

Ten Commandments for a Fiscal Rule in the E(M)U

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Willem H. Buiters^{***}

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Abstract

Fiscal rules in a monetary union should (1) be simple; (2) ensure the solvency of the state; (3) relate to the consolidated general government and central bank; (4) be neutral as regards the size of the public sector; (5) avoid pro-cyclical behaviour of the fiscal policy instruments; (6) make sense also in the long run; (7) allow for important differences in economic structure and initial conditions; (8) aggregate into behaviour that makes sense at the level of the union as a whole; (9) be credible and (10) be enforced impartially and consistently. The paper reviews the rules of the Stability and Growth Pact, the UK's Golden Rule and Sustainable Investment rule and Buiter and Grafe's Permanent Balance rule and Enhanced Permanent Balance Rule from the perspective of how well they meet these 10 criteria.

Key words: Fiscal rules, Stability and Growth Pact; Golden Rule; Financial Sustainability.

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Willem H. Buiter, European Bank for Reconstruction and Development, One Exchange Square, London EC2A 2JN, United Kingdom

Tel.: + 44 (0)20 7336 6805

Fax: + 44 (0)20 7338 6110/1

E-mail: buiterw@ebrd.com (Office)

E-mail: willembuiter@whsmithnet.co.uk (Home)

www: <http://www.nber.org/wbuiter>

Introduction.

This paper considers the strengths and weaknesses of three sets of fiscal rules proposed for national fiscal authorities in the E(M)U. They are: (1) the deficit and debt rules of the Stability and Growth Pact; (2) the *golden rule* and *sustainable investment rule* used in the UK (see Balls and O'Donnell [2002]) and (3) the *permanent balance rule* proposed by Buitert and Grafe [2002], building on earlier work by Barro [1979], Blanchard [1990], Buitert [1983, 1985, 1990, 1991, 2001], Buitert and Kletzer [1991], and Buitert, Corsetti and Roubini [1993]. With EU enlargement looming and the Stability and Growth Pact the subject of intense discussion and open disagreement even among those charged with implementing and enforcing it, now is a good time indeed to rethink the issue of what makes for an appropriate fiscal rule at the national level and at the level of the E(M)U as a whole.¹

The ultimate objectives the rules aim to achieve are common ground. They are: financial sustainability of the state and macroeconomic stability, that is, the elimination of unnecessary and undesirable fluctuations in economic activity. Giving expression to these generally agreed objectives through a common set of workable rules constraining the national fiscal authorities is a complicated task even for a homogeneous set of countries. It is a formidable task indeed to design a rule, or set of rules, that makes sense for a group of 15 and soon 25 countries, ranging from the mature industrial economies of Western Europe to the least advanced among the eight Central and East European transition countries that are scheduled to become EU members as early as 2004. This paper tries to sum up the essence of what we know in

¹ The relevant literature is vast and grows furiously. See Buitert and Grafe [2002] for a small but representative set of references. Artis and Buti [2000], Banca D'Italia [2000], Beetsma and Uhlig [1999] and Eichengreen and Wyplosz [1998] give four distinct views on the range of issues involved.

ten propositions, the Ten Commandments for Fiscal Rules appropriate to the E(M)U area.

The following notation is used:

d is the general government financial deficit as a fraction of GDP; g is general government non-interest spending as a fraction of GDP; \mathbf{r} is general government current revenues as a fraction of GDP, including taxes, \mathbf{t} , and capital income, \mathbf{k} ²; b is the stock of general government net financial debt as a fraction of GDP; i is the short nominal interest rate on government debt; n is the growth rate of real GDP; \mathbf{p} is the rate of inflation; $r \equiv i - \mathbf{p}$ is the short real interest rate; $s \equiv \mathbf{r} - g$ is the primary (that is, non-interest) general government surplus as a fraction of GDP; g_c is general government current spending as a fraction of GDP, including government consumption, transfer payments and capital depreciation (or ‘capital consumption’); g_I is general government net investment as a fraction of GDP.³ Cyclically adjusted or ‘structural’ variables are denoted by a tilde over the variable, e.g. \tilde{d} is the cyclically corrected government deficit as a fraction of GDP. ‘Permanent’ values of variables are denoted by the superscript p , e.g. s^p is the permanent primary surplus as a share of GDP. Steady state values of variables are denoted by an overbar over the variable, e.g. \bar{d} is the steady state ratio of the general government financial deficit to GDP.

From the budget identity of the general government sector it follows that

$$\Delta b \equiv d - (\mathbf{p} + n)b \quad (1)^4$$

where

$$d \equiv -s + ib \equiv g - \mathbf{r} + ib \quad (2)$$

The change in the debt-to-GDP ratio equals the government’s financial deficit as a fraction of GDP minus the reduction in the debt-GDP ratio due to growth in nominal GDP.⁵

From (1) and (2) it follows that the change in the debt-GDP ratio can also be written as

$$\Delta b \equiv -s + (r - n)b \quad (3)$$

² $\mathbf{r} \equiv \mathbf{t} + \mathbf{k}$

³ $g \equiv g_c + g_I$

⁴ This is exact only when time is continuous and $\Delta b \equiv dbdt$.

⁵ For simplicity all general government interest-bearing debt is assumed to be nominally denominated.

The Stability and Growth Pact fiscal rules are given in equations (4) and (5).

The *S&G deficit rule*:

$$d \leq 0.03 \quad (4)^6$$

The *S&G medium-term balance rule*:

$$\tilde{d} \leq 0 \quad (5)^7$$

For countries not yet participating in the third stage of EMU, there is in addition the requirement that gross general government debt should not exceed 60 percent of annual GDP (the ‘Maastricht debt criterion’). We will have little to say about it, as it appears neither to have played a significant role in the monitoring and surveillance of E(M)U members’ budgetary performances, nor to have been a binding constraint on any country becoming a full EMU member. If the government has no financial assets, net debt and gross debt are the same, and *the S&G (or Maastricht) debt criterion* can be expressed as

$$b \leq 0.6 \quad (6)$$

The UK’s budgetary rules are as follows:⁸

⁶ The three percent of GDP threshold for the general government financial deficit can be breached only in exceptional circumstances, defined as ‘severe recession’. In evaluating whether the economic downturn is severe, the Member States will, as a rule, take as a reference point an annual fall in real GDP of at least 0,75 %. If a Member State is deemed by the European Commission and the Council of Ministers to have taken inadequate measures to address a situation where the general government deficit exceeds 3 % of GDP, the Member State may be required to make non-interest-bearing deposits. If the failure to address the excessive deficit persists, these deposits will turn into a fine. No financial penalties are imposed as long as the general government financial deficit does not exceed 3% of GDP. Neither are financial fines imposed if a country is deemed by the Commission and the Council to have pursued inappropriate policies in the context of the yearly surveillance exercise, unless of course the general government financial deficit were to exceed 3 % of GDP. Ireland was at the receiving end of such a negative assessment in 2001.

