The fiscal stability impact of monetary unions –

looking beneath the Stability Pact debate

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Abstract

The discussion about the impact of a monetary union on the fiscal stability of individual member countries is largely confined to European Monetary Union and the Stability and Growth Pact (SGP) debate, which in turn tends to focus more on optimal fiscal rules. However, when adding insights from the theories of optimum currency areas, as well as from literature on fiscal stability analysis and exchange rate regimes in emerging markets, new layers are added to the discussion. Changes to the macroeconomic environment, changed incentives for fiscal authorities as well as possible changes in the reaction of capital markets are all factors that determine fiscal stability in a monetary union. This paper finds that some consequences of the institution of monetary union itself could alleviate the fear of heightened fiscal instability that is often assumed in the SGP debate. However, although the true nature of the problem of bailout for national fiscal authorities in a monetary union hinges likely less on the behaviour of fiscal authorities and more on the reaction of capital markets, this issue remains at the core of increased fiscal stability risk in a monetary union.

1. Introduction

Various theoretic approaches exist that explain or at least comment on the impact of exchange rate regimes on fiscal stability[1]. With the collapse of the Bretton Woods system, questions at first focused on what kind of overall welfare effects the choice of exchange rate regime would entail (see, for example, Helpman, 1981). Effects on fiscal stability are part of such an analysis.

The discussion about fiscal stability and the most extreme version of fixed exchange rate systems – a monetary union – is dominated by the controversy on the Stability and Growth Pact (SGP) and European Monetary Union (EMU). However, this is a controversy on fiscal rules mostly based on the assumption that somehow a monetary union creates new sources of fiscal instability that have to be restrained by EMU-wide fiscal rules, or that at least is unable to consolidate European fiscal policies in such a way that any fiscal sustainability problems at a national level become significantly less relevant.[2] Problems with fiscal rules not only in EMU, but also on a national level (see for example, an overview of the OECD, 2002) hint that both basis and construction of such rules need further scrutiny. Flawed fiscal rules may even be an additional source of fiscal instability if they provide incentives for creative accounting, off-budget movements of government funds, suboptimal term structure of public debt and generally shake confidence in the sustainability of the institution of a monetary union.

Empirical studies on the fiscal stability impact of monetary unions and other fixed exchange rate systems so far do not offer conclusive answers.[3] Recently, a study on fiscal stability in Europe and EMU has identified more stability in the run-up to EMU, but less after the

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[1]   Changes to fiscal stability in this paper shall be defined as changes to the debt levels relative to output (gross domestic product, or GDP). Rising debt/GDP indicates lower fiscal stability and a higher risk of unsustainable debt. The definition of public debt used here does not include unfunded pension liabilities, which is also exluded in most of the Stability Pact discussion, although its importance should necessitate closer scrutiny in future research.

[2]   See below in section 3 for theoretic reasoning behind the SGP. Recent SGP breaches by Germany and France as well as the discussion on the false fiscal data of Greece have heightened the intensity of the debate. The pessimistic view on the fiscal stability impact of EMU was started with the Delors Committee report (1989). A comprehensive theoretic analysis of the necessity of the SGP or similar fiscal rules was done by Beetsma and Uhlig (1999). More recent contributions with various suggestions of improvements are, for example, Siebert (2002), Buiter (2003) or Bofinger (2003). The SGP debate concentrates mostly on what kind of rules would be needed to safeguard fiscal, and ultimately, price stability. Eichengreen and Wyplosz (1998) offered a rare approach that puts into question some of the assumed destabilising effects of a monetary union on fiscal stability. More recently, Eichengreen (2004) suggests to focus on existing shortcomings of national fiscal institutions instead of common fiscal rules. Wyplosz (2002) also prefers alternatives to fiscal rules, suggesting fiscal surveillance institutions to reach an independence from discretionary fiscal policies similar to that of monetary policy by independent central banks.

[3]   Most studies approximate fiscal stability with nominal budget balances/GDP or primary budget balances/GDP. However, debt/GDP rises with rising deficits if nominal output growth is sufficiently low and the initial debt/GDP is sufficently high. To keep debt/GDP constant, the relation of deficit/GDP to the nominal growth rate has to be kept constant.

introduction of the euro (Hughes Hallett, Lewis and von Hagen, 2003). In a very detailed analysis allowing for identification of consolidation periods, growth and SGP effects and a separation of the data in post- and pre-EMU sets, this study does not view recent growth-related consolidation as true signs of fiscal stability. On the other hand, the German Sachverständigenrat (2003, nos. 792-794) considered EMU fiscal consolidation from 1995-2002 as rather successful (with the notable exceptions of France and Germany). For countries outside of EMU, Tornell and Velasco (1995) pointed out that in the early 1980s, West African countries with flexible exchange rates were more fiscally stable than those that were part of the African Financial Community (CFA) area. Later, for Latin America, they also cautioned that fiscal discipline was lower under fixed exchange rate regimes (Tornell and Velasco, 1998). On the other hand, Fatás and Rose (2001) have found that common currency areas show no effect on fiscal discipline, while currency boards (essentially unilateral fixed arrangements) do show more fiscal discipline. Heinemann (1999) observed data for 20 OECD countries and was unable to find a relevant impact of the exchange rate regime on fiscal stability, similar to Hamann (2001) for various emerging market economies.[4]

This paper aims to provide new layers to the discussion by bringing together the major theories that might help answer the question: will joining a monetary union – most prominently EMU – really by itself lower fiscal stability? Apart from fiscal policy theories surrounding the SGP discussion, two other areas of research might help to provide an answer.

The first is directly connected to theories of Optimum Currency Areas (OCA). If current OCA theories point to a growth-enhancing effect of a monetary union, this could affect fiscal stability through a changed macroeconomic environment. It will be shown in sections 2 and 3 what kind of effect this may be.

The second relevant field of research is mirrored in the literature about fiscal stability and exchange rate regimes in emerging markets. Until the severe currency crises of the early and mid-1990s, the common wisdom on the basis of public choice approaches has rather been to expect increased fiscal stability from fixed exchange rate regimes since the severing of the tie of monetary policy as source of public income for fiscal policy through seignorage and

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[4] Apart from rare instances of monetary unions, studies on fiscal stability and exchange rate regimes have the additional difficulty of identifying truly flexible exchange rate regimes. The OECD public debt accumulation has risen dramatically since the end of the Bretton Woods era. However, it is not advisable to simply connect the jump in debt spending with the choice of a flexible exchange rate for most countries at that time, since the instances where exchange rates were allowed to float freely are likely even rarer than instances of monetary unions.

inflation would be more credible[5]. This would provide an opposite view to the SGP intuition of lower fiscal stability with a monetary union.

