

Improving the SGP through a proper accounting of public investment ^{*}

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revised, February 2003

1 The Pact: flaws and reform options

The Stability and Growth Pact (SGP) is increasingly held responsible for the inability of the euro area economy to sustain demand and maintain growth—a concern that extends beyond Europe now that the U.S. are no longer able to provide growth for the world economy. The current slowdown in economic activity is widening budget deficits throughout the euro area: Portugal has exceeded the 3 per cent limit in 2001, Germany in 2002 and is likely to remain above the ceiling also in 2003; the situation in France is similar to that of Germany—a deficit in excess of 3 per cent of gdp in both years—while Italy is coming very close to the upper limit. The “excessive deficit” procedure—the process initiated by the Commission and which may end in sanctions if countries are unwilling or unable to reduce the deficit promptly—has been opened for Portugal and Germany. Dealing a country’s inability to reduce the deficit during a recession by simply applying sanctions defies intelligence.

There is no doubt that if the Pact could be re-written from scratch it would look very different. Of the various reasons why a monetary union may wish

* We wish to thank Franco Modigliani for an inspiring discussion, Stanley Fischer, Charles Wyplosz, Marco Buti, Ludger Schuknecht and participants at seminars on the SGP organized by the Bundesbank and DIW-Berlin for useful comments.

to impose fiscal rules upon its members, the Pact only deals with one: the possibility that governments might be tempted to run larger budget deficits once the exchange rate and interest rates no longer respond to the fiscal actions of a single country. But there are important issues the Pact does not address. In particular, the Pact puts no pressure on EMU members to reduce current government spending, so as to lower tax rates and make room for higher public investment. From the viewpoint of the Pact it is indifferent whether a country meets it by raising spending and taxes, or by lowering both. ¹

By imposing that the budget deficit, including interest, is balanced on average over the cycle, the Pact eventually drives the ratio of debt to gdp to zero. There are good arguments for preventing the public debt from disappearing: for instance, public debt can be an instrument for carrying out transfers between generations, or it may be issued to finance public investment projects with a large enough social rate of return. A deficit of $x\%$ on average over the cycle would drive the debt-to-gdp ratio to x/g , where g is the nominal growth rate of potential output. So for $g = 5\%$ (3% real and 2% inflation) and $x = 3\%$ the ratio of debt-to-gdp would converge to $3/5$, the level indicated in the treaty (60%).

Proposals on how an "ideal" Pact should be written abound ². The IMF (2001) favours fiscal rules designed to control current government spending. Pisani-Ferry (2002) suggests that rules on the budget should be replaced by rules on the level of the debt-gdp ratio. Wyplosz (2002) suggests that rules should be removed, and authority over fiscal policy delegated to independent committees, following what has become standard practice with monetary policy. Goodhart (2002) would allow bond markets to monitor fiscal policy. Today spreads on euro bonds issued by different EMU members are small, probably because government bonds are mostly held domestically, and the home bias in financial portfolios is significant. Goodhart would in-

1. Since the Pact was agreed upon, taxes, as a per cent of gdp, have remained almost unchanged in the euro area, and so has current public expenditure net of interest, while government investment has contracted. Current spending net of interest was 40.8 per cent of gdp in 1995, 40.2 in 2002; total revenues 46.5 and 46.3, respectively; public investment 2.7 and 2.5.

2. For a review of the various proposals see Coeure' and Pisani Ferry (2003).

duce the diversification of bond portfolios imposing limits on the exposure of financial institutions to the bonds issued by a single country. Most likely this would open up spreads.

Writing a new Pact is however difficult. Many of these ideas would require a change in the European treaties, and ratification of a new treaty by all 15 member countries. While possible in principle, a new Pact and a new treaty require time. But there are improvements that do not require changing the treaty.

One example are the ideas put forward by the European Commission. The Commission proposes that the Pact should no longer consider the actual budget deficit, but the structural deficit: increases in the deficit that result from a slowdown in economic activity should be disregarded. Moreover, in assessing a country's compliance with the rules of the Pact, the Commission would, from now on, recognise that some structural reforms (such as a tax reform) raise a country's growth potential and thus improve public finances in the long run, but are costly in the medium term, and thus justify temporary deviations from the rules of the Pact. None of this, according to the Commission, would require a change in the treaty.