⁷ Equation (5) would seem to be the appropriate algebraic representation of “close to balance or in surplus”. If a small, medium term deficit of magnitude $x > 0$ is tolerated, Equation (5) should be replaced by $\tilde{d} \leq x$. The concession made to France and Italy during June 2002, suggest that $x \approx 0.005$, or 0.5 percent of GDP.

The *golden rule*: over the economic cycle, the government will borrow only to invest and not to fund current spending. It is met when, over the economic cycle, the current budget is in balance or surplus; and

The *sustainable investment rule*: public sector net debt as a proportion of GDP will be held over the economic cycle at a stable and prudent level. Other things equal, a reduction in public sector net debt to below 40 per cent of GDP over the economic cycle is desirable.

Total non-interest public spending as a fraction of GDP, g , can be decomposed into current spending, g_c , which included depreciation of the public sector capital stock ('capital consumption') and net public sector investment, g_I .

The two UK rules can be written as follows:

The golden rule:

$$\tilde{d} - \tilde{g}_I \equiv \tilde{g}_c - \tilde{t} + ib \leq 0 \quad (7)$$

The sustainable investment rule:

$$b \leq 0.4 \quad (8)$$

The *permanent balance rule* is a 'tax-smoothing rule': taxes are a constant share of GDP. The level of the constant share of taxes in GDP is no lower than the lowest constant share of GDP that would (absent news and surprises) ensure government solvency now and in the future. It can be written as follows:

$$t \geq t^p \equiv g^p - k^p + (r^p - n^p)b \quad (9)$$

Taxes as a fraction of GDP are no less than permanent public spending as a fraction of GDP, g^p , minus permanent government capital income as a share of GDP, k^p , plus the inflation-and-real-growth-corrected permanent interest cost of the public

⁸ HM Treasury *Pre-Budget Report 2000: Chapter 02* 'Delivering macroeconomic

debt (as a share of GDP), $(r^p - n^p)b$. Permanent public spending (as a share of GDP) is defined as follows. Discount the sequence of current and future shares of government spending in GDP back to the present using a sequence of discount factors based on the difference between the real interest rate and the real growth rate, $r - n$. Then the permanent public spending share of GDP is that *constant* share of public spending in GDP that has the same present discounted value as the actual (planned or expected) sequence of public spending shares. It can be thought of as the average expected future value of the share of public spending in GDP.⁹ Note that this *permanent* value need not correspond to the steady-state or long-run equilibrium value. If the economy is far from steady state, the discounting involved in the calculation of the permanent values of some variable means that greater weight is given to the present and near future expected values of that variable, which may differ significantly from its steady-state value. Permanent capital income (as a share of GDP) is defined analogously. The permanent ‘growth corrected’ real discount rate, $r^p - n^p$, can be thought of as the average expected future value of $r - n$.¹⁰

The tax rule in (9) implies the following behaviour of the general government deficit:

$$d \leq (n + \mathbf{p})b + g - g^p + \mathbf{k}^p - \mathbf{k} + \left[(r - r^p) - (n - n^p) \right] b \quad (10)$$

The general government financial deficit is given by the sum of three components. The first is the reduction in the debt-to-GDP ratio due to nominal income growth: $(\mathbf{p} + n)b$. The second is the excess of current spending over

stability’.

⁹ Strictly speaking, $g^p \equiv \left(\int_t^\infty e^{-\int_t^v [r(u) - n(u)] du} dv \right)^{-1} \int_t^\infty e^{-\int_t^v [r(u) - n(u)] du} g(v) dv$

permanent spending, $g - g^p$, minus the excess of current capital income over permanent capital income, $k - k^p$. The third is the excess of the current interest bill (inflation-and-growth-corrected), $(r - n)b$ over the permanent interest bill (also inflation-and-growth-corrected), $(r^p - n^p)b$.

First Commandment: The rule should be simple; compliance should be easily verifiable.

The rationale for this rule is obvious, although the requirement of simplicity involves an appeal to ‘bounded rationality’, a concept with which conventional economics has only a reluctant and awkward acquaintance. Complex, non-linear, time-varying contingent rules of the kind that emerge from conventional formal optimal control approaches are incomprehensible to those charged with implementing them, to those attempting to verify compliance with the rule and to the public in general. Complex rules are likely to add noise and uncertainty to the system.

The Stability and Growth Pact scores well on *simplicity*. The S&G deficit rule is a fixed number – as simple as it gets. So is the S&G debt rule. Despite occasional attempts by member countries to engage in creative accounting, the statisticians at Eurostat ensure that verification is reasonably simple and non-controversial. The S&G medium-term balance rule is more complex because it involves cyclical adjustment. The concept of the medium term is quite elastic, and the meaning of ‘close’, as in ‘close to balance or in surplus’ is also fuzzy.

The UK’s sustainable investment rule is just as simple and easily verifiable as the S&G debt rule. The UK’s cyclically adjusted golden rule is slightly more complex and harder to verify than the S&G medium term balance rule. Like the S&G

¹⁰ Strictly speaking, it is defined by $r^p - n^p \equiv \left(\int_t^\infty e^{-\int_t^v [r^{(u)} - n^{(u)}] du} dv \right)^{-1}$.

medium term balance rule, it involves cyclical adjustments. In addition, it requires a judgement as to whether any given government spending item represents public consumption or public investment. Since much of general government expenditure on goods and services represents neither consumption nor investment, but rather the production and consumption of intermediate public goods and services which should not be counted in GDP at all, the problems of classification and verification are not trivial.

The Permanent balance rule is the most complex of the three sets of rules considered here, and also the hardest to verify. While the principles behind it are straightforward, its implementation involves the need to be explicit about future plans and expectations concerning public spending, capital income, real interest rates and real growth rates.

Second Commandment: The rule should maintain the government's solvency.

A necessary property of any desirable rule is that adherence to the rule should be enough to ensure that government default is ruled out. In principle, only the Permanent balance Rule has this property. It has it by construction. The government is solvent if the contractual value of its outstanding debt does not exceed the present discounted value of its current and future primary (non-interest) surpluses.¹¹ That is, solvency requires that the outstanding debt-to-BDP ratio be no greater than the permanent primary (non-interest) government surplus as a fraction of GDP divided by

¹¹ This follows from the requirement that the government cannot engage in Ponzi finance, always issuing new debt at least equal in value to the cost of servicing the outstanding stock of debt. Instead we require that the present discounted value of future government debt goes to zero in the very long run.

the long-run or permanent real interest rate minus the long-run or permanent growth rate of real GDP¹²:

$$b \leq \frac{s^p}{r^p - n^p} \equiv \frac{\mathbf{r}^p - g^p}{r^p - n^p} \equiv \frac{\mathbf{t}^p + \mathbf{k}^p - g^p}{r^p - n^p} \quad (11)$$

By setting the share of taxes in GDP at least equal to the permanent tax share in GDP that ensures solvency (according to (11)), the Permanent balance rule has government solvency as a design feature.