However, with an increasing number of failed fixed exchange rate systems (up to and including currency board systems and the Argentina crisis of early 2002), theories of a stabilising effect of fixed exchange rates on fiscal policies were challenged (Tornell and Velasco, 1995, Obstfeld, 1996, or more recently Edwards, 2002). Advocates of the stabilising effect on fiscal policy then modified their theories in such a way as to recommend only the most extreme forms of fixed exchange rate regimes, i.e. full dollarizations and monetary unions (for example, Dornbusch, 2001, Hanke, 2002, or Mendoza, 2002), to ascertain without doubt the gain of credibility. The question whether an extreme exchange rate regime like a monetary union can really help to stabilise fiscal policy through changes of incentives to increase credibility will be discussed below in section 4, together with the more known insights on the behaviour of fiscal policy decision-makers from the SGP debate. As such, theories based on the EMU experience are connected with thoughts on credibility gains for fiscal policy, as often also discussed in the Emerging Markets literature. As a contrast to the question of behaviour from fiscal authorities, that is the demand side for public debt, section 5 adds the role of capital markets as suppliers of public debt to the discussion.

Section 6 concludes the paper with an outlook on further research possibilities that may arise from the analysis below.

2. Exchange rate regimes and fiscal stability: some basic thoughts

Through what channels could the decision of the exchange rate regime possibly influence fiscal policy-making and fiscal stability of a country?

For a start, it should be stated that a monetary union is the most extreme form of a fixed exchange rate regime.[6] Advantages and disadvantages associated with fixed exchange rates compared to flexible exchange rates are most clearly visible in this form of currency system, since the big question mark of a fixed exchange rate system – that of credibility and vulnerability to speculative attacks – has all but vanished in a monetary union which entails severe changes of monetary institutions in all member countries. Severe in this case means that the cost to revert to national currencies can be seen as high enough to enhance the

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[5]   See an overview of literature at that time in Tornell and Velasco (1995).
[6]   For a recent up-to-date categorisation of exchange rate regimes, see Reinhart and Rogoff (2004). A recent survey of the literature can be found in Tavlas (2003).

credibility of the exchange rate regime more than that of all other fixed exchange rate regimes. If the currency that is used as an anchor for the fixed exchange rate or the monetary institutional model of the new monetary union provides is more stable – as is usually the case – a stabilisation of former national monetary policy is the result. Such an exchange-rate-based stabilisation is one form of various institutions to create more credibility with the monetary policy stability of a central bank (another, for instance, is to establish a central bank with credible independence from government instructions).[7]

Basically, once a country embarks on a fixed exchange rate system with another currency, its central bank has to conduct monetary policy to keep the exchange rate stable – essentially mirroring the monetary policy of the other, more stable central bank. In a monetary union, national monetary authoritiy is abandoned altogether.[8]

This affects fiscal policy directly since it reduces, eliminates or puts out of national control the monetary policy source of public income: seignorage S, denominated as % of GDP in s.[9] If a country resorts often enough to its central bank´s money issuance as a means of financing, exchange rate devaluation and domestic inflation are the consequence (also called "inflation tax" in the literature, since it benefits the indebted government like a linear tax income). Since public debt D is most often nominal[10], and since measures of output like nominal GDP (Y) are increased by inflation, the proportional value of debt d measured in D/Y will be lower with rising inflation.[11]

Additionally, in a fixed exchange rate system, the domestic central bank can no longer induce favorable financing conditions (proxied by an interest rate i paid on public debt) by lowering

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[7] More about this and its connection to fiscal policy behaviour in section 4 below. Freytag (2004) provides a recent empirical analysis on what factors influence the success of monetary institutions in countries suffering from high inflation.

[8] This usually involves decisions on both monetary and exchange rate policy. In the case of EMU all decision power is tranferred to the ECB except for institutional exchange rate issues (say, the decision on whether or not to form a crawling peg for the euro to the US dollar). Here, a unanimous decision of the EU council would be necessary.

[9] Seignorage is the public fee or income generated from the work of the central bank, mainly from providing the public good money (for which the central bank receives interest-bearing securities as collateral from the private financial sector). However, if it is used excessively or deliberately to cause inflation for devaluating public debt, it quickly results in hyperinflation. This kind of excessive use of seignorage is limited in a fixed exchange rate system tied to a stable currency to the inflation bias of that stable currency; it is lost completely in a unilateral fixed exchange rate system like dollarisation (with the seignorage instead increased by that amount in the dollar country – the US); and it is out of national control, but supranationally re-distributed according to different weights in a monetary union. See also part 3 below.

[10] Inflation-indexed government bonds are rare and only issued by a few OECD governments.

[11] Note that for the purpose of the following discussion, nominal growth is seen as consisting of real growth and price changes (or inflation). It can be shown, though, that inflation depresses real growth, causing overall nominal growth to be reduced as well (see, for example, an early analysis by Cagan, 1956). The main point here is that macroeconomic variables are assumed to be affected in a similar way by inflation.

its key refinancing interest rates if this would endanger the exchange rate regime, or if monetary authority had been transferred completely to a monetary union central bank.

If D_t is the debt in period t, and y_t is the growth rate in t, the future debt ratio d^{FL}_{t+1} in a country with a flexible exchange rate regime as a way to present fiscal stability can be written as[12]

(1)
$$d^{FL}_{t+1} = \frac{1+i_t}{1+y_t} d_t - \frac{p_t}{1+y_t} - \frac{s_t}{1+y_t}$$

with p_t, the primary budget balance (P) ratio to GDP in period t, consisting of tax income T_t net of all government spending G_t without interest payments,

(2)
$$P_t = T_t - G_t$$

without public asset gains[13] and seignorage income.

With rising inflation, all right-hand side nominal variables of the equation (1) can be assumed to rise to a similar extent[14], with the exception of d_t and i_t (which have been nominally set in the previous period). However, this "inflation tax" can only happen if the government uses surprise inflation, that is the interest rate demanded by private creditors i_t was not preset in a way that forsaw this kind of inflationary policy. Such a surprise inflation could also cause G (for example, public sector wages) as part of P to react only in a limited way. T and S can be considered to reflect inflation trends automatically[15], so in total surprise inflation would lower d_t.

It is realistic to assume that G and in particular i would not in all cases reflect rising inflation correctly right away, since the exact amount of future inflation is uncertain. The key reason for limiting seignorage income is then that rising uncertainty about inflation in the economy through the inflationary use of seignorage income tends to drive up interest rates beyond the actual inflation impact via a risk premium and dampens real growth via reduced private investment – another risk for higher d. While inflationary policies may stave off the

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[12] This way to formalise public debt changes is based on the method used in Sachverständigenrat (2003, no. 793).

