981	1989
West Virginia	Revenue Shortfall Reserve Fund	Year-end surplus	Budget deficit	5 per cent	1994	1995
Wyoming	Budget Reserve Account	Year-end surplus	Legislative appropriation	No limit	1982	1983

Sources: Hou (2005), Eckl (1995); Wagner and Elder (2005); Kentucky State Budget Director (2001); Zahradnick (2005).

(1) States without an RDF (according to any of the two definitions reported in Sections 2) are not reported in this table. More specifically, Alabama, Arkansas, Colorado, Kansas, Montana, Oregon do not have an RDF. In particular, Alabama introduced a fund similar to a budget stabilization fund in 1988 (Education Trust Fund Proration Account). Nevertheless, this fund is only supposed to be used to supplement educational expenditure and therefore this is not a rainy day fund according to our definitions. Note that the National Conference of State legislatures and the National Association of State Budget Officers do consider this fund an RDF. Moreover, since 1982 Colorado has a fund (required Fund Balance). Nevertheless, it is a non-accumulating Fund and therefore it is not an RDF. – (2) As a percentage of general fund expenditure.

APPENDIX 2 – The cyclical policy in the euro area

We specify the fiscal authorities' reaction function in a way which is rather standard in the literature. The budget balance is regressed against its lagged value, the level of public debt and a measure of the cyclical conditions (see, for instance, Bohn, 1998; Ballabriga and Martinez-Mongay, 2002; and Galí and Perotti, 2003). Concerning the latter, we take into account separately good and bad times as measured by positive and negative output gaps (see, for instance, Balassone and Francese, 2004). The estimating equation therefore is:

$$(3) \quad d_t = \beta_0 + \beta_1 d_{t-1} + \beta_2 b_{t-1} + \beta_3 \omega_t^p + \beta_4 \omega_t^n + \varepsilon_t$$

where d is the budget deficit as a share of GDP, b is the debt-to-GDP ratio and ω^p and ω^n indicate, respectively, positive and negative output gaps. We also introduce dummy variables to test for structural breaks. Specifically, we consider 1993, the year after the Treaty of Maastricht, and 1998, the first year of the euro area and the year following the introduction of the Stability and Growth Pact, as possible breaks for European countries.

The results are reported in the following table. The panel regression highlights how the average cyclical sensitivity of the budget is lower than one would expect from the operation of automatic stabilizers alone.²³ Moreover, there is a large (though not statistically significant) difference between the coefficient for positive output gaps (-0.03) and the coefficient for negative output gaps (-0.34) confirming some asymmetry in the conduct of fiscal policy between good and bad times.

Concerning single country equations, we tested for cyclical asymmetry in fiscal policy by controlling the statistical significance of differences between coefficients for positive and negative output gaps (where the difference was not significant we estimate a single coefficient). As a rule, we only kept an explanatory variable in the regression when its coefficient is significantly different from zero.

Results confirm that for most countries, the cyclical performance of fiscal policy is not satisfactory. The cyclical sensitivity of the budget is not statistically different from zero in Belgium, France, Italy and the Netherlands, suggesting that procyclical fiscal policy systematically offsets the effects of automatic stabilizers.²⁴ In Ireland, Portugal and Spain the cyclical policy of the budget is asymmetric: a countercyclical response to negative output gaps is accompanied by a procyclical or neutral response to positive output gaps. Only in Austria and Finland is the reaction of the budget consistently countercyclical across good and bad times.

²³ The average automatic semi-elasticity of the budget to the output gap is estimated at 0.5 (see, e.g., Bouthevillain *et al.*, 2001).

²⁴ Italy is a borderline case: the point estimates of the coefficients for positive and negative output gaps have opposite signs (+1.0 and -0.5, respectively) are both significantly different from zero (though only at the 10 and 5 per cent significance level, respectively). However, their difference falls just short of significance at the 10 per cent level.

The cyclical policy in the euro area
(dependent variable: d_t)

	panel	BE	FRA	ITA	NL	IRL	PT	SPA	AU	FIN
Constant	1.58*** (4.28)	2.08** (2.60)	0.98** (2.13)	6.60*** (3.92)	1.39** (2.69)	6.96** (2.17)	8.39*** (5.20)	-0.06 (0.17)	1.75*** (2.92)	0.79* (1.75)
d_{t-1}	0.82*** (19.46)	0.77*** (8.55)	0.70*** (4.69)	0.84*** (12.09)	0.62*** (4.61)	0.69*** (3.80)	0.17 (1.19)	0.79*** (9.58)	0.43** (2.48)	0.66*** (6.38)
b_{t-1}	-0.02*** (2.66)			-0.06*** (4.11)		-0.06** (2.23)	-0.09*** (3.75)			
ω_t^p	-0.04 (0.31)					0.17 (0.57)	0.49** (2.24)	0.25 (1.42)		
ω_t^n	-0.34*** (2.95)					-1.13** (2.32)	-0.81*** (3.77)	-0.63** (2.62)		
ω_t		-0.16 (0.65)	-0.04 (0.24)	0.28 (1.24)	-0.28 (1.48)				-0.29* (1.98)	-0.48*** (3.38)
d93	-0.48* (1.83)	-0.22*** (2.80)			-0.91* (1.83)	-5.07** (2.25)				
d98							-1.43* (1.90)		-1.01* (1.92)	
Adj. R2	0.85	0.86	0.57	0.92	0.64	0.88	0.69	0.84	0.54	0.75
obs.	249	34	25	24	35	19	27	34	28	29

Method of estimation: OLS (fixed effects, heteroskedasticity robust SE for the panel regression). T-statistics in brackets.

*, **, *** indicate significance at 10, 5, and 1 percent level. Period of analysis varies across countries (maximum span is 1970-2004).