The S&G medium-term balance rule too virtually ensures government solvency. This is clear from (12), which shows the behaviour in the medium term of the debt-GDP ratio. Under the S&G medium-term balance rule, the medium term budget is near balance or in surplus. With positive medium-term nominal GDP growth and a positive outstanding stock of debt, the government debt-GDP ratio under the S&G pact is bound to fall steadily in the medium term.

$$\Delta \tilde{b} \equiv \tilde{d} - (\tilde{p} + \tilde{n})b \quad (12)$$

The UK's golden rule by itself is not guaranteed to ensure government solvency, although in practice it is likely that it will. The sustainable investment rule will guarantee government solvency as long as a 40 percent net debt to GDP ratio is sustainable. Under the golden rule, the change in the debt-GDP ratio is less than or equal to the share of public sector net investment in GDP minus the reduction in the debt-GDP ratio due to nominal GDP growth:

$$\Delta \tilde{b} \equiv \tilde{d} - (\tilde{p} + \tilde{n})b \leq \tilde{g}_I - (\tilde{p} + \tilde{n})b \quad (13)$$

¹² Expressing the debt and primary surplus as shares of GDP is illuminating because GDP is a reasonable indicator of the government's ability to tax. If capital income taxation is residence-based rather than source-based, GNP would be a better scale variable than GDP. If taxes on spending are important, aggregate spending (including imports but excluding exports) may be a more appropriate scale variable.

If the share of government net investment in GDP is large enough and sustained enough, the debt-GDP ratio could rise to solvency-threatening levels. In practice, this is unlikely. With nominal income growth at 5 percent per annum in the medium term (split equally between inflation and real growth) and a net debt-GDP ratio of around thirty percent, the UK government would have to invest more than 1.5 percent of GDP for the debt-GDP ratio to start rising. While this may well happen during the next 10 to 15 years, as the UK makes up for its infrastructure backlog, it is unlikely that in the long run general government investment in the UK will be more than 2.5 percent of GDP. With nominal income growth at 5 percent per annum, the debt-GDP ratio would settle at 50 percent. If the UK government wishes to abide by its sustainable investment rule and keep net debt below 40 percent of annual GDP, the share of government investment in GDP should not exceed 2 percent in the long run.

Third Commandment: The rule should apply to the financial deficit of the sovereign, that is, to the consolidated general government and ESCB.¹³

The macroeconomic implications of government debt issuance depend on whether the debt is purchased by the general public (including the rest of the world) or by the central bank. By issuing fiat base money (often with legal tender status), the state, through its agent the central bank, borrows at a zero nominal interest rate, using liabilities that will never have to be redeemed. These monetary liabilities of the state have a unique role in the determination of the general price level. All this is lost sight of when we consider just the general government sector, which excludes the central bank.

¹³ European System of Central Banks, the ECB plus the 12 national central banks of the full EMU members.

The general government includes the agencies of the state that have the power to tax. The general government therefore has the long-run ‘deep pockets’. The size of the real resource transfers it can make is limited only by its ability to tax and to squeeze public spending programmes. The central bank, through its power to issue legal tender has short-run deep pockets, which are particularly useful when the banking sector or some other key segment of the financial system is faced with a liquidity crisis. The short-run deep pockets of the central bank even come in handy if there is a default or solvency crisis with systemic consequences in the banking sector or elsewhere in the financial system. The central bank, through its ability to create instant liquidity at will and in any amount, can absorb any amount of *nominally denominated* doubtful or bad debt without threatening its solvency. However, the real resources transfers it can make through its issuance of base money are of course limited by the demand for *real* base money. It is likely that there is a long-run ‘seigniorage Laffer curve’, which sets a finite upper bound on the real resources the central bank can extract through its power to issue nominal base money.¹⁴ In any case, the inflationary consequences of the pursuit of higher real seigniorage by the central bank will limit its appetite for making unassisted long-run real resource transfers. That is why, in conventional constitutional set-ups where there is one general government/fiscal authority for each central bank, the general government, with its long-run non-inflationary deep pockets, stands behind the central bank, ready to make real resources transfers to the central bank – to recapitalise it – should the need arise.

¹⁴ Both the linear and the log-linear base money demand function (with real money balances are a decreasing function of the nominal interest rate) imply a long-run seigniorage Laffer curve.

The definition of the ‘government’ whose debt is of concern should therefore be the consolidated general government and central bank. The relevant debt would be the interest-bearing (non-monetary) liabilities of the consolidated general government and central bank.

None of this implies any particular view on whether or not the central bank should be operationally independent (or operationally and target independent) from the government. The central bank is always an agent of the state, even if it is not an agent of the government.

Unique complications arise in the EMU, where the national fiscal authorities stand financially behind their own national central banks, but no fiscal authority stands directly behind the ECB. Whether this unique and potentially vulnerable position of the ECB will in due course be remedied by the creation of a serious supra-national fiscal authority at the EMU level or by implicit or explicit agreements between the ECB and the national fiscal authorities is as yet unclear.

For each individual EMU member, the consolidated general government and ESCB would have something (approximately) equal to that nation’s net general government debt held outside the ESCB as the appropriate (interest-bearing) debt concept – corresponding to b . The financial deficit of the consolidated general government and ESCB would have to net out any interest payments between the ESCB and the general government (mainly from the national general government to the ESCB) and the ‘profit remittances’ from the ESCB to the national general government. The current revenues variable of the consolidated general government and ESCB (the analogue to r) would have to include the nation’s imputed share of

share of the increase in the stock of base money.¹⁵ For the UK, the consolidation of the general government and the central bank would involve only the traditional consolidation of the general government and the Bank of England.¹⁶

Consolidating the general government and central bank for the purpose of deciding on appropriate debt and deficit rules may not matter much, quantitatively, in the EU today, but it could matter in different, but conceivable, circumstances, say in the wake of a banking crisis. In Japan today, the Bank of Japan holds more than 14 percent of the outstanding national government debt. The S&G Pact rules and the UK rules are explicitly specified in terms of the general government deficit and debt. The permanent balance rule can swing either way.

Fourth Commandment: The rule should not prejudge the issue of the appropriate/optimal size of the public sector.

All three sets of rules get maximal brownie points as regards the Fourth Commandment. Debt and deficits are about intertemporal choice – in particular about the intertemporal distribution of the excess burden associated with the use of distortionary taxes and about the intergenerational distribution of the cost of public spending programmes. There is no logical link between such intertemporal efficiency and intergenerational equity issues on the one hand and on the other hand, choices about the size of the public sector in any of its many dimensions: the scope of public financed and/or publicly provided goods and services, intra-generational redistribution, the use of Pigovian externality-addressing taxes and subsidies, the

¹⁵ Presumably, the same share would be used here as the one that determines the country's share in the profits of the ESCB.