[13] Proceeds from the sale of public assets (not just the changes of valuation methods in government accounts) have to be higher than the book value in government accounts to actually reduce public net debt (=public debt net of public assets). Since this at best happens irregularly even with recent privatisation efforts, this analysis does not include such proceeds.

[14] Of course, it would be unlikely that all nominal variables rise to an equal extent, but for the purpose of this analysis it is assumed that inflation affects these variables in the same manner.

[15] T consist either of indirect taxes that rise with rising prices, or of direct taxes which in progressive tax systems may induce even a rising tax income with rising inflation. On the other hand, since taxes are paid ex post at the end of the relevant period, inflation may even leave state income lower than before in real terms. It is assumed here that T and G will rise proportionately with inflation.

government´s need to balance public expenses and income in some cases, once the effects of surprise inflation wear off and are replaced by an over-compensating response to inflation by the private sector, the only way out of rising debt for a government is default[16].

Apart from inflation risk, the interest paid on public debt also includes other components of the general risk premium that are added to the common money market refinancing rate of the central bank *ir*. The different components that make up the interest rate *i* on public debt in any period can be written as

(3) $$i = ir + ta + sr + in + op$$

with *ir* being the repo rate charged by the central bank, *ta* being the risk premium for a transaction risk (the risk that there is no or insufficient counterparty at the time you wish to sell or buy the public debt bond, which may in turn be subdivided into settlement, legal and liquidity risks), *sr* being the sovereign risk premium (how likely will the repayment by the public debtor be to maturity), *in* being the inflation risk premium, and *op* being the risk premium of rising opportunity costs if other investments like private equity offer a better risk/return over the debt period[17]. Note that the exchange rate risk is a part of inflation risk, and affects domestic and foreign public debt components in a different way, albeit to a similar effect. A foreign bond may suffer from rising domestic inflation since markets expect this to be reflected eventually in the exchange rate, and, consequently, the government´s ability to pay back its debt with the devaluating domestic public income. Conversely, an exchange rate depreciation may feed into domestic inflation through higher import prices, worsening the interest outlook also for domestic bonds. In both cases, rational creditors will want to have compensation through a higher interest rate premium if they foresee a government trying to use inflation to devalue their debt (see section 5 below).

The concept of sustainable debt in the literature tries to find a way to balance the right-hand variables of equation (1) in such a way that no debt rises occur which would be able to lure the government into a debt trap (continuously rising debt). Basically, a government´s intertemporal budget constraint (similar to that of a private individual or firm) is that the net present value of its current and future expenses cannot exceed the net present value of its current and future income. Applied to the equation (1) above, this means either that with

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[16] If the government tries to meet the interest payment on existing debt only with new debt, it is basically running a Ponzi scheme that will eventually break down. For recent explanations on the sustainability of public debt see Blankart (2003, pp. 368-372).

[17] Normally for public debt this risk factor can be ignored since highest rated public debt is considered as benchmark´investment with lowest risk (and lowest return) in investor strategy. Lower rated public debt, however, may have to compensate investors for better return in other, similarly risky assets.

primary budget balance and seignorage income held constant, the proportion of public debt to the output of the whole economy will not rise if the growth rate remains at least equal to the interest rate paid on public debt, or that with growth and interest rate held constant, government spending must not exceed the income generated by taxes[18] and seignorage.

It is entirely possible that rising d will not automatically lead to a spiral of ever-higher debt, but simply to a new equilibrium where a higher primary surplus or growth rate is needed to keep public debt from rising further. The problem is that with rising d, these conditions are increasingly harder to fulfill. As such, the following analysis will first focus on monetary union changes to the macroeconomic environment represented by the interest rate i and the GDP growth rate y in part 3, and then on the change to the primary balance p, the fiscal stance, in part 4.

3. The macroeconomic environment in a monetary union: implications for fiscal stability

The wide scope of OCA literature tries to answer the question of whether in total, joining a monetary union can bring more economic gains than losses.[19] In principle, the OCA analysis focuses on net effect on the economy´s nominal growth rate y with its components of real growth and inflation, and, as one of the factors contributing to possible monetary union growth effects, also on the effect on interest rate i – two of the variables outlined in section 2. It should be noted that to the knowledge of this author, research on issues pertaining to the SGP so far at best deals only indirectly with the impact of a changed macroeconomic environment for fiscal authorities in a monetary union.

When using insights from the theory of federalism to summarise advantages and disadvantages from the institution of a single (centralised) currency for a group of countries (including OCA results), the effects can be detailed as follows[20]:

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[18] Note that taxes cannot rise to 100% of GDP for two reasons: first, a rise in tax rates at one point will tend to lower total tax return since it lowers growth. Second, there are constitutional restraints in many countries limiting the total tax take of income to certain percentages. For countries with subpotimal fiscal authorities as in some emerging markets, there may be additional constraints due to tax evasion.

[19] Gains meaning both higher output and higher stability of output. Of course, this is done in most cases for EMU countries or EMU candidate countries. Recent OCA overviews include Traud (1996), Mongelli (2002), and de Grauwe (2003). West African countries form another research area with either their contrasting experience of fixed and flexible rate arrangements (for example, Tornell and Velasco, 1995). Changeover costs mainly carried by the financial industry only occur at the outset of the monetary union and are not discussed here. Karlinger (2002, p.15) quotes some studies that show such costs as rather low compared to GDP.

[20] This kind of analysis is based on theories of federalism which try to balance advantages and disadvantages of a centralised solution for varioius kinds of policies (in particular fiscal federalism). For a recent overview that also hints at how the theory can be applied to a monetary union, see Breuss and Eller (2004). Klodt (1999)

a. Potentially positive effects on y and i

Lower transaction costs: This is the main advantage brought already up by traditional OCA literature[21]. With fewer currencies, there is less need to insure against unforseeable swings in the exchange rate. The impact on trade is likely to be positive, as is the integrating effect on financial markets.[22] Overall increased microeconomic efficiency and macroeconomic stability should raise productivity since the resources used for, say, currency options, are now used in more productive ways, boosting y. Likewise, i is lowered as the exchange rate risk on foreign debt of countries that now form a part of the monetary union vanishes. If the new monetary policy is similarly stable or more stable than the formerly national monetary policy, there is the additional gain of reduced overall inflation risk.