We can do better. The Pact contains a serious error: the way governments are expected to account for public investment. Correcting this error and applying, as article 104.3 of the treaty allows, the current rules of the Pact to a measure of the budget where the treatment of investment expenditures is done properly—which means applying the rules of the Pact to the budget inclusive of nominal interest payments and of capital depreciation, but excluding net investment—would have several desirable characteristics:

- *It would remedy an obvious mistake in the way the Pact was written.* A private company does not attribute the entire cost of an investment project to a single year's accounts. Investment implies future returns: its cost should thus be distributed over time as those returns accrue. Amortization of investment expenditures by governments is not allowed by the Pact, although the treaty does not prevent it. Removing financial constraints on public investment is important in the

euro area. First, gross public investment in the 12 EMU countries has been on a downward path since the mid 1970s, falling, as a share of gdp, from 4% in the early 1970s to less than 2.5% in 1998. In particular public investment fell by 0.8 percentage points during the run-up to the euro (1993-97). Today average gross investment is 2.4 per cent of gdp, but net investment is probably close to zero in Germany, Italy, Belgium and Austria.

- *Over time the debt-gdp ratio to the ratio would tend to become equal to the ratio of public capital to gdp.* Although there are different arguments for why the optimal stock of public debt may not be zero (intergenerational transfers is one), financing investment projects with a sufficiently high social rate of return is certainly one.
- *It would introduce more transparency in the budget.* The inability to treat public investment differently from current expenditure has created, in some countries, the incentive to shift borrowing off-budget. Italy, for instance, has recently set up an agency fully owned by the government but not consolidated in the government accounts, whose purpose is to finance and run public investment projects, borrowing on the market. There is nothing wrong with investment agencies as such: the separation of the 'current' budget from the 'capital' budget has a time-honored tradition in public finance. What is inappropriate is the lack of transparency. The accounts of these agencies, for instance, make no distinction between gross and net investment, and thus fail to recognize that depreciation of public capital is equivalent to current expenditure and should be treated as such in the consolidated government accounts. The agencies have no clear limits on the amount they can borrow. The bonds they issue are guaranteed by the government, but such guarantees are not recorded in the government books. Thus the debt they issue is not considered as part of the public debt. The European Commission has questioned these guarantees, arguing that they are often equivalent to state aid. There certainly are instances—and the recent capital injection by the KfW into a German private communications company is one example—when these agencies engage in state aid. But this is not the case in general: subsidizing

public projects whose social return exceeds their financial return is one of the reasons government exist.

- *Excluding net public investment from the definition of the budget that is relevant for the Pact would also help in the short run.* Consider Germany, for instance, one of the countries where a change in the rules would apparently not matter, since net public investment today is essentially zero. With the current interpretation of the Pact, and assuming that German output is below potential by an amount large enough to justify the entire use of the 3 per cent band—which is probably the case—Germany would need to cut the deficit by at least 0.8 per cent of gdp. The modified rule also requires fiscal action, but of a very different type: instead of a cut in demand, it allows for a substitution of current expenditure with an equivalent amount of public investment.

2 The arithmetic of public investment

Let r be the real rate of interest, n the growth rate of gdp, δ the rate of depreciation and the cost of maintaining public capital and ϑ the gross financial rate of return on public capital. In general $\vartheta < r + \delta$: Public investment is worthwhile from a social point of view although its net financial rate of return, $\vartheta - \delta$, may be lower than the financing cost, which in turn we expect to be smaller than the social rate of return on government projects. Let k be the stock of public capital, i public investment, so $\dot{k} = (r + \delta)k$, and b the stock of public debt, each as a fraction of gdp. Also assume that there is no inflation.

The government's budget constraint is³

$$\dot{b} = g - t + i - \vartheta k + (r - n)b$$

where t and $(g + i)$ denote taxes and government spending.

3. We ignore inflation and its role on the budget constraint.

Let's assume that the SGP, as currently applied, requires countries to run a zero budget deficit when output is close to potential (it is straightforward to extend our argument to the case where the SGP is taken to allow a deficit of $x\%$ of gdp):

$$g-t+i-\vartheta k + rb = 0$$

so that

$$\dot{b} = -nb$$

the debt ratio will eventually go to zero.