¹⁶ In Japan, general government gross debt to GDP (excluding social security) will be approximately 153.2% at the end of FY2002 according to Japanese Government estimates. According to the "OECD Economic Outlook" issued in June 2002, the gross debt in Japan will be 143.3% of GDP on a general government basis in CY2002.

scope and intrusiveness of government supervision and regulation etc. We can have small public sectors with high public debt and deficits (e.g. Tajikistan and Georgia) and we can have large public sector with low public sector debt and deficits (e.g. Slovenia).

Fifth Commandment: The rule should not encourage pro-cyclical behaviour of the policy instruments; it should allow the automatic fiscal stabilisers to operate freely.

Sensible fiscal rules do not have features that could lead fiscal policy to become pro-cyclical and thus to amplify the cycle rather than dampening it. Specifically, in a downturn, tax rates should not be required to rise nor should spending programmes be required to be cut simply to ensure compliance with the rule.

The S&G medium-term balance rule is a cyclically-adjusted rule and is consistent with the free and full operation of the automatic fiscal stabilisers, provided the starting value of the country's cyclically adjusted or structural deficit is indeed close to zero. The same holds for the UK's golden rule and the Permanent balance rule. The Permanent balance rule allows for any shocks to public spending (wars) and/or revenue bases (earth quakes) that make for temporary deviations between current and permanent public spending shares. The S&G 60 percent of annual GDP gross debt ceiling and the UK's 40 percent of annual GDP net debt ceiling could, if interpreted rigidly, interfere with the operation of the automatic fiscal stabilisers, whenever the cyclically appropriate deficit would push the debt above the ceiling.

The S&G three percent deficit ceiling (and the golden rule) can interfere with the full and free operation of the national automatic fiscal stabilisers if the numerical constraints become binding. Of course, a country can reduce the risk of the deficit

constraints becoming binding by positioning its budgetary stance in such a way that, over the cycle, it runs a sufficiently large surplus to ensure that the likelihood of hitting the deficit ceiling becomes acceptably low. The automatic stabilisers could then operate freely, even during a downturn see e.g. Dalsgaard. and DeSerres [1999] and Noord, van den [2000]). The point is correct, but the proposed remedy has two weaknesses, one related to the short-run costs of getting there from here, the other related to the long-run implications of such a policy.

As regards the short-run problem, most E(M)U countries still have cyclically adjusted general government deficits. Moving to a position of a cyclically adjusted budget surplus large enough to reduce to an acceptable level the risk of hitting the deficit limits during a downturn, would involve a process of fiscal tightening, which would involve short-term economic costs and may not be cyclically appropriate. Such adjustments would be best undertaken during a boom period. Few governments appear willing to take this advice.

As regards the long-run problem, the implication of a government budget that is sufficiently far below the three percent limit to reduce the risk of hitting the deficit ceiling to an acceptable level could be a long-run negative government debt position. I shall address this point below.

Sixth Commandment: The rule should make sense also in the long run.

Keynes's well-known statement that in the long run we are all dead, is often misinterpreted as the proposition that the future (or anticipations of the future) do not matter for the present.¹⁷ Of course, Keynes meant (or said) no such thing. It is clear

¹⁷ *This long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can*

that in a market economy with purposeful, forward-looking economic actors, the long run is now, in the sense that anticipations of future events, even quite distant ones, will shape market prices and influence actions. Fiscal rules should therefore not have anomalous long-run implications.

The S&G deficit rule and medium-term stability rule don't have an expiration date, or a provision for periodic revision. They are clearly meant to be a permanent feature of the fiscal landscape. The same applies to the UK's golden rule and sustainable investment rule.

The S&G deficit rule will, if adhered to, in the long-run drive the net debt to GDP ratio to a level no higher than the ratio of the long-run financial deficit to the growth rate of nominal income. This follows from the fact that the steady-state debt-GDP ratio, \bar{b} , is given by

$$\bar{b} = \frac{\bar{d}}{\bar{p} + \bar{n}} \quad (14)$$

where \bar{d} is the steady-state government deficit as a fraction of GDP, \bar{p} is the steady-state rate of inflation and \bar{n} is the steady-state growth rate of real GDP. The S&G deficit rule constrains the deficit to be no greater than 0.03 (three percent of GDP). With a long-run nominal income growth rate of, say, 0.05 (5 percent per annum), the long-run debt-annual GDP ratio would be no higher than 0.6 (sixty percent). Nothing too anomalous here.

The S&G medium-term balance condition can only mean that the long-run value of the deficit is non-positive, that is, $\bar{d} \leq 0$. From this it follows that, as long as

only tell us that when the storm is long past the ocean is flat again. Keynes [1924], Chapter 3, page 65.

the growth rate of nominal GDP is positive, the long-run debt-GDP ratio will be non-positive. The government will either have zero net debt or be a net creditor.

There exist neoclassical theories of optimal taxation which imply that in the long run, the tax rate on capital income is zero (see Chamley [1981, 1986] and Lucas [1988]). If labour income is mainly the return to augmentable human capital, the long-run optimal labour income tax rate would also be zero. If public spending is too high to be financed entirely through consumption taxes, the government will have to be a net creditor in the long run, financing (part of) its spending programme from the interest and profit income earned by its financial assets.

Even as pure theory, this result is not robust. In addition, the theory requires that in the short run, the authorities tax the installed (sunk) capital at the maximal possible rate. Once a sufficient public credit position has been built up, the tax rate on capital income falls to zero. The problem with this sequence of confiscatory taxation followed by zero taxation is that it is not time-consistent. Unless the government has an unheard-of commitment technology, it always finds itself in the short run, when the existing, installed capital stock is there for the taking. Anticipating confiscatory taxation, potential investors in physical and human capital would have taken evasive action: there would be little or no private capital to tax.

There are also obvious problems with the compatibility of a private market economy with a government that is a large net creditor, holding a portfolio of loans, bonds or even equity. It is ironic that the Stability and Growth Pact and the neoclassical theory of optimal taxation may have as one of their implications the partial socialisation of the means of production in the long run.

The Golden Rule implies that the long-run debt-GDP ratio satisfies the following inequality:

$$\bar{b} \leq \frac{\bar{g}_I}{\bar{p} + \bar{n}} \quad (15)$$

Assuming that net public sector investment is positive in steady state and that steady-state nominal income growth is positive, this rule will not imply that the government will eventually become a net creditor. The Permanent balance rule also has no anomalous long-run implications.