Better handling of political spillovers: In the global economy, one country´s decisions on monetary policies and currencies can have economic effects in other countries that are not automatically attributable to that particular country. For instance, the Keynesian belief that because of domestic price rigidities and demand shortages in the short term, a devaluation of a currency can lead to a cheapening of exports, higher foreign demand for exports and thus higher growth can lead to a "devaluation race to the bottom". With a currency union, the potential of such an exchange rate policy conflict with other union members is eliminated, allowing a higher growth path of y and lower macroeconomic risk, i.e. lower i (due to lower inflation risk *in*). There is, of course, another spillover effect concerning the choice of exchange rate regimes, namely that from fiscal policy, which will be discussed in section 4.

Higher economies of scale: With fewer currencies, the risk of currency crises may be reduced. The bigger a monetary union is, the less external shocks from foreign price swings can be expected to destabilise the economy through large movements in the exchange rate.[23] Again, this helps raise y in the long term. Additionally, contagion risks of currency crises happening elsewhere are reduced (see Mendoza, 2002 for putting emphasis on this stabilising effect in a

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introduced an interesting dimension to the question of economic policy harmonisation by stating that the more uncertain a centralised economic policy outcome is, the less advisable it is to undertake a centralisation and/or coordination of that policy area. He views exchange rate policy outcomes as rather uncertain in this respect.

[21] The categorisation into traditional and new views on OCA is in line with Traud (1996), Mongelli (2002), and de Grauwe (2003). OCA analysis after the 1960s can be interpreted as a "new views" on OCA theory (Mongelli, 2002). Traditional OCA literature started by Mundell (1961) during the Bretton Woods era was more concerned with the costs of single currencies, rather than their advantage of lower transaction costs which was already known in the 19th century (Mundell, 1961, p. 662).

[22] Rose (2004) applying a meta-regression analysis on 34 other empirical studies concludes that EMU likely increased trade. Following a study by Frankel and Rose (2002) this should increase growth. For financial markets, the positive effect should also mean higher growth (Karlinger, 2002, p.11).

[23] According to overshooting models, exchange rates can be more volatile than the underlying monetary or real fundamentals (see, for instance, Gärtner and Lutz, 2004).

fixed exchange rate regime). In contrast to fundamental factors putting pressure on a flexible exchange rate, contagion effects are largely dependent on expectations which may revert quickly. A fixed arrangement such as a monetary union may be better able to resist such extreme expectations-induced volatility. Finally, capital markets can become large and liquid enough for some issuing maturities and/or issuers, so that the transaction risk premium in the interest rate is reduced (see equation (3)), lowering i.[24] If, however, joining a currency union would mean giving up erstwhile advantages of a well-established currency, possibly hurting competitive niches or advantages of financial centres, net benefits from higher economies of scale may still accrue for the other monetary union members, but nor for the new entrant.[25]

b. Potentially negative effects on y and i[26]

Reduced currency competition – reduced competition is a standard argument against centralised solutions of economic policy aspects. However, in the case of a monetary union like EMU, the fact that national central banks basically are replaced by a supranational institution, the European Central Bank (ECB) does not mean a significantly lower competitive pressure for European monetary policy. There remain various other major world currencies which would immediately show a slackening of the quality of European monetary policy through their exchange rate to the euro. As such, y and i should be unaffected from this side.

Concentration of power in the hand of a supranational institution – while this kind of argument may sound odd when the main part of the SGP debate is about preventing political and fiscal policy pressure on the ECB, like all institutions, the ECB may be subject to a suboptimal concentration of power. The recently growing literature on the responsibility of central banks in general and the ECB in particular and accompanying criticism in the lack of

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[24] Increased liqudity is also seen by Bernoth, von Hagen and Schuknecht (2004) as a factor that reduces the interest rate. There is, for example, a significantly larger corporate bond market in EMU since 1999 (see the ECB monthly bulletin of August 2004, S33, for data. Internet:
http://www.ecb.int/pub/pdf/mobu/mb200408en.pdf). With financing conditions for the private sector improved, the interest rate on public debt has also more leeway to the downside.

[25] For countries discussing to join a monetary union or not, this often is a highly controversial issue. In Europe, the United Kingdom or Switzerland comes to mind, as well as the hotly debated decision in Germany to give up the Deutsche Mark. For instance, well-established currencies may be high in demand on world financial markets for their use in diversifying currency risk in international portfolios. This could well result in an interest bonus (i.e., lower interest rate) for that particular country´s currency. However, this should be rather considered an exception to the rule since a currency is normally burdened with higher volatility risk, the smaller (= less liquid) it is in comparison to other currencies.

[26] The costs for implementing a monetary union (changeover, buidling up new institutions) are left out of this consideration since they accrue only at the beginning. Maintenance costs of the new institutions may then be even lower than pre-union network of monetary institutions.

transparancy of the ECB´s monetary decisions illustrates this.[27] Of course, the ECB has to be independent since unlike in a fixed exchange rate system tied to a more stable currency in a unilateral approach, where the foreign monetary authority cannot be influenced in any way by the domestic government, in a monetary union like EMU, the individual governments can influence even a supranational central bank[28]. However, as a supranational institution, the ECB is subject to less control from equal institutions, beyond even that of independent central banks on a national level.[29] As a result, monetary policy of the ECB may be less successful in the future than can be expected from its degree of independence. On the other hand, again it is persisting competitive pressure from the performance of other major central banks like the US Fed or the Bank of England which may keep the ECB in line. At this point, at least, it does not appear as if the quality of ECB monetary policy could endanger i and y.[30]

Cost of different preferences and needs of monetary policy adjustment – this is the major concern of traditional OCA theories, in particular Mundell (1961). Of all ways of an open economy to cope with external shocks affecting it in a different way than its neighbour with which it intends to enter a fixed exchange rate regime, a flexible currency is likely the fastest and cheapest way. Overall, an economy can absorb external shocks either through prices – that of the currency, or domestic prices which adjust more slowly, or prices of production factors like the interest rate (which reacts as fast to shocks as the exchange rate, but may have other problems[31]) or wages (which tend to react not at all to the downside in nominal terms due to trade union policies). Alternatively, instead of price reaction, there could be reaction in the quantity of goods or production factors: in case of a negative shock a reduction of output

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[27] See, for instance, a survey by Ullrich (2003) who finds that evicence for lack of ECB responsibility is probably not significant enough to impair the gains from its independence.

[28] Possible avenues in contrast to unilateral fixed exchange rate arrangements are among others: nomination of ECB governors, right to appeal to the European Court of Justice, deciding on institutional issues of the euro in the European Council.

