



# Ranking Fiscal Policy Rules: the Golden Rule of Public Finance vs. the Stability and Growth Pact

Jérôme Creel

► **To cite this version:**

Jérôme Creel. Ranking Fiscal Policy Rules: the Golden Rule of Public Finance vs. the Stability and Growth Pact. 2003. hal-00972778

**HAL Id: hal-00972778**

**<https://hal-sciencespo.archives-ouvertes.fr/hal-00972778>**

Preprint submitted on 22 May 2014

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

**Ranking Fiscal Policy Rules: the Golden Rule  
of Public Finance vs. the Stability and Growth Pact\***

**Jérôme Creel (OFCE)\***

**N° 2003-04**

**July 2003**

**Abstract**

The purpose of this note is to compare the characteristics of the actual Stability and Growth Pact with that of a European “modified golden rule”. The latter would consist in achieving in each EU country a cyclically-adjusted net-of-public-investment balance. The benchmark for comparison is the classification adopted by Kopits and Symansky (1998) on “ideal fiscal rules”. This classification has been used by Buti et al. (2003) in order to demonstrate the “ideal character” of the actual Stability and Growth Pact and thus legitimate only slight modifications to the Pact. I intend to show rather, that the “modified golden rule” is a better fiscal rule than the actual Pact.

JEL Classification: E61, H30, H60, H70

Keywords: euro area, fiscal rule, golden rule, Stability and Growth Pact

---

\* Very helpful comments by Etienne Farvaque and Jacques Le Cacheux are gratefully acknowledged. I also do thank the participants to a EUREQua seminar (Paris I University) and among them, Hubert Kempf and Etienne Lehmann, for their comments on preliminary ideas incorporated in this paper. The usual disclaimer applies.

\* J. Creel, Economic Research Department, OFCE, 69, quai d’Orsay, 75340 PARIS cedex 07, France; tel + 33 1 44 18 54 56; fax + 33 1 44 18 54 78; email [creel@sciences-po.fr](mailto:creel@sciences-po.fr).

## Introduction

It is widely recognised that the Stability and Growth Pact (SGP) has lost most if not all of its capacity to refrain European governments from implementing over-expansionary policies, notably pro-cyclical policies when economic growth is over its potential. In this context, modifying the way fiscal policies are being implemented in Europe still keeps on being a very important issue<sup>1</sup>.

Three main kinds of reform to the current SGP have been considered so far<sup>2</sup>. First, considering that governments are mature enough to reach fiscal discipline, they should not have to resort to rules, commitments and so forth. Their track-records would testify for this evidence. However, basing upon history and political economy arguments, most economists still disregard this option. If such a reform has been promoted by some (the argument is present in Kopits, 2001), it is still not “fashionable”. The second way for a reform would introduce slight modifications to the actual Pact. Buti et al. (2003) and the European Commission (2002) stand as the most zealous promoters of what I would call a “low-fat reform”. A third proposal has been made in favour of the application of a “golden rule of public finance” to the European Union (EU). Blanchard and Giavazzi (2003) have recently endorsed this reform. The proposal by the Italian Minister of Finance, M. Giulio Tremonti, to implement a European-wide public investment program in order to boost growth, while at the same time removing the incurred expenditures from the deficit target of the SGP is a recent concrete example of what a “golden rule” would be at the European level. Some countries have also recently experienced this fiscal setting (the UK, see Emmerson and Frayne, 2001; and Australia, see Robinson, 2002).

The purpose of the note is to compare the characteristics of the actual SGP with that of a European “modified golden rule”. The benchmark will be the classification adopted by Kopits and Symansky (1998) regarding “ideal fiscal rules”. This classification has been used by Buti et al. (2003) in order to demonstrate the “ideal character” of the actual SGP. I intend to show rather, that the “golden rule” is a better fiscal rule than the actual SGP.

---

<sup>1</sup> The nominal convergence period before the advent of the Euro had already produced major discussions between the pros (Bovenberg and de Jong, 1997; Bovenberg et al., 1991; Wyplosz, 1991) and cons (Buiter et al., 1993) of debt and deficit ceilings.

<sup>2</sup> Buti et al. (2003) present a synthetic table of the exhaustive reforms which have been proposed since 2000. Institutional reforms, like those proposed by Wyplosz (2002) – the seminal paper and proposal can be found in von Hagen and Harden (1994) – or Pisani-Ferry (2002) are beyond the scope of this note.

The paper is organised as follows. Section 1 briefly presents the current situation of public finances in the Euro area. The gap between the “proximate goal” of the SGP and outcomes appears to be wide. The classification of an “ideal fiscal rule” is presented and the marks attributed to the SGP by Buti et al. (2003) are discussed. Section 2 focuses on the recent proposals by Buti et al. (2003) and the EC for improving the Pact. A critical view is adopted. Finally, pros and cons of adopting a “golden rule” in the EU are discussed in section 3. Using the Kopits and Symansky (1998)’s classification, this rule appears superior to the actual SGP. Numerical application and simulation support the conclusion that adopting a modified version of the “golden rule of public finance” would not harm long-term sustainability.

### **The Stability and Growth Pact**

In contrast to the central monetary policy implemented by the European Central Bank (ECB), fiscal policies in the euro area are still in the hands of national governments. In order to remove the supposedly negative cross-border effects of a domestic fiscal policy over its partners, be they European countries or the ECB, the Maastricht and Amsterdam treaties have introduced limits to public debts and deficits<sup>3</sup>.

#### *The current situation*

Though much was written to demonstrate that deficit ceilings would not be breached, so that automatic stabilisers would be fully effective<sup>4</sup>, the years 2002 and 2003 have witnessed at least three countries (Portugal, Germany, France) whose public deficits have been or will be above 3% of GDP (table 1). France will be the first country in the euro area history to acknowledge a public deficit above the limit for two consecutive years. Preliminary government forecasts (last column) in 2003 are expected to be largely outpaced in Germany and Portugal.

This situation is at odds with the goals of the SGP, namely ensuring fiscal prudence and discipline. It is thus reasonable to consider that the SGP is actually flawed and that EU citizens deserve a better Pact. The question remains on which Pact should be adopted.

---

<sup>3</sup> Beetsma (2001) reviews arguments in favour of the SGP.

<sup>4</sup> Three contributions can be found in Brunila et al. (2001).

**Table 1. Net borrowing (-), general government, as a percentage of GDP**

	2001	2002	2003	2003 <sup>(2)</sup>
Germany	-2.8	-3.6	-3.4	-2.8
France	-1.5	-3.1 <sup>(1)</sup>	-3.7	-3.4
Italy	-2.6	-2.3	-2.3	na
Portugal	-4.2	-2.7	-3.5	-2.4
Euro area	-1.6	-2.2	-2.5	na

Source: EC Spring forecasts 2003.

<sup>(1)</sup>: including a capital endowment to Réseau Ferré de France.

<sup>(2)</sup>: government's forecast or commitment at the beginning of 2003.

### *An "ideal rule"?*

Though the adoption of a fiscal rule has almost seemed unquestionable so far, identifying the desirable features of a "good rule" is a necessity. According to Kopits and Symansky (1998, pp.18-19), 8 properties should be achieved for a fiscal rule to be labelled "ideal": the rule should be well-defined, transparent, simple, flexible, adequate, enforceable, consistent and efficient.