Under the Permanent Balance Rule, the long-run or steady-state government debt-GDP ratio is constant ex-ante. In a simple stochastic setting, the long-run or steady-state government debt-GDP ratio follows a random walk (see Barro [1979]).¹⁸

The fact that the long-run debt-GDP ratio is *hysteretic*, or path-dependent under the Permanent Balance Rule may be troubling to some. If, on a-priori grounds, convergence to a long-run value of the debt-GDP ratio b^* is deemed desirable, the tax rule in (9) could be replaced by (16), which includes an ‘error correction’ mechanism driving the actual debt-GDP ratio to the target debt-GDP ratio.

$$\begin{aligned} t' &= t^p + a(b - b^*) \\ a &> 0 \end{aligned} \quad (16)$$

Under this ‘Enhanced Permanent Balance Rule’, the financial deficit-to-GDP ratio would be governed by

$$d \leq (n + p)b + g - g^p + k^p - k + \left[(r - r^p) - (n - n^p) \right] b - a(b - b^*) \quad (17)$$

The steady-state value of the debt-GDP ratio would equal b^* . If the long-run value of the debt-GDP ratio were required not to exceed b^* , but could be below it, equation (16) could be replaced by the ‘switching regime’ tax function that generates b^* as the long-run ceiling of the debt-GDP ratio:

¹⁸ Long-run means $k = k^p$; $g = g^p$; $r = r^p$ and $n = n^p$.

$$\begin{aligned}
t'' &= t^p + a(b - b^*) \\
a &> 0 \text{ if } b > b^* \\
a &= 0 \text{ if } b \leq b^*
\end{aligned}
\tag{18}$$

There are good arguments for arguing that the level of the debt-GDP ratio matters for reasons other than, or additional to, what a higher debt-GDP ratio implies for the permanent tax rate. Sovereign default is costly. Not only does it cause arbitrary redistributions of wealth, it also destroys trust throughout the economic system and impairs the future ability of governments to borrow. Other things being equal, the risk of default is increasing in the debt-GDP ratio. The costs of sovereign default caused by an excessive debt-GDP ratio are not matched by comparable costs of ‘super-solvency’ associated with a very low debt-GDP ratio. A rule such as (18) therefore makes sense. The appropriate value of b^* is anybody’s guess, however.

The UK’s Sustainable Investment rule can be interpreted as setting b^* at 40 percent of GDP in equation (18). Considering the experience of Belgium, Italy and Greece these past few decades, $b^* = 0.4$ is a cautious, conservative number indeed.

The European Commission has recently made proposals that would make the permissible financial deficit depend on the outstanding stock of debt. Specifically, a country with a higher (net?) debt-GDP ratio would (*ceteris paribus*) be required to have a lower financial deficit-GDP ratio (or a larger financial surplus-GDP ratio) than a country with a lower debt-GDP ratio. A similar view is held by the UK Treasury.

Such a rule is not easily rationalised from the government solvency constraint given in (11). From this representation of the government’s intertemporal budget constraint it follows that, other things being equal (that is, for a given long-run real interest rate and a given permanent growth rate of real GDP), a higher debt-GDP ratio requires a higher *permanent primary* surplus-to-GDP ratio, s^p . There are quite a few

slips between the cup of a larger permanent primary surplus-GDP ratio to the lip of a lower current financial deficit-GDP ratio.¹⁹ It is possible to specify conditions sufficient for a larger permanent primary surplus-to-GDP ratio to require a lower financial deficit-to-GDP ratio, but they are by no means straightforward and obvious.

The behaviour of the deficit under the Permanent Balance Rule given in (10), shows that this rule implies that, other things being equal, a higher debt-GDP ratio permits a larger financial deficit, rather than requiring a lower one. When the debt is nominally denominated, nominal income growth will, other things being equal, bring down the debt-GDP ratio. The presence of the term $(n + \mathbf{p})b$ on the right-hand-side of (10) makes it clear that, for a given growth rate of nominal income, a higher debt-GDP ratio means that the debt-GDP ratio will be coming down faster. Among the *ceteris* that must be kept *paribus* for this contrarian result to hold are, again from (10), $g - g^p$, $\mathbf{k}^p - \mathbf{k}$, and $\left[(r - r^p) - (n - n^p) \right] b$.

The Enhanced Permanent Balance Rule with its ‘error-correction’ mechanism driving the debt-GDP ratio to a long-run target level, given in equations (16) and (17), is consistent with the position of the European Commission and the UK Treasury provided the ‘error correction coefficient’, \mathbf{a} , which measures the strength of the imperative to get the debt-to-GDP ratio down, exceeds the growth rate of nominal GDP, $n + \mathbf{p}$.²⁰

Seventh Commandment: The rule should allow for relevant differences in economic structure and initial conditions.

¹⁹ Note that $d \equiv -s + ib$ and that $s^p(t) \equiv \left(\int_t^\infty e^{-\int_t^v [r(u) - n(u)] du} dv \right)^{-1} \int_t^\infty e^{-\int_t^v [r(u) - n(u)] du} s(v) dv$.

²⁰ Strictly speaking, we require $\mathbf{a} > n + \mathbf{p} + (r - r^p) - (n - n^p)$.

The numerical constraints on deficits and debt of the Stability and Growth Pact are ‘one size fits all’. It does not allow for differences in economic structure and initial conditions. The UK rules could in principle have country-specific debt and deficit ceilings. What kind of heterogeneity matters for the performance of fiscal rules?

Consider again the solvency constraint reproduced in (19) and the condition determining the long-run debt-GDP ratio in (20)

$$b \leq \frac{s^p}{r^p - n^p} = \frac{\mathbf{r}^p - g^p}{r^p - n^p} \quad (19)$$

$$\bar{b} = \frac{\bar{d}}{\bar{p} + \bar{n}} \quad (20)$$

It is clear from (19), that, for any given capacity to generate future primary surpluses, a country can sustain a higher ratio of public debt in relation to its GDP, the lower its long-run real interest rate and the higher its long-run real growth rate. Equivalently, for any for any given debt –GDP ratio, a country needs to generate smaller future primary surpluses, the lower its long-run real interest rate and the higher its long-run growth rate.

There are sizeable and persistent differences among the growth rates of the current 15 EU and 12 full EMU members. This inter-country variation in growth rates is bound to increase when the 10 early accession candidates join the EU in 2004. Eight of these countries are transition countries, former centrally planned economies from Central and Eastern Europe. Most of them are expected to go through a period of real convergence, or catch-up that may last for decades. It is thus to be both hoped and expected that the long-run growth rate of the transition countries will be higher than that of the existing EU members.

EMU membership is part of the ‘Acquis Communautaire’ for the EU newcomers. There will be no *opt outs* from EMU of the kind obtained by the UK. All successful accession candidates will become EMU members when they become EU members, but with a *derogation* from participation in phase 3 of EMU. Successful accession countries engaged in real catch-up can expect to see their real exchange rates appreciate relative to the existing EU members – the Balassa-Samuelson effect at work. If the accession candidate has a fixed nominal exchange rate with the euro (and a-fortiori if it becomes a full EMU member) near-equalisation of risk-free nominal interest rates will occur. Real interest rates will therefore be lower for this accession candidate than for the existing EU members. If something close to uncovered interest parity holds, the same will hold true even if the accession candidate does not have a credibly fixed exchange rate with the euro.