[29] In the case of parliamentary control, the European parliament (despite the annual report of the ECB president similar to the biannual Humphrey-Hawkins testimonies of the US Fed president) does not have the kind of power to truly control the outcome of ECB monetary policy. Similarly, the Ecofin council consisting of EMU finance and economics ministers may exert pressure on the ECB (for instance, by giving exchange rate objectives), but has to do so unanimously –as the EU council has to when nominating ECB governors. A unanimous decision will be more and more difficult with a rising number of EMU member states. A third avenue of ECB control may be the European Court of Justice, but the EU treaties are not legally binding enough to feasibly sue the ECB on grounds deviating to some extent from price stability (a term defined by the ECB itself).

[30] Vaubel (2004, p.154) points out that the inflation performance of the ECB has been – if only slightly – inferior to that of the US, UK, Swiss and Swedish central banks in the time since 2001, basically attributing the price stability success of the first years of the ECB to the performance of the Bundesbank, since monetary policy takes several years to affect inflation completely.

[31] Part of which may be explained by the fact that even for most common maturities, government bond markets are less liquid than exchange rate markets. Additionally, if the switch to the monetary union is the first or without similar experience, capital markets may have to adjust for a while to price bonds accurately, partly replacing the exchange rate risk with higher default risk. See also below part 4 on capital market efficiency.

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or unemployment of factors (if migration is not possible or hindered, as is mostly the case for labour). However, this reasoning assumes that somehow through exchange rate movements, there could be a "money illusion" for domestic goods and factors, which has to face the challenge of the monetarist and rational expectations paradigm changes since the 1970s (see, for example, de Grauwe, 2003, pp. 24-59). If it is impossible in a closed economy to circumvent rational expectations of economic agents (including trade unions) outside a surprise inflation, it is hard to see devaluation work to reduce real wage costs for export companies.[32] Therefore, the loss of such a policy tool would be even beneficial since it reduces the scope of discretionary policies of monetary union members, smoothing the outlook for y and i.[33] However, the cost of preferences argument does not only point to problems of differences in objectively needed adjustments (if, for instance, two countries in a monetary union are more often than not in opposite phases of their business cycles). It also reveals problems if the monetary union members simply have different inflation preferences. This may be obsolete for EMU, though, as the primary monetary policy goal of price stabiliy is part of the universally signed EU treaties (Art. 105 EU treaty).

Still, while it is advisable to not take the implications of traditional OCA theories at face value, international adjustments can still be made easier with a flexible exchange rate if the other factors like domestic prices, wages and the labour markets of the monetary union in general are considered rigid at least in the short term. This may become even more important, if the entry exchange rate levels of the new monetary union member are far away from their fundamentals.[34] On the other hand, it may not be such a good idea for an economy to rely on the "easier" adjustment path of flexible exchange rates forever: there are advantages in seeking to reform the rigidities of other prices and quantities (goods or production factors), something made more likely within a monetary union.[35] Furthermore, the need for this kind of adjustment facilitation may be reduced by the development of EMU itself. If, as is often assumed in the literature, the establishing of a monetary union leads to more trade, economic

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[32] Already McKinnon (1963) implicitly acknowledges this problem by stating that the more open an economy, the less likely/advantageous it is for flexible exchange rates to act as a cushion for shocks. In this context, the exchange rate impact on domestic prices would become more visible to economic agents.

[33] It is interesting to note that price rigidities and monopolistic price setting of firms as assumed in the recent new open macroecnomics literature may still result in positive effects from the introduction of a monetary union: the price-setting of companies could become more harmonised, resulting in less need for national monetary policies (Corsetti and Pesenti, 2002).

[34] If markets are allowed to freely determine the entry level of the exchange rate, this risk is reduced. However, politically determined corridors like the Exchange Rate Mechanism (ERM) may be more subject to severe errors – there simply is no clear-cut way yet to determine ex ante an equilibrium currency value. See also Levich (1998).

[35] A major institutional change or "shock" was already identified by Olson (1982) to be one way to break up the disproportionate influence of interest groups gaining protection, price and income guarantees and subsidies at the expense of society at large.

integration and an overall better allocation of economic activity, this may itself harmonise the economy in such a way that formerly aysmmetric shocks will have similar effects on all monetary union members (the concept of the "endogeneity" of monetary unions was introduced by Frankel and Rose, 1997)[36]. Still, the phenomenon of the Balassa-Samuelson effect (Balassa, 1964, and Samuelson, 1964) can be expected to occur if the monetary union contains countries of significantly different per capita incomes, since in the catch-up process the lower income countries will have to endure consistently higher inflation rates. These would cause a real exchange rate appreciation, regardless of the exchange rate regime, but likely better buffered with flexible nominal exchange rates.[37]

In total, advantages of monetary unions in their effect on growth and the interest rate are rather straightforward, while the picture of disadvantages is more controversial. This suggests a net positive fiscal effect through lower i and higher y for most monetary union entrants from the factors outlined above, if

- the monetary situation and currency of the incumbent monetary union is at least as stable as the new monetary union member, and is likely to remain so in the foreseeable future,

- a sufficient number of currencies still exist outside the monetary union to ascertain currency and central bank competition,

- economic agents behave in line with the theory of rational expectations, i.e. surprise inflation or surprise devaluation is not really an option for politicians,

- non-exchange rate prices and quantities will eventually be able to adjust to asymmetric shocks (elements that obstruct such adjustment are not part of the institution of monetary union itself and need to be tackled by structural reforms, anyway),

- the loss of formerly inflationary seignorage (if any) does not overload the adjustment process of the fiscal authorities, as otherwise rising debt would be the result in any case (see also Heinemann, 1998, p.28),

- tax income rises with rising y in the case of proportional taxes.[38]

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[36] Mongelli (2002, pp. 27-31), however, cautions that there may also be rising specialisation from a higher economic integration, resulting in more asymmetric reactions to shocks. This concern was brought up, among others, by Krugman and Venables (1996).

[37] Empirical studies on the Balassa-Samuelson effect for EMU candidate countries from Middle and Eastern Europe expect it to be significant (Halpern and Wyplosz, 2001).

[38] Progressive tax rates may raise taxes more than growth, but this may again trigger incentives for reduced output.