Suppose now, as is usual for firms, that only capital depreciation and maintenance costs are included in current spending, and impose the rule that current spending be balanced. This leads to: $g-t+(\delta - \vartheta)k + rb = 0$

so that

$$\dot{b} - \dot{k} = -n(b - k)$$

which indicates that eventually $b - k \implies 0$, no matter what the initial level of b . Eventually the entire stock of public debt is backed by public capital. If the stock of public capital, as a fraction of gdp, is constant, this rule allows the government to run a deficit which is equal to nk .

Suppose an agency is set up, with the goal of financing and running new public investment projects. Let k^A be the amount of capital it manages at any point in time. The agency receives an income ϑk^A from its projects and needs to spend δk^A on maintenance and depreciation. It receives from the budget a subsidy equal to $(r + \delta - \vartheta)k^A$, reflecting the fact that the projects have a net financial return which may be less than the market return. It is allowed to issue bonds for the difference. Then

$$\dot{b}^A = \dot{k}^A + (\delta - \vartheta)k^A - (r + \delta - \vartheta)k^A + rb^A$$

so

$$\dot{b}^A - \dot{k}^A = -r(b^A - k^A)$$

If k^A is initially equal to zero, the agency's debt will always remain equal to the stock of public capital it has financed.

How does the presence of an agency affect the budget of the central government? Assume that the agency only runs new projects: the stock of public capital that exists when the new institution is set up, k_0 , keeps being run by the central government. There is no need to transfer existing buildings etc. to the agency. Let b^P be the stock of public debt outstanding, as a fraction of gdp. Once the agency is set up, the central government's budget constraint is

$$\dot{b}^P = g - t + (r - \vartheta + \delta)k^A + (\delta - \vartheta)k_0 + (r - n)b^P$$

where g is government spending net of the transfer to the agency. Now impose the rule that current spending, inclusive of the transfer to the agency, be balanced⁴, that is

$$g - t + (r - \vartheta + \delta)k^A + (\delta - \vartheta)k_0 + rb^P = 0$$

then

$$\dot{b}^P = -nb^P$$

the central government debt ratio eventually goes to zero and the only public debt is that issued by the agency. When this happens, taxes pay for current spending, plus the subsidy given to the projects run by the agency, plus the depreciation and maintenance cost of the old capital stock, net of its financial return

$$t = g + (r - \vartheta + \delta)k^A + (\delta - \vartheta)k_0$$

To summarize. The main difference between these rules and the way the SGP is currently applied lies in the financing of public investment. The

4. Note that this rule is different from one which simply excludes investment expenditure from the current budget.

rules we have discussed allow net investment to be financed by borrowing. The current SGP implies that all additions to the capital stock, including those needed to keep its ratio to gdp constant over time, must be financed out of current taxes.

3 Are balanced budgets rules that exclude net investment a good idea?

Governments could in principle avoid financial constraints on public investment renting the capital goods, rather than doing the investment themselves. Leasing an airplane to be used by the Army is straightforward, especially if the government needs it for a temporary purpose. Leasing other military equipment is more tricky. In the case of infrastructure, such as roads, government investment can be replaced by private investment through contracts that give the private sector the right to collect tolls for a number of years. The problem with these contracts, however, is that they are often difficult to monitor and enforce.⁵ This adds to the case for investment agencies: an institution focused on the task of running public capital might be better equipped at writing and monitoring such contracts We return to this point in the next paragraph.

The idea of separating capital spending from the current budget runs up against three common objections.⁶

- What matters is overall capital accumulation, not its distribution between private and public capital. Lower public capital will be compensated by a higher stock of private capital. What matters is the general equilibrium effect: there is no ground for giving privileged status to a specific spending item. The simple answer here is that all public investment projects with a sufficiently high social rate of return should be implemented. This is what the modified rule allows,

5. The UK experience with "public-private" partnerships may be relevant here. The problems such partnerships have run into provide an example of the difficulty of writing and enforcing contracts in this area.