Equation (20) makes the same point from a different angle. A country can maintain any given debt-GDP ratio with a higher deficit if its inflation rate or its real growth rate are higher.²¹ Conversely, for any given government deficit as a share of GDP, the long-run debt to GDP ratio will be lower the higher the growth rate of nominal GDP. The transition countries about to join the EU are likely to have both higher inflation rates and higher real growth rates than the existing EU members.

The permanent balance rule stresses the behaviour over time of the debt-GDP ratio, not the nominal stock of debt. It therefore automatically corrects for differences in nominal GDP growth (and in the outstanding stocks of nominal government debt) when making comparisons over time or among countries.

Another important source of heterogeneity relates to initial conditions, especially the outstanding stock of public infrastructure capital and the outstanding

stock of debt. It is clear from equations (1) and (14) that the sustainability of any given path for the government deficit as a share of GDP cannot be determined without reference to the outstanding stock of debt. Yet, with the virtual disappearance from view of the debt criterion of the Stability and Growth Pact, the operational S&G rules pay no attention to amount of debt outstanding. The S&G's three percent deficit ceiling applies equally to Belgium, Italy and Greece as to Luxembourg, Finland and Sweden. It would also apply to the UK if it were in EMU. Yet, at the end of 2001, gross general government debt as a percentage of annual GDP was 108.2 for Belgium, 108.7 for Italy and 99.7 for Greece, while Luxembourg's scored 5.5 percent, Finland 43.6 percent, Sweden 52.9 percent and the UK 52.5 percent.²²

A low initial stock of social overhead capital, as found in the UK and in the transition countries scheduled for EU membership, is likely to imply the need for a period of high, 'catch-up' public sector investment. It would make no sense, from an efficiency (tax-smoothing) point of view or from the point of view of intergenerational fairness, to insist that public spending that will yield benefits till far into the future be financed out of current revenues only. The S&G rules do not allow for this at all. The UK's golden rule permits borrowing for (net) public sector investment, but presumably only up to the point where net general government debt hits the 40 percent of GDP limit of the sustainable investment rule. The permanent balance rule permits borrowing for public sector investment if and only if current public sector investment exceeds permanent public sector investment.

²¹ There are obvious amendments to this statement if the debt is index-linked or denominated in foreign currency.

²² Source: OECD. Net general government debt as a percentage of GDP at the end of 2001 was as follows: Belgium: 98.9; Italy: 96.5; Finland: -47.9; Sweden: 1.0; UK: 30.9.

A final important source of heterogeneity relates to demographics and the financial condition of public pension systems. With greying populations and relatively generous state pensions, most continental EU members, and most of the transition countries about to join the EMU, will have to make hard choices between raising taxes, cutting state pension benefits (benefits or eligibility) or making cuts in other spending programmes. The future budgetary demands implied by current state pension schemes (if there were no change in benefit levels or eligibility and entitlement rules) are not reflected in any way in the S&G rules or in the UK's fiscal rules. They are, in principle, reflected fully in the permanent balance rule, where they would be captured by the gap between current public spending on pensions and the higher level of permanent (future) public spending on pensions.

Eighth Commandment: The rule should make sense at the level of the individual nation state and for the EMU area as a whole.

As regards the aggregation question (does a collection of rules, each of which makes sense at the individual country level, make sense for the countries collectively?) it is necessary to distinguish between the financial sustainability (or solvency) aspects of the rules and their macroeconomic stabilisation properties. I would argue that the pursuit of government solvency probably aggregates rather well. However, as regards macroeconomic stabilisation, all three sets of rules fail miserably, as they do not involve any explicit or tacit form of policy coordination.

Each of these rules influences and constrains each individual country's fiscal policy without any reference either to past, present and expected future fiscal actions of other E(M)U area members, or to the past, present and anticipated future behaviour of the ECB and the other EU central banks. Nor do the rules take account of any other past, current and anticipated future economic developments in the E(M)U area

as a whole, e.g. the behaviour of output, employment and inflation in the E(M)U area and the effective exchange rate of the euro.

The conditions are rare indeed under which it is sensible (let alone jointly efficient or optimal) for the members of an economic and monetary union to impose fiscal rules on each individual member country union that depend neither on the behaviour of the other national fiscal authorities, nor on the behaviour of the monetary authorities, nor on the aggregate economic performance of the union as a whole. The only obvious set of circumstances for which an approach makes sense is when there are no international spill-overs onto other members of the union from fiscal actions undertaken by individual member countries and coordination is therefore not necessary. However, without such international spill-overs there would be no rationale for having externally imposed fiscal rules in the first place. As there are indeed international spill-overs from national fiscal policies, it is virtually certain that the aggregation of one-country-at-a-time national fiscal rules will not result in desirable aggregate behaviour.

As regards the aggregation question (does a collection of rules, each of which makes sense at the individual country level, make sense for the countries collectively?) it is necessary to distinguish between the financial sustainability (or solvency) aspects of the rules and their efficient financing and macroeconomic stabilisation properties. I would argue that the pursuit of government solvency probably aggregates rather well. However, as regards efficient financing, and especially as regards macroeconomic stabilisation, all three sets of rules fail miserably, as they do not involve any explicit or tacit form aggregation and policy coordination.

All three rules influence and constrain each individual country's fiscal policy without any reference either to past, present and expected future fiscal actions of other E(M)U area members, or to the past, present and anticipated future behaviour of the ECB and the other EU central banks. Nor do the rules take account of any other past, current and anticipated future economic developments in the E(M)U area as a whole, e.g. the behaviour of output, employment, inflation and asset prices in the E(M)U area and the effective exchange rate of the euro.

The conditions are rare indeed under which it is sensible (let alone jointly efficient or optimal) for the members of an economic and monetary union to impose fiscal rules on each individual member country union that depend neither on the behaviour of the other national fiscal authorities, nor on the behaviour of the monetary authorities, nor on the aggregate economic performance of the union as a whole. The only obvious set of circumstances for which such an approach makes sense is when there are no international spill-overs onto other members of the union from fiscal actions undertaken by individual member countries and coordination is therefore not necessary. However, without such international spill-overs there would be no rationale for having externally imposed fiscal rules in the first place, other than die-hard supranational paternalism (we know what is good for you and you will do it, even though a failure to do what is good for you would have no detrimental impact on the other members of the club). As there are indeed international spill-overs from national fiscal policies, it is virtually certain that the aggregation of one-country-at-a-time national fiscal rules will not result in desirable aggregate behaviour.