Or, quoting Kopits and Symansky (1998):

1. "a fiscal rule should be *well-defined* as to the indicator to be constrained, the institutional coverage, and specific escape clauses, in order to avoid ambiguities and ineffective enforcement";
2. "an essential characteristic of a durable fiscal rule is *transparency* in government operations, including accounting, forecasting, and institutional arrangements" in order to gain "popular support";
3. "rules should be characterized by *simplicity* to enhance their appeal to the legislature and to the public";
4. "rules must be *flexible* to accommodate exogenous shocks beyond the control of the authorities";
5. "fiscal rules should be *adequate* with respect to the specified proximate goal";
6. "a fiscal rule should be *enforceable*. (There is) a need for constitutional or legal statutes, possibly accompanied by penalties for non-compliance and authority for enforcement";

7. “a closely related criterion is for a set of fiscal rules to be *consistent* internally, as well as with other macroeconomic policies or policy rules”;
8. “most rules cannot last for long unless they are supported by *efficient* policy actions. (...) From this perspective, (...) a fiscal rule may be viewed as a catalyst for fiscal reforms that would be necessary anyway to ensure sustainability”.

These 8 properties cover a mix of political and economic concepts. Properties 1, 2, 3 and 6 are more political than they are economic, whereas the reverse is true for properties 4, 5, 7 and 8. Keep in mind however that, though some of these properties are political, they have gained a large success in the monetary policymaking debate due to their supposedly inherent tendency to enhance credibility<sup>5</sup>.

Hence, the different features of an “ideal” fiscal rule in the sense defined by Kopits and Symansky (1998) pertain to all aspects of transparency by central bankers in the sense defined by Geraats’ (2002, p.F540). Geraats distinguishes 4 transparency features: political, economic, procedural and operational. “Political transparency” (“openness about policy objectives and institutional arrangements that clarify the motives (of the policy)”<sup>6</sup>) is dealt with in properties 1 (defining the institutional background), 3, and 5 (defining the motives) of Kopits and Symansky’s classification. The “economic transparency” (in terms of “economic information”) is explicit in properties 2 (transparency) and 7 (internal and overall consistency). “Procedural transparency” (describing the way “policy decisions are taken”) can be linked to property 2, but so does “policy transparency” (which embeds explanations of present and future policies), though the latter is also present in property 8 (efficiency). “Operational transparency” (including the discussion of “errors for the operating instrument and macroeconomic transmission disturbances”) is present in properties 4 (flexibility) and 6 (enforcement). Characteristics for an “ideal” fiscal rule are thus near to “ideally transparent” monetary policymaking.

Due to the possible trade-off between transparency and credibility however, it remains doubtful that the 8 properties for an “ideal fiscal rule” would enhance the credibility of fiscal policymaking.

---

<sup>5</sup> Despite mixed theoretical results supporting the view that transparency in monetary policymaking should enhance credibility (Cukierman, 2001), Blinder (2000) found support by policymakers and central bankers that improving transparency and openness is favourable to credibility.

<sup>6</sup> Quotes in this paragraph are taken from Geraats (2002).

It is of course acknowledged by Kopits and Symansky (1998) that the 8 features might not be fulfilled at the same time by any set of fiscal rules all over the world; some “trade-offs” among them are likely, indeed “inevitable”. This is not to say that a fiscal rule should not aim at *all* of these properties, or that all trade-offs produce the same overall efficiency; inevitably, some are more inefficient than others. In the present situation, some economists argue that between the goals of transparency and flexibility, the former should be favoured (Buti et al., 2003); the same allow preference towards enforcement rather than simplicity etc. Others may rather distort these properties in favour of flexibility and at the expense of simplicity. The “golden rule” might be resulting in such a modification of this specific trade-off. Finally, there is also a political trade-off between these 8 different features: the political cost of losing “popular support” if the rule is not considered sufficiently transparent can be counterbalanced by the political gain of adopting a simple rule –such can be the case with the current SGP. Hence, choosing among the alternative trade-offs remains a political choice.

Before turning to the subjective values attributed to these properties, for different sets of rule, I discuss their distinct virtues. Some features, like 1 (*well-defined*) and 6 (*enforceable*) are rather unambiguous and unquestionable.

*Transparency* might be slightly more cumbersome: transparency can come at the expense of discretion and the latter might, under peculiar circumstances<sup>7</sup>, help to stabilize the economic after a shock has occurred.

The *adequacy* feature deeply depends on the final goal of fiscal policy: be it “fiscal discipline” or “inflation-output trade-off”, the adequacy feature might be valued very differently!

The *efficiency* feature falls under the same type of criticism as *adequacy*: Kopits and Symansky relate this feature to the sustainability of public finance, though the latter could be replaced, for instance, by the minimisation of the variance of the domestic output.

The *adequacy* and *efficiency* features do in fact mix short-run and long-run issues: fiscal policy is constrained in the short run (adequacy to the “proximate goal” of fiscal discipline, as it is the case in the EU) to achieve a long-term target (sustainability). Nevertheless, achieving public finance sustainability does not need to impair short-run fiscal policies: an expansionary

---

<sup>7</sup> Notably in the case of economic agents having rational expectations, since only unexpected policies should have real effects.

fiscal policy in the short-run may be reversed in the mid-run<sup>8</sup>, or in the long-run if the economic situation which gave rise to an expansionary policy (mass unemployment; deep recession, etc.) still prevails in the mid-run. The sustainability of public finance might also be achieved through an appropriate change in the price level, along the so-called “fiscal theory of the price level” (Woodford, 2001). In this latter case however, fiscal policy would impair price stability at a low level, and the consistency between fiscal and monetary policies thus needs a clear assessment.

The *consistency* feature is obviously an important one in the EU. First, since at least the adoption of the Maastricht treaty, budgetary recommendations have put fiscal policy under pressure in order not to jeopardise the prevalent goal of the ECB, price stability, partly the main reason why deficits and debts ceilings were maintained after the advent of the Euro. Second, even if the hierarchy of goals in the EU (price stability comes first; economic growth is second at best) were being reversed, consistency between a modified fiscal rule and other policies would still have to be ensured, so that *consistency* would still remain a key feature of an “ideal rule”. Any conflict regarding the final policy objectives which could arise between monetary and fiscal authorities would still be likely to produce large costs to the society, via high interest rates, high inflation rates or high public deficits (as the outcome of a “chicken game” between both types of authorities).

Considering that enhancing “appeal to the public” necessitates *simplicity* can be viewed as quite disrespectful towards the public; adopting a “complex rule” should not be made impossible insofar as authorities face incentives to endeavour to express “complex rules” in a simple manner. Moreover, some may think that *simplicity vis-à-vis* the public has more to do with a *symbolic* figure (say, 3 per cent) than with the economic concept with which it is related. Good communication, in my view, should necessitate both, hence also a clear understanding of what the underlying target incorporates. The public would thus be able to fully appropriate the rule at stake. Accordingly, the SGP is the simplest rule, since it is related to a symbolic figure *as well as* to the most easily understandable public finance concept – the overall public deficit.