Refering again to equations (1)-(3) above, we can sum up the effects on debt dynamics as follows: a rise in y from the monetary union entry (denoted by y^M) would increase T (and, consequently, P) . s is not reduced to 0 like in a unilateral abondning of monetary authority (where seignorage accrues only to the central bank and government whose currency serves as the nominal anchor). Excluding inflationary use of seignorage by the new union central bank, seignorage income could still be be higher, lower or equal to the total of national seignorage earned before, depending on the role of the new currency on world financial markets, although there may be new distributional mechanisms within the monetary union that additionally change the individual country´s share of s.[39] On balance, s can be assumed to rise on average only with the additional y^M, reflecting increased money demand. The denominators $1+y_t$ of the right-hand side of the equation can be assumed to rise to the same extent by $1+y^M$ (leaving terms 2 and 3 unchanged) while d_t remains constant. With i_t reduced by the eliminated or reduced public debt interest components outlined above, this should c.p. result in a lower d_t^M of a country in monetary union than a d_t^F of an individual country with flexible exchange rates (see equation (1) above):

$$(4) \qquad d_{t+1}^M = \frac{1+(i-\alpha tr - \beta in)}{(1+y^M)(1+y_t)}d_t^M - \frac{P_t}{1+y_t} - \frac{S_t}{1+y_t} < d_{t+1}^{FL} \qquad \text{with } tr, in, y^M > 0$$

Note that the transaction risk in the public debt interest rate will only disappear completely with infinitely enlarged debt markets, so it is reasonable to build in a factor $0 <= \alpha <= 1$ to illustrate the extent of reduced transaction risk. A factor $0 <= \beta <= 1$ is introduced to show the extent of lower inflation risk in EMU due to improved monetary policy, reduced exchange rate risk and size-induced stability (including the condition above that the new monetary authority is at least as stable as the former national central bank, which is an increasingly important factor if the new monetary union member belonged to the category of emerging markets economies like those in Middle and Eastern Europe).

There are, however, three caveats to the assumption of improved fiscal stability on the back of macroeconomic gains from monetary union. First, a single currency makes all kinds of economic transactions more transparent and comparable, including that of taxation. This could mean more competition and likely lower tax rates in a monetary union – possibly

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[39] For example, Feist and Sinn (2000) or Läufer (2002) provide estimates about the seignorage income in EMU and its re-distribution. Germany as a country abandoned a widely used international reserve currency in exchange for only an average of population-based and GDP share-based taking of EMU-wide seignorage income. Thus it may well end up with lower seignorage in the long run. Assuming a money market interest rate of 2%, according to seignorage pool data of Feist and Sinn (2000), Germany may lose an annual income of approximately EUR 600 mn.

reducing the tax income T and primary surplus P in spite of higher tax bases from higher y. This leads to the debate on tax competition in Europe. On the other hand, such competition may also result in more efficient tax systems or may, even despite more transparency via a single currency, be still limited enough due to structural differences to really put tax rates under serious strain.[40] A second caveat could be that with an increasing size of a monetary union, the effects for new and incumbent members may not remain the same. Bayoumi (1994) reasons that with an increasing size of a monetary union, the advantages are increasingly higher for new members than for the existing monetary union. This could mean that, for example, the EMU candidate countries from Eastern and Middle Europe will after their EMU entry face a more profound change of their macroeconomic environment than the 12 current EMU members.

Third, and most importantly, macroeconomic improvements could trigger changes in the behaviour of fiscal policy makers who decide directly on the primary balance P, which alongside the more known SGP concerns on fiscal authority behaviour in a monetary union will be discussed below.

4. New incentives for fiscal authorities? Implications for fiscal stability

It is widely acknowledged that apart from economic factors, institutions and political economy factors (i.e. the assumption of a politician who maximises both social and his personal utility, with a short-term view based on election cylces) play a major role in explaining fiscal stability[41]. Proponents of fiscal rules in European monetary union basically perceive two new dangers for fiscal stability rules due to a new institutional (monetary union) framework of incentives that can be summed up as follows:[42]

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[40] See Fuest (2001) for an overview of tax competition in the EU.
[41] For instance, Alesina and Perotti (1995) stress "The Political Economy of Budget Deficits". Propensity for higher debt in recent decades is seen by them as a consequence of more frequent government changes and coalition decisions that favour transfers as a means to reach compromises and/or collect political support. In the context of the question of optimal exchange rate regimes Sun (2003) identifies tragedy of the commons problems (one group trying to consume public assets before another does) and competitive externality (transfers are beneficial to one group while the inflation/taxation costs have to be carried by all) as two political economic mechanisms of rising debt, induced by fragmented fiscal policy-making (Sun, 2003, p. 18).
[42] See footnote 2 for literature on this subject. Among the literature quoted, Beetsma and Uhlig (1999, pp. 546-548) describe these new dangers in a way most similar to the way presented here. They also point to a technical problem for the monetary policy of the ECB if several benchmark EMU government bonds are losing their value due to fiscal profligacy, as the ECB then would have to face bond price risks in its repo transactions. This problem should be of minor importance, though, and will not be discussed here.

1) If monetary policy has to adjust to fiscal policy because it is part of the discretionary powers of government (for instance, by financing continued deficits with increased seigniorage and inflation), the institution of an independent central bank is necessary to give the initiative back to monetary policy over fiscal policy (against the "unpleasant monetarist arithmetic" of Sargent and Wallace, 1981). In this case, monetary policy sets the framework for fiscal policy and not the other way round, resulting in stable prices and loss of seignorage income for the fiscal authorities. With the advent of a monetary union, the national central banks lose their monetary authority. As such, it has to made certain that the new union central bank also has the necessary independence to be able to constrain national governments in their ability to issue debt via stable prices.[43] It was shown that the supranational ECB, due both to an unprecedented guarantee of unimpeded monetary policy, as well as the lack of a supranational fiscal counterpart[44] has likely a higher independence than even its most prominent national predecessor, the Bundesbank (Solveen, 1998). However, the fiscal theory of the price level (FTPL)[45] brought up the notion that if fiscal policy would be conducted in a non-Ricardian environment, it would through its debt levels eventually still determine the price level, regardless of the independence of the central bank.[46] In a Ricardian environment, though, the government budget constraint would have to be fulfilled for any price level (i.e. the goverrnment has to adjust its real primary surplus to meet its debt obligations at any time, not just over the whole time period considered as put forward by the FTPL). Fiscal policy would only then have to follow the price levels set by monetary policy.[47] While it is a too early stage of EMU to make robust observations, the first years of EMU have rather shown a convergence of interest rates

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[43] Note that this can also be considered a major difference between dollarization (unilateral monetary union) and official monetary union (multilateral monetary union). When a country dollarises, it abandons its own, less credible monetary policy, in favour of an *existing*, more stable monetary policy. In a monetary union, the institution of a supranational bank has to be newly created.

[44] It is important to note that most fiscal policy issues are still decided at a national level, and the few fiscal and monetary decisions in the hands of the European council of Economic and Finance ministers (Ecofin) have to be decided on unanimously (in contrast to the ECB´s simple majority decisions). Additionally, ECB executives have longer terms of office, rotating at a constant rate while national governments are subject to more frequent elections.

[45] Woodford (1996 and 2001) as one of the main proponents of the FTPL applied the theory as a basis for fiscal rules like the Maastricht criteria in EMU.