The informational and logistic modalities of co-ordinating the fiscal policies for 12 current EMU members, let alone for a possible 25 or more members of a future enlarged EMU, would be a nightmare. An intriguing 'market-based' decentralised

mechanism for ensuring that the pursuit of unco-ordinated national fiscal policies results a sensible aggregate budget deficit for the EMU as a whole has been proposed independently by Giorgio Basevi and Alessandra Casella [1999]. Borrowing from the environmental economics literature on tradable pollution permits, they propose the use of *tradable deficit permits* to allocate a given aggregate (EMU-wide) general government financial deficit efficiently among the constituent national governments. The permit issuing agency would, each year, create government deficit permits equal to, say, three percent of EU aggregate GDP. This given aggregate stock would then be distributed free of charge among the member countries. The initial distribution of these deficit permits has, in the simplest case, only distributional but no efficiency implications. For the sake of argument, assume that each country gets permits equal to three percent of its GDP. These permits are then freely traded among the member countries. Those with high marginal costs of keeping the deficit down to three percent of GDP would buy permits from those whose marginal cost of financing public spending are lower.

If national public debts are perfect substitutes in producing EMU-wide aggregate public debt externalities, such as scheme would, *if it could be enforced*, distribute any given EMU-wide aggregate government financial deficit across the members states in an efficient, least-cost manner. If the unconstrained aggregate deficit were to be less than three percent of EMU-wide GDP, the price of the permits would be zero. Countries might be able to save and accumulate unused credits, but would presumably not be allowed to draw down (borrow against) future allocations, to avoid the risk that an unsustainable public debt trajectory by replaced an unsustainable debt permit liabilities trajectory. The scheme could, have the aggregate annual amount of permits issued varied over time in response to EMU-wide economic

developments. That would of course also be possible with an amendment of the current S&G Pact: the (common) 3 percent could be varied in response to E(M)U-wide economic circumstances.

There are three key problems with the approach. First, while different countries' public debts may be perfect substitutes as regards producing (risk-free) interest rate externalities, they are most unlikely to be perfect substitutes as regards systemic default risk externalities. The external damage done by an extra euro of debt issued by an already highly indebted government is greater than that issued by a more prudent and clearly solvent government, unless either the capacity or willingness to generate permanent surpluses were higher in the more highly indebted country, or the more highly indebted country had a higher growth rate and/or a lower interest rate. Casella's proposal for determining the quantity of permits a country must purchase as the product of its financial deficit and its debt-GDP ratio does not represent an adequate treatment of differential default risk (it ignores the capacity for generating primary surpluses, the growth rate and the interest rate as determinants of default risk).

Second, the scheme does nothing to solve the enforcement problem. Under the existing arrangement, it is extremely unlikely that financial penalties will actually be imposed on an EMU member that exceeds the three percent of GDP deficit limit, even if 'exceptional circumstances' which under the Pact would permit a larger deficit, cannot be invoked. What happens if a country issues debt for which it does not have a permit? Will the country issuing the excess debt be fined? Will the purchaser of the excessive debt be fined? Why would failure (indeed refusal) to be bound by the requirement not to run a deficit in excess of one's permit limit be

punished (and by whom) when failure to be bound by the three percent of GDP deficit limit is not punished?

Third, as Casella points out, the scheme (at best) achieves the efficient allocation of an exogenously given aggregate deficit, just as the pollution permit trading scheme achieves the efficient (least cost) allocation of an exogenously given aggregate quantum of pollution (say, sulfur dioxide emissions). It does not try to determine the optimal aggregate deficit itself. This means that, in the case of environmental pollutants, the scheme will only achieve a constrained optimum, with the unconditional optimum only being realised when the exogenously given aggregate pollutant quantum happens to be optimal. Things are worse in the case of deficits, because the analogy between pollutants and public debt is flawed. Pollutants are a bad, and they impose negative externalities. Public debt is not necessarily a bad, and the externalities imposed by one national government's debt on other national governments are not necessarily negative. While negative systemic fragility (default risk) externalities are, other things being equal, likely to increase with the amount of debt issued by a country, ordinary interest spillovers are not. Higher (risk free) interest rates are not automatically worse than lower interest rates. Interest rate externalities are *pecuniary* externalities. Pure pecuniary externalities have distributional consequences but no efficiency implications. Higher interest rates are good for creditors, bad for debtors; good for savers, bad for enterprises pondering capital formation. If there are other distortions in the economy cause interest rate spillovers to have efficiency implications (e.g. distortionary taxes or costly revenue collection), debt can be too low as well as too high. The tradable deficit permit market might have to give way to a market in permits not to run a deficit.

Ninth Commandment: The rule should be credible.

The need for the rule to be credible is both obvious and important. Rules can be simple and transparent, yet not credible. Unfortunately, the Stability and Growth Pact rules fall into that category.

For rules to be credible one of two conditions must be met. Either the rules are self-enforcing, or they are enforced consistently, through a combination of sticks and carrots, by an external agent. For rules to be self-enforcing they either must be individually incentive-compatible because they make sense at the level of the individual nation state, or they must take on ‘totemic’ or ‘sacral’ qualities.

The S&G three percent rule and medium-term balance rule are not self-enforcing by being individually incentive-compatible. It is clear that there are no ‘spontaneous’ or natural disasters that are bound to occur whenever a country deliberately and systematically exceeds the three percent limit for its general government deficit. The number 3 is arbitrary, as are the numbers 60, 40 and zero (or the near-zero range). Those who proposed and defend the 3 percent deficit ceiling of the S&G Pact readily admit that they would have been happy with any number, as long as it was low.

As regards any totemic or sacral qualities for fiscal rules, there is, alas, little prospect of that in these secular and sceptical times. The Gold Standard had this rare ‘totemic’ or sacral quality for many decades before World War I, but failed to carry it into the inter-war period. Balanced budgets had totemic qualities until the Great Depression of the 1930s and the Keynesian Revolution. Argentina tried, in vain, to bestow totemic or sacral qualities on its one-for-one currency peg with the US dollar during the 1990s. None of the rules under review can expect help from the sub-rational recesses of the human mind.

We conclude that, as it cannot be argued convincingly that the economic performance of a country will fall off a cliff if the three percent rule is violated, the pursuit of self-interest, even enlightened, by national budgetary authorities is unlikely to rule out violations of the rule. As enforcement through awe is likewise unlikely, there must be external enforcement of the rule to make it credible. The section on the Tenth Commandment, below, considers alternative external enforcement mechanisms.

The EMU is stuck with set of fiscal rules that are not credible. This creates a genuine dilemma for those who believe, as I do, that in a monetary union (and indeed beyond it) national fiscal policies are a matter of common concern.

An optimal rule is credible, simple and transparent and flexible. Flexible need not mean opportunistic. Credible need not mean rigid and inflexible. Commitment is not necessarily sacrificed when a rule is made contingent on observable, verifiable events or outcomes.