The *flexibility* feature is a key economic mechanism in order to counter an expected or unexpected shock, as the economic situation in Europe during 2002 and 2003 has testified for: a substantial part of public deficit increases has been due to the automatic stabilisers which act

---

<sup>8</sup> A situation which is already incorporated in the SGP, where the mention to the “close to balance or in



as a social safety net, for instance through unemployment benefits. Whatever the underlying model, there is wide agreement among economists on the capacity of fiscal policy to smooth fluctuations in the business cycles at least in the short run (Blanchard, 1997, for instance).

Basing upon the properties defined by Kopits and Symansky (1998), Buti et al. (2003) have assessed the performance of the SGP (table 2). The values or marks attributed to the different features are quite high and justify only slight modifications to the Pact. According to Buti et al. (2003), the two most important drawbacks of the SGP (under its original form) are that it is not enforceable (as the situation in 2003 seems to confirm) and generally not underpinned by tax and spending reforms<sup>9</sup>.

According to me, and as regards the actual economic and budgetary situation in the euro area, these two properties would rather deserve a worse appraisal (table 3). As far as the opportunity of implementing tax reforms is concerned, the SGP has shown that it lacks an incentive to prevent governments from not benefiting from upswings to increase public surplus or implement a fiscal reform. Hence, governments have not used margins for manoeuvre at the time they had tax pots to reduce substantially their deficits and, consequently, they have had to implement once-and-for-all, pro-cyclical, policies to curb deficits when the cycle had changed trend. This can be illustrated by the German case in 2003, where the Schröder government has decided to increase social contributions though the German economy is more or less in a trough<sup>10</sup>.

It seems also quite obvious that the Pact is not enforceable at all, at least until the plausibility of the imposition of sanctions has not been increased. Though this argument is endorsed by Buti et al. (2003), I value it very differently. Evidence shows that a country facing a proposition of early-warning mechanism by the European Commission does not face reputational costs under the form, say, of higher long-term interest rates. The adoption by Ecofin council of an early-warning procedure to France has had no impact, at least until mid-2003, on long term interest rates nor on the willingness of the French government to reduce deficit at a faster pace.

Concerning the so-called “well-defined” property, Buti et al. (2003) point to some ambiguities, notably as regards the imprecise definition of a medium-term target of “close to

---

surplus” refers to the medium term.

<sup>9</sup> Kopits and Symansky (1998) pledge for a long-lasting fiscal rule thanks to fiscal reforms rather than to one-shot measures (whose effects may not prove permanent).

<sup>10</sup> The Schröder government has also decided to reduce the income tax rates ever since.

balance or in surplus". I lessen the value because of the vagueness of the institutional coverage of the early-warning mechanism or of the proposition for recommendation by the European Commission (EC). It is quite embarrassing that propositions by the EC are publicized, though they might not be endorsed by Ecofin for good economic reasons. As Fitoussi and Creel (2002) argue, the leniency by the Ecofin may look like a "political climb-down from previously-agreed budget precepts. Ecofin is quickly accused of undermining the credibility of the SGP" (p.58), though leniency may be economically meaningful: agreeing that Germany suffered from a downturn which could explain, at least partly, the huge growth in the deficit between 2001 and 2002 made sense, economically and empirically.

Transparency also deserves a lower mark. To me, this is due to the absence of a clear institutional setting between the EC and the governments. Two arguments may be involved. First, "the respective roles of Commission and national forecasts in the assessment of Stability and Convergence Programmes remain undefined" (Buti et al, 2003). Second, and more important to me, the initiative of action by the EC, as regards recommendations or the early-warning mechanism, is often left at its own discretion. For instance, the SGP gives power to the EC for identifying any "significant divergence" of the medium term domestic budget balance from the target. However, the SGP failed to define what "significant divergence" means exactly so that the EC has had to give and impose its own interpretation. In EC (2002), it is stated that: "To ensure consistency across Member States, the Commission took three factors on board as follows: the size of the budgetary slippage (...); the reason for the budgetary slippage (...); the risk of an excessive deficit position (...)." (p.36). The institutional arrangement which has *led* the EC to *have to* interpret the SGP is flawed, at least not fully transparent to say the less.

**Table 2. The SGP rule against ideal rules standards**

<b>Ideal fiscal rule</b>	<b>SGP actual rule (according to Buti et al., 2003)</b>
1. Well-defined	++
2. Transparent	++
3. Simple	+++
4. Flexible	++
5. Adequate relative to goal	++
6. Enforceable	+
7. Consistent	++
8. Efficient	+

*Legend: +++ very good, ++ good, + fair*

*Source: Buti et al., 2003.*

**Table 3. The SGP rule against ideal rules standards – “my way”**

<b>Ideal fiscal rule</b>	<b>SGP actual rule</b>
1. Well-defined	+
2. Transparent	+
3. Simple	+++
4. Flexible	+
5. Adequate relative to goal	+
6. Enforceable	–
7. Consistent	–
8. Efficient	–

*Legend: +++ very good, ++ good, + fair, – bad*

The flexibility property is obviously difficult to satisfy in the case of a rule which is intrinsically always a bit rigid, in comparison with a discretionary policy. Nevertheless the EC has argued that the existence of escape clauses (an annual GDP reduction of at least 0.75%) and the possibility of accumulating a deficit until it has reached 3% of the GDP let sufficient margins for automatic stabilisers to be fully effective. While the argument seems straightforward in accounting terms, it is inconsistent with the initial conditions in the EU where public finances have never been maintained “close to balance”<sup>11</sup>, though this appears as

---

<sup>11</sup> Basing upon EC forecasts (November 2002), the Euro area public finances were balanced in 2000, but were preceded and followed by a deficit of respectively 1.3 and 1.5 percent of GDP.

a *necessary* condition for grasping sufficient margins for manoeuvre<sup>12</sup>. Moreover, the SGP does not take into account an economic *slowdown* in the escape clauses, though a slowdown (like a GDP decrease) may have substantial consequences on the deficit<sup>13</sup>.

The adequacy of the SGP relative to final goal depends, of course, on the goal itself, but even in the case where the goal of “fiscal discipline” remains unquestioned, the SGP has failed. Big countries have not complied with their Stability Programmes and they have breached the deficit ceilings. Thus, there is something wrong with the procedures and the mechanisms at work. Obviously, targeting another goal like economic growth, or coordination of economic policies, the track-record of the SGP would appear worse than ever. Limitations of public deficits in no way urge economic growth, as they limit the scope for demand management (in the case of an unfavourable demand shock, whose size would be superior to  $-0.75\%$ ) or for fiscal reforms (in the case of an unfavourable supply shock)<sup>14</sup>. The SGP does not either tackle the issue of coordination which is left to informal meetings of the Eurogroup and to the Broad Economic Policy Guidelines which are meant to limit the scope for “discretionary coordination” (see Korkman, 2001). Setting a “fair” value to the adequacy property is the best I can do.

Last, the consistency feature of fiscal rules in the euro area should have its value mitigated by taking into account the interactions between fiscal and monetary policies. The architecture of the SGP has been originally meant to protect the ECB from lax fiscal policies which would have jeopardised the achievement of its objective of price stability. Nevertheless, the actual situation has been such that most public deficits have mainly been driven by contra-cyclical adjustment whose inflationary consequences are thus very unlikely<sup>15</sup>. Despite this empirical fact, the ECB seems to be relinquishing, at least is reluctant, to reduce substantially its interest rates. Either, it seems as if the ECB Governing Council did not want to help governments to curb their deficits. Or it shows that the ECB is still suspicious on governments trying to make it endorse a more expansionary monetary policy than what would be optimal in order to compensate for their own expansionary policies,

---

<sup>12</sup> See Dalsgaard and de Serres (1999). Their results suggest that, for the majority of countries, if governments were to aim for a “close-to-balance” budget rule, defined as a cyclically-adjusted deficit between zero and 1 per cent of GDP, the actual deficit would, with a 90 per cent likelihood, remain within the 3 per cent limit over a five-to-seven-year horizon without the need to adjust fiscal policy in a pro-cyclical fashion.