[46] In such an environment, basically private agents would see tax cuts (or net transfers financed by higher debt) as net benefits and not worry about future repayment through renewed tax increases. As such, a wealth effect exists that could trigger inflation outside a central bank´s decision on money supply.

[47] The FTPL is not without critics (more recently Buiter, 2002, or Niepelt, 2004). Niepelt (2004) argues that the assumption of a non-Ricardian environment is flawed once the possibility of surprise devaluation of debt is ruled out – that is, the buyers of government debt should rather be assumed as being able to foresee the risk of inflation and demand a corresponding price discount (higher interest rate) for the government debt issued. For the non-Ricardian environment to unfold, essentially the private sector (voters and creditors) has to succumb to a fiscal illusion (for fiscal illusion discussion see Alesina and Perotti, 1995, p. 9).

due to a single monetary policy, and not because of a harmonised fiscal policy effort. This would rather signal a fiscal policy constrained by common monetary policy (Canzoneri, Cumby and Diha, 2002, pp. 24-25).[48] Still, the larger a monetary union, the higher the risk that at least one state resorts to a non-Ricardian behaviour putting pressure on the union central bank for a more accomodative monetary policy. The ECB may be committed to resist such pressure ex ante, but this may not be enough to prevent national governments from trying this way of higher debt, anyhow, resulting in more fiscal instability. Ultimately, the ECB´s devotion to price stability may not be credible since ex post it would have to prevent monetary crises triggered by a fiscal crisis – a problem of time inconsistency for central banks. *The crucial points are: If monetary policy sets the framework for fiscally unstable policy (situation of an independent central bank), this could result in eventual default. If fiscally unstable policy sets the framework for monetary policy (situation of a dependent central bank), this could result in eventual inflation. In both cases, fiscal instability would occur if governments somehow chose to increase their primary deficits in an unsustainable manner without capital markets reacting in a timely manner with prohibitively higher interest rates instead of individual exchange rate devaluation. The question is, of course, if monetary union changed overall incentives to make such fiscal authority behaviour more likely in the first place.*

2) The second danger for fiscal stability in a monetary union is the possibility of free-riding behaviour. Any kind of fiscal instability in one member country may now adversely affect the other union members, in particular if capital markets assign some kind of correlation or connection to them (similar to the reasoning for contagion effects, with the additional problem of hope for ECB bailout, which will be discussed below). Thus, the cost of debt for one country may be lower than what it would have paid while it still had its own currency, since part of the risk premium is now moved to higher interest rates for the other union members, or a lower common currency value.[49] Result: a monetary union-wide prisoner´s dilemma where all would be better

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[48] Fiscal rules like those outlined in the Maastricht treaty may also be seen to ensure a Ricardian behaviour for all EMU members (Canzoneri, Cumby and Diba, 2001).

[49] Fuest (1993, p. 129) points out that once demand for credit by one government rises, the crowding out of capital demand of other governments as well as the private sector takes place regardless of the exchange rate regime. In a Mundell-Fleming model world, higher interest rates due to crowding out would be able to attract foreign capital, thus resulting in a rising (not lower) currency value. However, since the crowding out process comes about due to an overall worsening of financing conditions on the back of rising debt levels and rising risk for creditors, the currency value should come under pressure and not serve as a magnet for foreign capital (Fuest, 1993, pp. 133-134).

off without additional debt-taking, but individually better off by increasing debt at the expense of the others. In an extreme case, this would lead to a race to fastest debt accumlation and instability (default or hyperinflation) for all[50]. *The institution of a monetary union alone does not automatically introduce mechanisms of risk-sharing like central bank bailouts and fiscal transfers.[51] As such, the key assumption is here that a monetary union changes the way capital markets work to the negative or leaves already flawed markets unchanged so that the monetary union will create the spillover effects mentioned above.*

Basically the concerns outlined above describe the possibility of a slackening of penalties for fiscal misbehaviour brought about by a monetary union. Previously functioning institutions like the independence of national central banks and flexible exchange rates may somehow lose their disciplining effect (first concern), or the creditors of public debt demand less compensation (second concern). For both concerns, the key appears to lie not only in the way fiscal authorities could change their behaviour, but also if such behaviour changes are made more likely by capital markets caught in expectations of bailouts (which will be dealt with in section 5).

First, some thoughts on the probability of fiscally more instable behaviour of governments. It is possible to sum up the various parts of costs and benefits of debt-making for a government in a formal way.[52] Assuming a small open economy with price flexibility lasting for two periods (and a period 0 preceding the two periods), the government´s objective function U_G can be written as

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[50] Again, Fuest (1993, p.132) puts emphasis on the notion that crowding out and rising interest rates only reflect the competition of governments for debt on international capital markets. As shown recently in an empiric study by Ardagna, Caselli and Lane (2004), increased total borrowing of OECD countries pushes up the interest rate for all countries. This could well mean that preventing a debt race to the top with co-ordinationg fiscal policies is tantamount to creating fiscal cartels, endangering optimal allocation of debt.

[51] In fact, these are even explicitly excluded in the EU treaty (Art 101, 103, 108).

[52] The following formalisation is based on Tornell and Velasco (1995, p. 8 and 1998, p.12) who focus their analysis on a comparison of fiscal discipline in fixed and flexible exchange rate systems. Sun (2003) offers a recent extension of the Tornell and Velasco approach. Most of their insights on fixed exchange rates can also be transferred to the case of a monetary union, however. Note that the utility function of the government is only a part of their models which is used here to highlight potential changes of incentives of the government. Heinemann (1998) provides another formal approach directly comparing the marginal political utility and and costs of primary deficits under flexible, under fixed exchange rates and under monetary union in a static model. He essentially finds a disciplining effect for monetary union in the case of high-debt countries and less discipline for countries where formerly flexible exchange rates played an important role for disciplining fiscal policy. Another variant is a model by Beetsma and Uhlig (1999) that theoretically supports the introduction of a SGP or similar fiscal rules. However, their model also points to discretionary monetary policy as yielding higher social welfare than an independent union central bank. Their intuition is basically that an independent union central bank will create less sense of future inflation cost for union fiscal authorities.