6. See e.g. Buti, Eijffinger and Franco (2002).

since it eliminates cash constraints. So should all private investment, with a sufficiently high private rate of return.

- Capital budgets distort expenditure in favor of physical assets and away, for instance, from investment in human capital. It is true that capital budgeting removes constraints differentially across projects. Only those under the agency benefit, the others not. This is not crowding out, but help to some. Capital budgets are not a way to avoid difficult decisions concerning the choice among alternative forms of current expenditure: the choice whether to invest in school teachers or in office clerks is there whether or not the government runs a capital budget. Under the current Pact the choice is even more difficult as it treats investment in the same way as current expenditures. Capital budgets cannot protect investment in school teachers, but they make it a bit less likely that useful infrastructure investment is sacrificed in order to raise wages in the public sector—not an uncommon experience in the European fiscal consolidation of the 1990s.
- Capital budgets remove the pressure to lower the stock of public debt, a problem that is particularly relevant in those countries where debt-gdp ratios remains very high. The answer here is that a rule that forces the stock of public debt to zero and introduces a financing constraint on investment expenditure is simply stupid—to use the expression correctly used by the President of the European Commission. The modified rule too puts downward pressure on the stock of debt, but it doesn't drive it to zero: eventually the debt ratio approaches the stock of public capital—typically a smaller number than the current debt ratios in most countries.

Rules that allow net public investment to be financed by borrowing need to be complemented by rules that define what can be counted as public investment—something like ISA accounting rules. This a task for the Statistical office of the EU. Such rules will have to deal with the incentive to re-define current spending as public investment, and this may not be easy. But this difficulty should not be an argument for justifying rules that may result in worthwhile projects not being undertaken because of cash

constraints.

4 Do governments need to set up an investment agency?

The logical answer is no. The consolidated budget constraint of the government is the same whether or not it delegates an agency to finance and run new public projects. Both rules discussed above end up with a stock of public debt that is on average equal to that of public capital. The similarity, however, ends here.

Delegating the running of public projects to an agency may result in more transparency and in better management.

- Transparency: In consolidated budgets it is often very difficult to figure out the return on individual projects. Maintenance costs and depreciation are also hidden in the government books. The agency will have to document the financial return on its projects, and this by itself introduces transparency. Depreciation rates and the cost of maintenance will also come in the open because they will be the object of tough bargaining between the government and the manager of the agency.
- Management: The agency is an institution focused on a single, well specified, task. This may result in better management

There are also risks. The manager of the agency could be relaxed about θ knowing that the government will come to the rescue. As with all contracts between a principal and an agent, institutional design and monitoring are essential to avoid potential misbehavior.

On balance, where agencies do not exist, probably it is not worthwhile setting them up—although, as mentioned above, the UK experience might suggest otherwise. Where they exist, they need to be made transparent. Good institutional design could result in delegation to an agency delivering

more transparency and thus better management.⁷ We address the incentive issue in Section 8 below.

5 Trying some numbers

How would the modified rule discussed above affect budget deficits in Europe today? And what would be the effect in the steady state? Remember that in the steady state the government is allowed to borrow an amount equal to nk . In the short run countries may be moving at different speeds toward their steady state: public investment as a share of gdp differs a lot across the euro area. Computing these numbers requires estimates of the current capital-output ratio in the public sector, estimates of the rate of depreciation, estimates of the long-run capital output ratio in the public sector. None of this is available.

Official numbers on public investment refer to gross fixed capital formation. There are no euro area data on capital depreciation that would allow us to compute net investment. Information on rates of depreciation is available for few countries. For Germany Wendorff (2001) estimates that in 1991-99, a decade during which average gross investment amounted to 2.3 per cent of gdp, net investment averaged 0.5 per cent. Assuming a value of $\delta = .05\%$, depreciation is around 1.8 per cent of gdp, which implies a capital-output ratio of 36 per cent. For Italy, Modigliani and Padoa Schioppa Kostoris (1998, table 2.2.B) estimate that net investment in the early 1990's amounted to 1.5 of gdp, half of gross investment. Based on the information for Germany and Italy, we assume $\delta = .05$ and $k = 30$ for all countries.