<sup>13</sup> This point is made clear in Coricelli and Ercolani (2002).

<sup>14</sup> In a recent contribution on the Keynesian vs. non-Keynesian effects of fiscal policy, van Aarle and Garretsen (2003) show that non-linearities between fiscal adjustment and private spending, hence non-Keynesian effects, are rare.

though the latter are more “automatic” than they are discretionary. Moreover, the EU policy mix<sup>16</sup> is not enforced; consequently, it is not efficient in enhancing “consistency”. *In fine*, the relevance of this type of policy mix ought to be questioned. Leaving more discretion to the implementation of fiscal policies in a monetary union whose federal budget is very weak does make sense as regards, for instance, the Optimum Currency Area literature (Kenen, 1969). Accordingly, I value “consistency” of the actual SGP badly.

### **A “low-fat reform” for the Stability and Growth Pact**

As a consequence of their mild assessment of the SGP, Buti et al. (2003) have elaborated some reform proposals for the Pact. They focus on the following properties of an “ideal fiscal rule”: transparency, efficiency, flexibility, and enforceability.

In order to improve transparency as well as to enhance efficiency, the authors propose that one-off measures be publicized and be excluded from the domestic structural balance targets insofar as they are really temporary. This part of the reform would reduce governments’ incentives to contract public deficits on a temporary basis in order not to breach the deficit ceiling, as the latter would be assessed exclusive of these “one-off measures”; meanwhile, they could be implemented in order to cope with a deterioration in economic growth. More flexibility would thus be gained. But it necessitates an “agreed definition of one-off measures (which) should complement the existing agreement on how to compute cyclically-adjusted balances” (p.25). Unfortunately, Buti et al. give no information on the methodology to be used in order to define these “one-off measures”.

Moreover, as regards the “efficiency property”, it is not sure that less “one-off measures” will lead governments to implement tax reforms. The expected positive effects of these reforms are, at best, long to come, whereas their negative impact on public finances comes first<sup>17</sup>, so that governments might still face substantial difficulties limiting their deficits and in the meantime implementing tax reforms.

---

<sup>15</sup> Portugal is the exception with its deficit in 2001 having been largely driven by high structural expenditures. The inflationary consequences for the euro area are however very marginal.

<sup>16</sup> Following the Maastricht treaty, the EU policy mix can be described by the adoption of constraints to domestic fiscal policies while monetary policy is given much leeway to determine precisely its target (a change in the CPI index below 2% in the medium term) and to implement its policy.

<sup>17</sup> A reduction in tax *rates* generally decreases tax *receipts* in the short run. “Reaganomics” are a good example.

Improving flexibility is also at the core of Buti et al.'s proposals. Hence, they favour the adoption of cyclically-adjusted targets for the deficits (a measure which is under way since 2001, see EC, 2001), but with a special feature: the fiscal rule would be diversified, i.e. countries with higher debt and/or larger automatic stabilisers would target a lower cyclically-adjusted deficit, while other countries would benefit from higher deficit targets. This special feature is somewhat inconsistent with the adoption of structural targets, for which one would rather have automatic stabilisers play fully with no distinction as regards public debt; no doubt that it shows that Buti et al. (2003) still emphasize the 3%-of-GDP target for the overall public deficit. Adopting a uniform cyclically-adjusted deficit limit in the EU would create very different overall public deficits, with indebted countries being likely to breach the 3%-of-GDP limit as their interest payments are substantial. Buti et al. reject this situation in advance.

They promote “rainy-day-funds” so that tax pot episodes are not used for electoral matters but, rather, are saved for worse (“rainy”) days. It would actually imply a constructive major change in the SGP: the Pact would be symmetric with a maximum allowed worsening of cyclically-adjusted balance agreed upon by European governments. This point however raises a very specific issue related to democracy. At the question: what governments ought to do with extra-receipts, democratic governments could generally answer by either buying back some public debt, or lowering the deficit, or engaging in a discretionary policy. With the reform envisaged by Buti et al., governments could only reduce their deficit... What would they therefore be elected for?

Buti et al.'s last proposal may be viewed as even less “democratic” than the previous one, as they propose that the EC implements the fiscal rules, while the European Council would decide on the corrective measures to be implemented by the defaulting country. To make enforcement easier, Buti et al. further suggest that EC recommendations become proposals, which would necessitate that unanimity, rather than qualified majority, be reached to reject it. While their proposition would certainly enhance enforcement, it would increase the EU democratic deficit. This may impede transparency as more power in the hands of the Commission may reduce its accountability. The EU has yet one authority whose

accountability is almost non-existent (at least, is not incorporated in any treaty)<sup>18</sup>; so does it deserve another one?

### **Adopting a Golden Rule**

Confronted with the inability of the actual SGP to manage transparency, flexibility, enforceability, consistency, efficiency and so on, there have been proposals for the adoption of a “golden rule of public finance” in the EU (most recent contributions are Fitoussi and Creel, 2002; Le Cacheux, 2002; Blanchard and Giavazzi, 2003). Such a rule states that, over the cycle, government borrowing should not exceed net government capital formation; hence, current expenditures should be financed by current receipts. The question remains on how to evaluate the depreciation rate of public capital formation in order to compute *net* capital formation data, maybe one reason why Germany’s legislation still hinges on *gross* fixed capital formation<sup>19</sup>.

#### *The rationale and some answers to criticism*

Theoretical rationale for excluding public capital expenditures from the public deficit’s target is linked to the necessity of spreading the costs of public capital formation over the years during which they will be used<sup>20</sup>. Empirical rationale for doing this can be linked to the bias against public investment which is a consequence of the actual SGP: as documented in Balassone and Franco (2000)<sup>21</sup>, there has been a close relationship between fiscal consolidation and cuts in capital spending in Europe during the eighties and nineties. This relationship is still prominent after the adoption of the Euro: Portugal has reduced public

---

<sup>18</sup> The Maastricht treaty defines the statutes of the European System of Central Banks. Accountability of the ECB reduces to an annual report and a meeting for its President at the European Parliament where the latter has no executive power and cannot give an impulse to a change in the ECB’s statutes, unlike the US Congress towards the Fed. As for the Commission, it is (at least) collectively accountable *vis-à-vis* the European Parliament.

<sup>19</sup> The “net” vs. “gross” capital formation debate is beyond the scope of this note. In fact, this issue could be incorporated in the transparency component of an “ideal fiscal rule”. The debate at stake is mostly one of terminology: if a “golden rule” were implemented in the EU, be it in terms of “net” or “gross” capital formation, politicians and policymakers should make it the most transparent as possible, so that no confusion arises.

<sup>20</sup> Though the welfare benefits of boosting public investment may be unevenly distributed across generations – public investment should increase private capital formation and wages, but the latter rise only gradually whereas the former is in the hands of the “elderly” –, Heijdra and Meijdam (2002) show that financing some part of public investment with public bonds enhances equality across generations. A “golden rule” is thus theoretically welfare-improving.