The problem with the current informal compromise that appears to be evolving - one violation at a time - is that there continues to be insufficient flexibility but there now also is too much scope for opportunistic, politically motivated manipulation of the framework and the process. There is no coherent conceptual framework to structure and focus the assessment of the likelihood and significance of one or more of the numerical thresholds being exceeded. The conditions under which warnings will actually be issued and penalties will actually be imposed are obscure and intensely political.

There is a need for the EU and the ECB to present to the public a clear conceptual framework to motivate and explain the concepts of fiscal sustainability and excessive deficits, and to relate these fundamental notions to concrete quantitative fiscal-financial performance criteria (which will be state-contingent) and to specific

policy actions or rules. Without such a conceptual framework, it will be hard to convince a sceptical public of the economic merits of any decision to condone or penalise an overshooting of the numerical ceilings. Without it, not only are the Pact's numerical criteria becoming discredited, but also the fundamental notion of fiscal-financial sustainability and responsibility.

Tenth Commandment: The rule should be enforced impartially and consistently.

All three rules need an impartial, consistent and competent enforcement mechanism. For the UK this is the Treasury. The Permanent balance rule has not been adopted anywhere. The S&G rules are enforced in the first instance by the European Commission and in the final instance by the Ecofin Council. The performance of the Stability and Growth Pact mechanism since the Pact was adopted at the Amsterdam European Council in June 1997 makes it clear that the existing mechanism is not working.

The Commission has competence but does not have the necessary legitimacy as it consists of appointed civil servants with partisan political backgrounds. The Ecofin Council has the legitimacy. It may even have the competence, but it manifestly does not have the collective capacity to commit itself to an impartial, consistent enforcement of the rules. This creates a true dilemma, with no obvious solution in sight.

The Stability and Growth Pact permits the imposition of fines for persistent, deliberate violation of the rules. It is obvious that fines are a non-starter, because when they are imposed, they aggravate the budgetary imbalances they were expected to prevent or correct. Ex-post, that is, once a violation has occurred, this makes their imposition highly unlikely, unless deterrence of future transgressions has an

implausibly high weight in the considerations of those who impose the penalties. As potential offenders know this in advance, the threat of fines is not credible. The only potentially effective instruments currently available to induce compliance are moral suasion, peer pressure and 'naming and shaming'. That can only be effective if the agency that makes the determination of compliance or non-compliance has unquestioned moral and expert authority. Even that is unlikely to be sufficient.

One possible option, for the EMU area, would be to give the task of determining compliance or non-compliance with the (thoroughly revised) fiscal rules to the ECB Council, or preferably to its six Executive members only. While central bankers, like the Commission, are appointed bureaucrats without the political legitimacy that comes with an elected office, they are generally perceived as less politicised in the partisan sense of that word.

Another option would be to let the National Academies of Sciences of the EMU members nominate (possibly by rotation) a group of experts to make the determination of compliance and non-compliance. They would serve for a fixed term, without possibility of re-appointment. This could be effective if the nominees owed their allegiance first and foremost to the mandate they would be given and to the canons of impartial scholarly judgement.

Both proposals have obvious weaknesses, but it is important to start thinking along these lines if we are ever going to have a fiscal framework for the EMU that makes sense. It is also unavoidable, in my view, that persistent and deliberate non-compliance should trigger sanctions that bite, but without aggravating the problem. No fines therefore. Consideration could be given to suspending the right of a country that has been judged to be in non-compliance, to participate and vote in Ecofin meetings until it has improved its ways. This seems to target the source of the

problem more closely than an alternative proposal that sometimes makes the rounds: suspending the right of the offending country to have its central bank governor participate in the policy deliberations of the ECB. Any concrete proposal will require a lot more thought, as well as a rewriting of the Treaty and the Pact.

Conclusion.

Fiscal rules in a monetary union should (1) be simple; (2) ensure the solvency of the state; (3) relate to the consolidated general government and central bank; (4) be neutral as regards the size of the public sector; (5) avoid pro-cyclical behaviour of the fiscal policy instruments; (6) make sense also in the long run; (7) allow for important differences in economic structure and initial conditions; (8) aggregate into behaviour that makes sense at the level of the union as a whole; (9) be credible and (10) be enforced impartially and consistently.

The rules of the Stability and Growth Pact satisfy unambiguously three out of these ten requirements. They are simple (1) ; they almost surely ensure the solvency of the state (2); and they do not prejudge the issue of the appropriate size of the public sector (4). They could be argued to satisfy (5), avoiding pro-cyclical behaviour also, as a country can take steps to have a public sector surplus that is large enough in normal times not to threaten the deficit ceiling in unfavourable times. Taking the necessary steps is, however, costly.

The UK's fiscal rules clearly satisfy (1), (4) and (5). They are very likely to satisfy (6), as they are unlikely to lead to nonsensical long-run behaviour. They are very likely to satisfy (2), even if the golden rule by itself does not ensure that, sooner or later, current resources will be available to service the debt incurred in the financing of public investment. It is the net financial debt limit of the sustainable

investment rule that makes it virtually certain that solvency will not become an issue. They satisfy (7) in part, by allowing debt-financed catch-up investment in public infrastructure and by allowing, albeit in a rather crude way, for the burden of the outstanding stock of public debt. As regards (10), enforcement has thus far been transparent and consistent. However, the true test is still to come, as and if lower than expected economic growth threatens the golden rule and, ultimately, potentially even the sustainable investment rule.

The Permanent balance rule is significantly more complex than the Stability and Growth Pact rules. It involves explicit judgements about future growth, future interest rates and future spending plans or needs. It does satisfy (2), (3), (4), (5) and (7).²³ Like the other rules, it does not necessarily aggregate into a collection of national rules that make sense for the Union as a whole. Whether the random walk behaviour of the debt-GDP ratio in the long-run implied by the Permanent Balance Rule makes sense is an open question. The *Enhanced* Permanent Balance Rule, which forces the debt-GDP ratio not to exceed a given threshold value in the long run, may have greater appeal.

While none of the rules dominates in all dimensions, it seems clear that the fiscal rules of the Stability and Growth Pact have the most obviously damaging weaknesses. A rethinking of the fiscal-financial framework for the EMU is necessary.

Revising the Stability and Growth Pact will not be easy. Taking the long view, however, the cost of sticking with a deeply flawed set of rules is bound to dominate the short-term reputation damage caused by any significant redesign of the rules. A structured, well-thought through process for revising the rules is bound to dominate the present spectacle of the rules experiencing slow 'death by a thousand

cuts'. This review should start as soon as possible and should be considered and presented as an opportunity to re-emphasize and re-affirm the common purposes of fiscal-financial sustainability and macroeconomic stability.

²³ It can be applied to the consolidated general government and central bank as easily as to the general government alone. See e.g.

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