The first column of Table 1 shows the actual deficit estimated for 2002. Column 2 shows public investment, as a share of gdp, also in 2002. Column

7. The Italian state-owned company Infrastrutture s.p.a. is an example of such agencies. The company issues government-guaranteed bonds to finance investment projects or participate in investment partnerships with the private sector. This is different from the German KfW which is only a financial intermediary: it issues bonds and transfers the receipts to the federal or local governments.

3 computes the deficit that would have been allowed in 2002 under the modified rule—that is $i - \delta k$, assuming $\delta k = 1.5^8$. The last column shows the deficit that would be allowed in steady state, assuming that the long run value of k remains 30 per cent; for the steady state growth rate of output, n^* , we use the numbers shown in column 4, which are estimates of potential output growth produced by the European Commission (European Commission, 2002, Table A1).

Table 1: Admissible deficit under the modified SGP rule

	\dot{B}/Y_{2002}	i_{2002}	$\dot{B}/Y_{Admiss.}$ $= i - \delta k$	n^*	$(\dot{B}/Y)_{St.St.}^*$ $= n^* k^*$
Belgium	0.1	1.6	0.1	.021	0.6
Germany	3.8	1.6	0.1	.016	0.5
Greece	1.3	3.7	2.2	.031	0.9
France	2.7	3.4	1.9	.026	0.8
Ireland	1.0	4.5	3.0	.074	2.2
Italy	2.4	2.0	0.5	.023	0.7
Holland	0.8	3.4	1.9	.029	0.9
Austria	1.8	1.2	- 0.3	.018	0.5
Portugal	3.4	3.8	2.3	.031	0.9
Finland	- 3.6	2.6	1.1	.029	0.9
Spain	0.0	3.4	1.9	.031	0.9

Source: European Commission, Autumn 2002 forecasts and European Commission (2002) for n^*

If our assumptions about the stock of public capital and the rate of depreciation are about right, in four euro area countries net public investment is

8. Remember that the reference value for the deficit under the current Pact is 0% of gdp over the cycle.

currently close to zero—it is actually negative in Austria. Obviously, in order to gain from the modified rule, these countries would need to increase public investment. Consider Germany, for instance. At the 2002 level of public investment, the modified rule would allow a deficit of just 0.1 per cent of gdp. With the current interpretation of the Pact, and assuming that German output is below potential by an amount large enough to justify the entire use of the 3 per cent band—which is probably the case—Germany would need to cut the deficit by at least 0.8 per cent of gdp. The modified rule also requires fiscal action, but of a very different type. To satisfy the rule the German government would have to replace at least 0.8 per cent of gdp of current expenditure with an equivalent amount of public investment.

In seven countries net investment is positive and relatively large. The modified rule would allow these countries to run deficits ranging from 1.9 per cent of gdp for France and Holland, to 3 per cent for Ireland. Portugal's 2002 deficit, for instance, which exceeds the 3 per cent rule, would fall well within the limits if the modified rule were applied. Moreover, the modified rule allows all countries to raise public investment without running into a financing constraint.

6 Capital budgets: the experience of U.S. states

The idea of separating investment expenditure from the current budget, while considering capital depreciation as current government expenditure, has a long tradition in economics, dating back at least to Musgrave (1939). Proponents of capital budgets contend that unified budgets are biased against capital expenditure. Opponents argue that separate budgets raise the incentive to lobby for capital spending and result in inefficiently high expenditure on physical assets, at the expense of intangibles such as health or education. There is also an extreme view which states that accounting rules by themselves do not affect the level or composition of spending. What is the evidence?

U.S. states provide a good testing ground, since budgetary procedures differ from one state to the other. Poterba (1995) has studied this experience asking whether the level and composition of government spending is affected by the use of separate budgets for capital and current expenditures, and by the use of pay-as-you-go (PAYG) constraints in financing capital projects. The study has the drawback of using rather old data: the information on state budgets is for 1962, a year for which a detailed survey exists of budgetary procedures in individual states. The data allows to distinguish among states that make no budgetary distinction between capital and operating expenditures (at the time of the study there were 20 such states out of 50), and those that have separate budgets. Among the states that use separate budgets, the data also identify those using multi-year capital budgets, that is physical and financial plans for capital expenditures extending beyond the operating budget cycle. Twelve states in this group had delegated the administration of capital projects to specialized agencies.