<sup>21</sup> See also EC (2003) and notably, table III.3 which shows that fiscal consolidation induced by high debt levels and the need to satisfy the Maastricht criteria coincided with relatively larger cuts in public investment.

investment substantially after its public deficit has breached the Pact's ceiling in 2001. Adopting a "golden rule" would put an end to this negative bias.

Two additional advantages with this rule should be noted. First, as European countries aim at "creating the most innovative area in the world" (Lisbon summit recommendation), there should be budgetary scope for improving infrastructures and human capital for which *public* capital (considered quite widely and loosely) should be of great help. The final target would be, of course, to boost potential and actual economic growth<sup>22</sup>. Promoting economic growth *via* public investment stems from two channels. First, public investment provides public goods like transport infrastructures which benefit users and directly or indirectly improve total factor productivity. Second, public investment also raises overall welfare when it participates in the protection of environment or enhance the fairness in resource distribution.

Another advantage in adopting a fiscal rule which would exclude public capital formation from the deficit target would be to narrow the gap in budget practices in the euro area with that in the UK. This may produce further incentives for the UK to join the euro area in a not-too-far future. Indeed, the UK budget incorporates a medium-run target for the net-of-public investment deficit, where the medium-run corresponds to a cycle. Over this cycle, this deficit should be balanced. The ensuing "golden rule" is associated with a "sustainable investment rule" (HM Treasury, 2002)<sup>23</sup> in order to prevent any overstatement for public investment and to limit net public debt below 40% of GDP.

The supposedly "unsustainable" feature of a "golden rule" is the major drawback discussed by its opponents. It is at least part of the reason for adopting a "sustainable investment rule" in the UK.

Hence, as discussed in EC (2003, part III), a "golden rule of public finance" in the EU would stop the reduction in public debts. Part of the rationale for slowing down public debt to GDP ratios in the euro area has been related to monetary policy. High public debts are seen as a threat to price stability and to the independence of the ECB. Though the latter cannot "monetize" public debts, on statutory grounds, high debts might increase default risk which, if

---

<sup>22</sup> Some contributions to the debate on "productive public capital" are Aschauer (1989), Bleaney et al. (2001) and Knight et al. (1999). They all find a significant and positive impact of public investment or public capital on the output, but in the case of Bleaney et al. only insofar as distorsive taxes do not finance expenditures.

<sup>23</sup> See also Buiters (2001).



it materialized, would necessitate that monetary policy be accommodative or that the ECB be the lender of last resort. Both actions might prove inflationary.

However, the argument is biased against public debt as it neglects the demand side of the market for public bonds. Two important determinants of the demand for bonds are liquidity and a low risk. Public bonds incorporate both. And the relevance of these two determinants would also explain why, when public debt decreases – as was the case in the USA at the end of the nineties – the demand for public bonds switches to bonds issued by government-sponsored enterprises like *Fannie Mae* fund or *Freddy Mac* fund in the USA, or *Kreditanstalt für Wiederaufbau* in Germany. The optimal ratio of net public debt to GDP is thus sizably different from zero; it may also be different in some EU countries from the debt ceiling in the Maastricht treaty, or from 40% of GDP in the UK. It should also be kept in mind that high public debt levels in Belgium have neither prevented the Belgian economy from reaching low inflation rate levels nor the *Franc belge* from being fixed *vis-à-vis* the *Deutschemark* during the EMS period. Limiting supply of public debt should not be left unlinked to the demand side.

Yet, the consequences of adopting a “golden rule of public finance” on public debt levels in the EU need an assessment. In fact, as shown in the appendix, adopting a rule based on the *cyclically-adjusted net-of-public-investment deficit* (Fitoussi and Creel, 2002, Le Cacheux, 2002) without any “sustainable investment rule”, would *endogenously* limit public investment’s growth. To understand the underlying mechanism, a two-step analysis is needed. First, financing public investment by borrowing (obviously) incurs interest payments. Second, these payments hinder structural expenditures other than public investment (equation (1) in the appendix). As the reduction in these structural ‘non-public-investment’ expenditures will always face a lower bound, interest payments’ growth will therefore face a ceiling, hence also public borrowing’s and public investment’s growth.

This is an argument against those who consider that adopting a “golden rule” would provoke a steep and unsustainable increase in public borrowing. In the euro area, it would take the public debt to GDP ratio more than a *hundred* years to rise up to 104% if the ratio of public investment to GDP were permanently increased by a one-percent point (see the appendix). Though it may be considered a “steep” – though slow – increase, it would not be unsustainable insofar as public investment would enhance potential growth, and insofar as higher debt is balanced by a higher demand for public bonds. This could happen either through a higher nominal yield, in parallel to higher economic growth rates, or through higher

demand for liquid-assets. The latter could result, for instance, from the generalisation of fully-funded pension systems in the euro area.

The endogenous limit to public investment which is incorporated in the rule based upon the cyclically-adjusted net-of-public-investment deficit, is also an answer to Buti et al. (2003) when they state that “the possibility of borrowing without strict limits in order to finance investments can lower the attention paid when evaluating the costs and benefits of each project.” (p.18). As the growth in public investment is limited by the necessity to pay interests on public debt, it is in the interest of government to implement investments whose cost/benefits ratio is the lowest.

Besides public debt’s growth or the cost/benefits analysis, other criticisms to the adoption of a “golden rule” in the euro area are worth mentioning. Balassone and Franco (2000) consider that the “golden rule”, as it is promoting public investment, will result in a bias in favour of physical assets, at the expense of health and education expenditures. Hence, the definition of “public investment” in national account statistics includes transactions that lead to changes in the stock of physical capital (like the construction of infrastructures or the purchase of computer hardware), but excludes large amounts of expenditures related to the accumulation of human capital, like training or R&D.

On this topic, I fully agree with Le Cacheux (2002) or Blanchard and Giavazzi (2003) that a broader assessment of “public investment” should be promoted, but only insofar as changes in the “accounting rules” are made possible, say, every 5 years – a delay known *ex ante* – in order to prevent an opportunistic behaviour by the governments. Blanchard and Giavazzi, for instance, argue that, “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 is 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.” (p.9). And, quoting Le Cacheux (2002): “more empirical work on the links between public expenditures – and indeed fiscal policies in general, including tax policies— and potential growth (should be undertaken). And it should be stressed that public accounting practices and rules, in particular the distinction between current and investment expenditures, are essentially conventional, just as private accounting rules. Hence, they may be reconsidered and redefined if a good case can be made that new accounting rules make more economic

sense” (p.10). The question of the definition of public investment expenditures is mentioned again in the conclusion.

Another criticism to the “golden rule” is that it promotes public capital, though it is overall capital, from the public and private sectors, that should be promoted. To counter this argument, which can also be found in Balassone and Franco (2000)<sup>24</sup>, one can state that there are sectors or regions in which the existence of public capital has substantial positive externalities on activity and on private investment. Two channels of transmission of the impact of public infrastructures on growth are generally distinguished: first, through the production capacities which may show complementarities between public and private investment, and thus improve total factor productivity<sup>25</sup>. Second, the output of private firms depends not only on how much labour and private capital they employ, but also on the quality of the environment in which they operate. Many facets of this environment, such as the legal framework, the quality of the transport network and, to some extent, the quality of telecommunications are at least partly supplied by governments, hence complementarities between public and private capital expenditures.

*An assessment via the Kopits and Symansky’s taxonomy*

Let me briefly summarize how the rule which is here at stake could be formulated. Within the euro area, the combination of a cyclical adjustment with taking public investment out of the deficit ceiling would lead to adopting a fiscal rule that would have a zero ceiling on the ratio to GDP of the cyclically-adjusted, net-of-public-investment deficit. This can be viewed as a “modified golden rule”, though this remains in line with Robinson’s (1998) definition of the “golden rule”<sup>26</sup>. In fact, this is a “modified rule” as regards the rule advocated, for instance, by Blanchard and Giavazzi (2003): they favour a ceiling on the *total* budget net of public investment. This leaves open the question of fiscal automatic stabilizers. Following Blanchard and Giavazzi’s proposal, provided governments have recovered some

---

<sup>24</sup> OLS estimates of the direct effect of public investment on private investment have been performed by the EC (2003, table III.2) and are inconclusive, except for Spain and Portugal (for which positive “crowding-in” effects are found) and the UK (for which a negative “crowding out” effect is found). In this latter country, according to the EC, the negative relationship between public and private investment might result from a *coincidence*: the privatisation process would have decreased public investment while increasing “to a certain extent” investment in the private sector.

<sup>25</sup> This channel was at the core of Aschauer (1989)’s paper. He showed that the slowdown in productivity growth in the US private sector during the seventies and eighties was the consequence of a shortage of investment in public infrastructure.

<sup>26</sup> “It is commonplace (...) for the golden rule to be viewed as requiring structurally balanced accrual budgets” (Robinson, 1998, p.449).

margins for manoeuvre, they would face a trade-off between implementing a contra-cyclical policy and increasing public investment. The bias against public investment during economic slowdown would persist. Moreover, the “modified rule” would be more stringent than the rule advocated by Buiters et al. (1993), though their rule is assumed to be consistent with the “golden rule”, provided that optimal public investment is equal to 3% of GDP in each EU country. Adopting a *primary* cyclically-adjusted deficit ceiling of 3% of GDP would be unsustainable, as there would be no intrinsic forces stopping interest payments and public debts, expressed in terms of GDP, from growing.

Now, basing upon the properties defined by Kopits and Symansky (1998), I can assess the performance of the “modified golden rule” (table 4). First, it is worth mentioning that, as this rule has not been adopted yet, evaluation of properties 1, 2 and 6 is almost impossible. Outcomes for these three properties would (will?) depend on politicians’ willingness to improve the fiscal institutional framework within the EU. If ever they chose to adopt the “modified golden rule”, much effort should be undertaken to improve these three characteristics in comparison with the current SGP.

Second, simplicity could be the Achilles’ heel of the reform proposal. Assessing fiscal stance in terms of a cyclically-adjusted deficit is quite difficult but removing public investment adds to the complexity of the indicator. However, it would be the task of European governments to make some pedagogy on this target. *Ex ante* transparency on the methodology used to compute cyclically-influenced components of tax revenues and public expenditures, and on the precise scope for “public investment” would help to improve the simplicity of the new indicator. Of course, as far as *symbolic* figures are concerned, replacing “3 percent” by “zero percent” is simple and should not make the “modified golden rule” deserve a low mark for its “simplicity feature”. However, as improved transparency remains uncertain concerning the public understanding of what is economically meant by a “modified golden rule”, a “fair value” is attributed to simplicity.

**Table 4. The modified golden rule against ideal rules standards**

<b>Ideal fiscal rule</b>	<b>The modified golden rule</b>
1. Well-defined	?
2. Transparent	?
3. Simple	+(+)
4. Flexible	+++
5. Adequate relative to goal	+++
6. Enforceable	?
7. Consistent	+++
8. Efficient	+++

*Legend: +++ very good, ++ good, + fair, ? depends on what the politicians will do*

Third, values for the remaining characteristics of the rule are given a “very good” mark. As the rule would let automatic stabilisers play fully and would also let governments gain freedom in the choice and size of public investments, the rule would permit to counter shocks and to improve potential output. Flexibility in the sense of Kopits and Symansky cannot be higher.

Adequacy of the rule to the final goal (sound public finance) also deserves a top-level mark. Public finances, though overall deficits and debts would grow if countries used new margins for manoeuvre to improve productive capital expenditures, would be partly self-financed and would not be unsustainable in the long run. Higher potential growth would spread to economic growth and would thus stabilise the deficit to GDP and debt to GDP ratios. Of course, if it is assumed that the final goal of the new fiscal policy framework is economic growth, its advantages are obvious. Even if the goal were price stability, the “modified golden rule” would still be adequate: discretionary policy, whose inflationary consequences could not be disregarded on *a priori* grounds, would be fettered by the necessity to finance interest charges. By definition, automatic stabilisers are not inflationary as they help to match aggregate demand to aggregate supply. Public investment is also supposed to have no consequences on the inflation rate, at least in the mid and long run, because it is meant to improve potential growth.

Since the “modified golden rule” should boost potential growth and should not jeopardise price stability, consistency with monetary policy in the euro area and in the EU should perform well. The “new” fiscal framework would also give some leeway to governments as

regards their management of the cyclically-adjusted deficit. They could at the same time implement a tax reform and a public investment program, insofar as they are able to reduce some extra-expenditures or insofar as they expect larger economic growth from both measures. Governments could also prefer to reform (and reduce) tax *rates* and not to enhance public investment; doing this, they would save some extra-interest charges in order to cope with short-run reductions in tax *receipts*.

Under the current SGP, recall that governments have been unable to reduce tax rates substantially because they had to fulfil the overall deficit target. Switching to a mere cyclically-adjusted deficit is still conditional on countries with a deficit to reduce it by 0.5% of GDP each year (Solbes, 2002, later endorsed by the Commission and Ecofin, except the French Minister of Finance); it will still postpone governments' ability to implement tax reforms.

Hence, except for some features whose evaluation is obviously uncertain, the "modified golden rule" seems close to the ideal standard first developed by Kopits and Symansky. Targeting a cyclically-adjusted net-of-public-investment balance seems a "very good" policy.

## **Conclusion**

As a conclusion, a comparison of the "ideal-ness" of various fiscal rules may be welcome. In table 5 below, two fiscal rules are evaluated. The marks for each feature of an ideal rule have been given an equivalent number from zero ("bad value") to three ("very good value"). I only report the average mark. For each fiscal rule, two evaluations are given. As far as the current SGP is concerned, I oppose Buti et al. (2003)'s average mark (coming from the values reported in table 2) with mine (table 3). It is obvious from the discussion developed in section 2 that we value the SGP very differently. Now concerning the "modified golden rule", the first average assessment is based on the five features for which I have given a (subjective) value. Of course, if uncertainty regarding definition, transparency and enforceability of the "modified golden rule" is being disregarded, this rule is the most likely to cope with ideal rules standards. Averaging among the best performing features of a rule however is unfair, in comparison with the SGP, so that I present a second assessment for the "modified golden rule". To achieve it, I have considered that the features for which it is almost impossible to give a definite mark should be given the same values as those I have attributed to the SGP. The logic here is the following: I bet politicians will not do worse than what they did under

the SGP if they decide to reform it; I also assume that they will not do better. In first approximation, this may seem a fairly reasonable assumption! Under this condition, the mark attributed to the “modified golden rule” is exactly the same as that attributed by Buti et al. (2003) to the current SGP.