The results suggest that state capital budgets are associated with higher levels of capital spending: about one third higher. The data refer to capital expenditures excluding highways, that is, primarily, institutions of higher education, health and hospital facilities, natural resource projects, such as parks, and state prisons. PAYG constraints on the financing of public projects are associated with lower levels of capital spending, some 20 per cent lower. There is no evidence that capital budgets affect the level of non capital spending—a finding which suggests that (i) the states with capital budgets are not those which spend more on all public goods, not only on investment, nor (ii) are these states simply re-defining non-capital spending as capital outlays.

Poterba's results run against the view that public accounting practices are simply a veil, with no impact on budget outcomes. They support a number of recent studies⁹ which suggest that fiscal institutions exert real effects on public policy outcomes.

9. See e.g. Poterba and von Hagen (1999)

7 Doing this within the Treaty: Article 104.3

Article 104.3 of the European treaties reads:

“If a member state does not fulfill the requirements under one or both of these criteria [deficit below 3 per cent and debt ratio approaching 60 per cent at a satisfactory pace], the Commission shall prepare a report. [Such report is the starting point of the procedure possibly ending in sanctions.] . . . The report of the Commission shall also take into account whether the government deficit exceeds government investment expenditure and . . .”

Rules that allow proper accounting of government investment, separating it from current expenditure, appear to be consistent with article 104.3. Note that the article is actually too lax as it makes no distinction between gross and net investment, thus allowing for the (incorrect) possibility of treating gross investment differently from other expenditure, rather than only net investment.

Article 104.3 is currently interpreted by two Regulations, issued by the European Council, which specify how it should be interpreted. Regulation 14676/97 lays down the rules. It should be amended specifying that the current rules, including the excessive deficit procedure, apply to the budget excluding net capital formation. The Regulation should also assign to the Statistical Office of the EU the task of issuing rules for computing the amortization of public capital. These amendments require a unanimous vote of the European Council.

For those countries that decide to set up investment agencies the Council should issue a specific Regulation laying out the principles member states should follow in the institutional design of such agencies. We address this in the next paragraph.

8 Principles for the institutional design of investment agencies

The institutional design of an agency delegated to finance and run public investment projects should address the following issues:

- Transparency. The liabilities of the agency are public debt. The agency should not be an instrument to shift debt off-balance sheets, allowing the government to issue liabilities that are not properly recorded in the books of the State.
- Incentives. The managers of the agency have an incentive to understate ϑ and overstate δ , since the central government will make up the difference. The government, to the extent that it wants to be able to run a larger deficit, will want to understate δ .
- What qualifies as public investment, and who decides.
- Management: one of the arguments for delegating the running of public projects to an agency is focus. The agency will run the projects more efficiently if it has an unambiguous task.

These problems could be addressed by an institutional design with the three following characteristics:

- The agency is set up as a *joint stock company*, with the government as its shareholder. The status of a company operating under the civil code guarantees that the accounts are subject to the same rules and scrutiny as those of a public company—which in most countries are quite different from those of a government department. Rules for the depreciation of capital should also be identical to those used by private companies. The Board of the agency includes independent directors: under the civil code they are personally responsible and liable for the transparency of the accounts.
- *Compensation* of the agency's managers is linked to two parameters: ϑ , the financial return on public projects—for those projects that are expected to produce a positive ϑ —and the share of projects co-financed by the private sector in "project financing" arrangements. Both provide an incentive for the managers to put effort in raising ϑ . For the "project financing" rule to be useful, private sector investors should

receive only a fraction of ϑ , to avoid that the agency becomes an instrument for the disbursement of taxpayers money. As many incentive schemes, these rules do not prevent misbehavior due to power-seeking by the managers. The presence on the Board of independent directors helps here. Incentives and transparency will reduce the risk that the agency is pressured by the government to accept insufficient transfers, to be made up by higher agency borrowing. Though good institutional design can go a long way, it should be complemented by rules issued by the Statistical office of the EU, specifying what qualifies as public investment.

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