**Table 5. General evaluation of different fiscal rules**

Fiscal rules	Average mark
SGP (according to Buti et al., 2003)	++
SGP (according to the author)	+
The modified golden rule	+++
The modified golden rule (bis)	++

Legend: +++ very good, ++ good, + fair.

Does it mean that the differences between the two fiscal frameworks are not so important as to push governments to adopt the latter? The answer is: no. Though Buti et al. (2003) propose an internal adjustment to the Pact, which would make them value it better, I think the SGP is flawed – at best “fair” – and that their reform proposal will not change dramatically the European fiscal framework, though it is needed. Inversely, concerning the “modified golden rule”, what the value attributed to this rule in the *worst scenario* shows is that, insofar as it is implemented, politicians and policymakers must work hand in hand to make it a transparent, well-defined and enforceable framework. Other properties of an “ideal fiscal rule” are already self-enforcing in the case of the “modified golden rule”. Provided politicians and policymakers cooperate, despite the difficulties, the EU will gain lower economic fluctuations (*via* automatic stabilisers) and higher growth (*via* public investment). This is worth trying it.

The direct consequence of the “modified golden rule” proposal is that more empirical work is needed on the links between public investment at large, including health and education sectors, and economic growth or total factor productivity. Turning to a measurement of efficiency that is based upon a production frontier (via technical efficiency or the data envelopment analysis, Charnes et al., 1978) would be a programming option. Basing upon the results of these necessary future studies, governments would be able to propose a precise and exhaustive classification of “productive public expenditures” which should be removed from the new fiscal rule. Such a classification is left to future research.

## **Bibliography**

AARLE (van) B. and H. GARRETSEN (2003), “Keynesian, non-Keynesian or no Effects of Fiscal Policy Changes? The EMU case”, *Journal of Macroeconomics*, vol.25, no.2, June.

ASCHAUER D.A. (1989), “Public Investment and Productivity Growth in the Group of Seven », *Journal of Economic Perspectives*, no.13, pp. 17-25.

BALASSONE F. and D. FRANCO (2000), “Public Investment, the Stability Pact and the ‘Golden Rule’”, *Fiscal Studies*, vol.21, no.2.

BEETSMA R.M.W.J. (2001), “Does EMU Need a Stability Pact?”, in BRUNILA A et al. (eds.), *op.cit.*.

BLANCHARD O.J. (1997), “Is There a Core of Usable Macroeconomics? », *American Economic Review*, Papers and Proceedings, vol.87, no.2, May.

BLANCHARD O.J. and F. GIAVAZZI (2003), “Improving the SGP through a Proper Accounting of Public Investment”, *European Economic Perspectives newsletter*, CEPR, no.1, February.

BLEANEY M., N. GEMMEL and R. KNELLER (2001), “Testing Endogenous Growth Model: Public Expenditure, Taxation and Growth over the Long Run », *Canadian Journal of Economics*, vol. 34, no.1.

BLINDER A.S. (2000), “Central-Bank Credibility: Why do We Care? How do We Build It?”, *American Economic Review*, vol.90, no.5, December.

BOVENBERG A.L. and A.H.M. de JONG (1997), “The Road to Economic and Monetary Union”, *Kyklos*, vol.50, fasc.1.

BOVENBERG A.L., J.J.M. KREMERS and P.R. MASSON (1991), “Economic and Monetary Union in Europe and Constraints on National Budgetary Policies”, *IMF Staff Papers*, vol.38, no.2, June.

BRUNILA A., M. BUTI and D. FRANCO, eds., (2001), *The SGP, the Architecture of Fiscal Policy in EMU*, Palgrave: Basingstoke.

BUTI M., S.C.W. EIJJFINGER and D. FRANCO (2003), “Revisiting the SGP: Grand Design or Internal Adjustment?”, *CEPR Discussion Paper*, no.3692, January.



BUITER W.H. (2001), “Notes on ‘A Code for Fiscal Stability’”, *Oxford Economic Papers*, vol.53, no.1.

BUITER W.H., G. CORSETTI and N. ROUBINI (1993), “Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht”, *Economic Policy*, no.16.

CHARNES A., W. COOPER, and E. RHODES (1978), “Measuring Efficiency of Decision-Making Units”, *European Journal of Operational Research*, vol.2, no.6.

CORICELLI F. and V. ERCOLANI (2002), “Cyclical and Structural Deficits on the Road to Accession: Fiscal Rules for an Enlarged European Union”, *CEPR Discussion Paper*, no.3672, December.

CUKIERMAN A. (2001), “Accountability, Credibility, Transparency and Stabilization Policy in the Eurosystem”, in Ch. WYPLOSZ (ed.), *The Impact of EMU on Europe and the Developing Countries*, Oxford University Press, October.

DALSGAARD T. and A. DE SERRES (2001), “Estimating Prudent Budgetary Margins for 11 EU countries: a Simulated SVAR Model Approach”, *OECD Economics Department Working Paper*, no.216.

EMMERSON C. and C. FRAYNE (2001), “The Government’s Fiscal Rules”, *IFS Briefing Notes*, no.16, April.

EC (2001), “The EU Economy: 2001 Review, Investing in the Future”, *European Economy*, no.73, European Commission.

EC (2002), “Public Finances in EMU 2002”, *European Economy*, no.3, European Commission.

EC (2003), “Public Finances in EMU 2003”, *European Economy*, no.3, European Commission.

FISCHER J. and G. GUIDICE (2001), “The Stability and Convergence Programmes”, in BRUNILA et al. (eds.), *op.cit.*.

FITOUSSI J.-P. and J. CREEL (2002), *How to Reform the ECB*, Center for European Reform, London, October.

GERAATS P.M. (2002), “Central Bank Transparency”, *Economic Journal*, vol.112, no.483, November.

HAGEN (von) J. and I. HARDEN (1994), "National Budget Processes and Fiscal Performance", *European Economy*, Reports and Studies, no.3.

HEIJDRA B.J. and L. MEIJDAM (2002), "Public Investment and Intergenerational Distribution", *Journal of Economic Dynamics and Control*, vol.26, no.5, May.

HM TREASURY (2002), *Core Debt: an Approach to Monitoring the Sustainable Investment Rule*, April.

KENEN P.B. (1969), "The Theory of Optimum Currency Areas: an Eclectic View", in MUNDELL R.A. and A.K. SWOBODA (eds.), *Monetary Problems of the International Economy*, University of Chicago Press.

KNIGHT M., N. LOAYZA and D. VILLANUEVA (1993), "Testing the Neoclassical Theory of Economic Growth", *IMF Staff Papers*, vol.40, pp. 512-541.

KOPITS G. (2001), "Fiscal Rules: Useful Policy Framework or Unnecessary Ornament?", *IMF Working Paper*, no.145, September.

KOPITS G. and S. SYMANSKY (1998), "Fiscal Policy Rules", *IMF Occasional Paper*, no.162.

KORKMAN S. (2001), "Fiscal Policy Coordination in EMU: Should it Go Beyond the SGP?", in BRUNILA et al. (eds.), *op.cit.*.

LE CACHEUX J. (2002), "A Golden Rule for the Euro Area?", paper presented at the *Fiscal Discipline Workshop*, CDC-Ixis and CEPPII, Paris, November.

PISANI-FERRY J. (2002), "Fiscal Discipline and Policy Coordination in the Eurozone: assessment and proposals", paper prepared for the Group of Economic Analysis of the EC, April.

ROBINSON M. (1998), "Measuring Compliance with the Golden Rule", *Fiscal Studies*, vol.19, no.4.

ROBINSON M. (2002), "Accrual Accounting and Australian Fiscal Policy", *Fiscal Studies*, vol.23, no.2.

SOLBES P. (2002), "Budgetary Challenges in the Euro Area", *Communication*, European Commission, September the 24<sup>th</sup>.

WOODFORD M. (2001), "Fiscal Requirement for Price Stability", *Journal of Money, Credit, and Banking*, 33(3), August.

WYPLOSZ C. (1991), “Monetary Union and Fiscal Policy Discipline”, *European Economy*, Special Edition., no.1.

WYPLOSZ C. (2002), “Fiscal Policy: Rules or Institutions?”, paper prepared for the Group of Economic Analysis of the EC, April.

## Appendix

The dynamics of public debt which is incorporated in the “modified golden rule for public finance” discussed above stems from some definitions and rules: first, public deficit  $Def_t$  (subscript  $t$  for time) splits into a cyclical ( $Def_{c,t}$ ) and a cyclically-adjusted ( $Def_{s,t}$ ) component, where the former has an elasticity of 0.5 towards the output gap ( $OG_t$ )<sup>27</sup>,

$$Def_t = Def_{c,t} + Def_{s,t}$$
$$Def_{c,t} = -0.5 * OG_t * GDP_t.$$

Two components are structural (cyclically-adjusted): interest payments ( $I$ ) and the primary structural deficit ( $PSD$ ); the latter can be split into public investment ( $PI$ ) and a residual, discretionary and autonomous deficit ( $DAD$ ):

$$Def_{s,t} = I_t + PSD_t$$
$$PSD_t = PI_t + DAD_t.$$

Public debt  $B$  varies according to:

$$B_t = B_{t-1} + Def_t.$$

The “modified golden rule of public finance” gives:

$$Def_{s,t} - PI_t = 0.$$

Hence, the cyclically-adjusted deficit reduces to public investment. Other consequences are also the following:

(1):  $DAD_t = -I_t$ , which means that higher interest payments must be compensated with a lower discretionary and autonomous deficit; there is thus clearly a upper limit to interest payments as the discretionary and autonomous surplus might also face an upper bound; and

$$(2): \begin{aligned} Def_t &= PI_t - 0.5 * OG_t * GDP_t \\ B_t &= B_{t-1} + PI_t - 0.5 * OG_t * GDP_t. \end{aligned}$$

Following expressions in (2), the dynamics of the public debt to GDP ratio  $b_t$  runs according to:

---

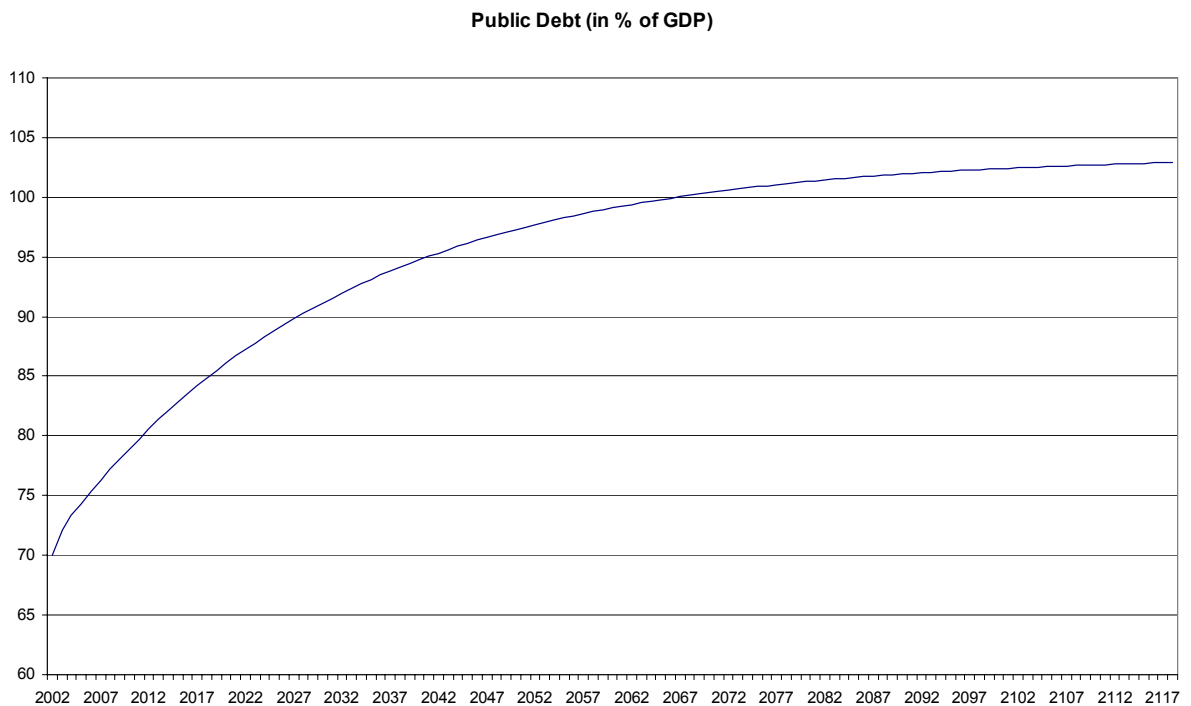
<sup>27</sup> The term 0.5 represents the budget sensitivity to the output gap of the public deficit for the EU 11 countries (reported in Fischer J. and G. Guidice (2001)). GDP is the gross domestic product.

$$b_t = b_{t-1} * \frac{GDP_{t-1}}{GDP_t} + \frac{PI_t}{GDP_t} - 0.5 * OG_t.$$

The stability of the public debt to GDP ratio requires that:

$$b_t = \frac{1}{y} \left[ \frac{PI_t}{GDP_t} - 0.5 * OG_t \right], \text{ where } y = \frac{\dot{y}}{1 + \dot{y}}, \text{ and } \dot{y} \text{ is the GDP growth rate.}$$

A numerical application at the steady state (OG=0), with a ratio of public investment to GDP of 3.5% (a one-percent point higher than in the Euro area) and economic (potential) growth equal to 3.5%, all expressed in yearly terms, show that the increase in the ratio would provoke an increase of the public debt to GDP ratio up to 103.5%<sup>28</sup>. Simulating this permanent 1 percentage point increase in the ratio of public investment to GDP, with effective growth converging towards its potential after 4 years and with the long term interest rate converging towards economic potential growth at the same pace, would take more than a hundred years for the debt to GDP ratio to reach 103%, all else equal (see graph below, details available from the author upon request)<sup>29</sup>.



<sup>28</sup> The long term public debt to GDP ratio is sensitive to potential growth. Be it equal to 3% or 4%, and the public debt to GDP ratio would equal 120% or 91% respectively.

<sup>29</sup> The initial public debt to GDP ratio (in 2002) is taken from Eurostat and embraces the euro area.