(5)

$$U_G(\tau, c, m) = \alpha\left[u(\tau_1) + \beta u(\tau_2)\right] + (1 - \alpha)\left[v(c_1) + \frac{\varepsilon}{\varepsilon - 1} m_0^{(\varepsilon-1)/\varepsilon} + \beta\left\{v(c_2) + \frac{\varepsilon}{\varepsilon - 1} m_1^{(\varepsilon-1)/\varepsilon}\right\}\right]$$

with – for the respective periods 1 and 2 – τ denoting the net government transfer (linked directly to the primary balance P of the previous sections; only now a positive τ showing a primary deficit), c private consumption and m the real money balances (M divided by the price levels determined by the monetary authority, here for periods 0 and 1 to correspond to the periods 1 and 2 for c) of the representative private agent[53]. The coefficients α and β introduce the degree of public choice assumptions into the terms. α sets the weights the government places on either its own benefits from net transfers τ (power, prestige, support from pressure groups[54]) or the utility of the private agent (the case of $\alpha = 0$ meaning a benevolent government). β describes the discount rate at which the government compares utility in periods 1 and 2. If β is higher than the real interest rate at which the market discounts future utility, a government places disproportionately higher emphasis on its current term 1 in office. That is, it is less interested about being re-elected. Conversely, if it wishes to be re-elected, it will distribute less transfers τ in period 1 so as to keep voter´s consumption and thus their support sufficiently high for re-election and leave enough fiscal leeway for transfers in period 2.[55]

What parameters could be changed by the institution of a monetary union?

The public choice coefficients α and β may see changes if politicians start to put either more emphasis on their own-well being instead of that of the private agents, and/or start to discount the future more heavily in their considerations.

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[53] With the usual algebraic assumption of $0 < \varepsilon < 1$ to ensure a decline in the utility of real money balances while keeping maximisation calculations more simple. With ε getting close to 1, the decline in marginal utility becomes less steep.

[54] Of course, it can be argued that a government transfer also increases the private consumption in a given period, since the government ultimately consumes nothing. However, for the purpose of this analysis, the consumption in an economy is subdivided into government (debtor) consumption beyond tax re-distribution and private agent (creditor) consumption to focus on the behaviour and incentives of governments.

[55] This kind of thinking may be counterintuitive to the typical assumption of election cycle discussion in political economics, where governments spend more to be re-elected. A government foreseeing in the context of this model that the next holder of office will have to pay for the current profligacy will discount the future more heavily and maximise present term spending. As a special case, a government certain about being re-elected will tend to distribute its transfers over both model periods at the discount rate beneficiary to society as whole (see also Beetsma and Uhlig, 1999, pp. 554-555). Sun (2003) offers an analysis of how current governments could influence current transfers to tie the future period´s governments hands regardless of the political inclination of the current government.

The sense of fiscal responsibility could become somehow weakened, if politicians got less penalised by voters for increased debt, increasing α. However, the institutional fiscal framework inside a monetary union does not change per se. Eichengreen and von Hagen (1995) have even already pointed out that the decentral structure of fiscal policies could highlight public debt more clearly in a monetary union, as the national fiscal authorities have no central institution that may conceal true fiscal costs through redistributing transfers. Still, governments may be able to shift any blame for fiscal misconduct on the union monetary authority, thus escaping voter penalties. On the other hand it has to be argued that such blame would be hard to solidly back with facts since in a monetary union, a union central bank is known to be unable to exactly meet the monetary policy needs of only one of its members exactly and continuously so. On the contrary, it is possible that governments can use monetary union as a support against pressure group demands by pointing to pan-European constraints (i.e. a monetary policy out of reach for national politicians), making fiscal indulgence and rises in α less likely.

Any macroeconomic gains may be also perceived as some kind of windfall profits. This could incite less productive spending and may disproportionately raise demands from interest groups for more τ, thereby inciting a government to increase α. Fiscal consolidations on the income side are also usually considered as less successful in increasing fiscal stability than consolidations on the spending side. However, proceeds like those of the UMTS licenses in Europe were also used to reduce debt, and it is not clear whether this caused more laxity on the subsequent budgets and more demands, or if the demand for transfers had developed this way, anyhow. As such, one may cautiously conclude that α remains on balance unaffected by the choice of an exchange rate regime.

Including the macroeconomic environment discussed in section 2, there would be an incentive to set a higher β, if macroeconomic conditions would increase τ, c and m at a higher rate in the first period than in the second period. This may be the case if a larger part of the advantages arise at the beginning of a monetary union, but such an outcome would be difficult to explain.[56]

This leaves considerations on the fiscal authorities´ choice of τ in the first period as the main source of danger for fiscal stability.

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[56] For instance, possible gains from lower interest rates support growth not only in the first years of EMU, but also later to a similar extent.

If one assumes that a monetary union detaches domestic inflation from domestic fiscal policy, a government´s choice of τ_1 will no longer affect m in the first period, keeping voters´ utility intact. However, once inflation feeds through in period 2 either through accomodative policy of the union central bank, or a devaluation of the common currency or the leaving of monetary union, the government that was in office in period 1 may not be around any more to face the reduced scope (i.e. higher cost) of τ_2. As such, even with the assumption of flexible prices a similar effect to that of surprise inflation is given back to national governments since the inflation reaction through exchange rate variation would vanish. In principle, a flexible exchange rate regime could spread any debt-induced inflation over both periods (as a flexible exchange rate reacts immediately to shifts in inflation *expectations*), while monetary union pushes the inflation cost into period 2 only (cf. the results of Tornell and Velasco, 1995, 1998, or Sun, 2003, for fixed exchange rate systems). Major conditions leading to such an outcome, however, are that creditors do not react with rising interest rate premiums to replace the cost of exchange rate devaluation, and the common currency does not react to the higher debt of one member country. This is once again tantamount to asking whether capital markets will be less efficient in a monetary union than before and will be further discussed in section 5 below.

There are also numerous other conceivable explanations of why governments would become disproportionately more profligate in a monetary union (i.e. choose to spend more than any gains induced by monetary union outlined in section 3) and raise τ, but it is far from clear whether this would really mean lower fiscal discipline, for reasons outlined as follows:

- If transfers and public services are considered superior goods, any macroeconomic gains from EMU could in period 1 push debt to a higher level of GDP if taxation meets more political resistance. Additional means to spend on public services from rising τ may be in line with the general trend of rising public expenditure to GDP ratios in OECD countries over the last three decades. However, this may not in all cases be the road to more fiscal instability if the new debt levels become a socially desired equilibrium – the bottleneck being that such a demand for more public goods is accepted by the creditors of international capital markets and also by the voters. Eventually this means that a socially desired higher supply of public goods will still have to be financed by corresponding tax rises in period 2, keeping fiscal stability preserved.

- With the instrument of national monetary policy no longer available in a set of discretionary policy tools, governments may wish to compensate for this loss by an

increased use of fiscal policy (called an "overexpansion bias" by Hughes Hallett, Lewis and von Hagen, 2003, p.6)[57] or be forced to endure higher primary deficits as automatic fiscal stabilisers carry the brunt of macroeconomic adjustment. However, business cyles may tend to harmonise in a monetary union through higher economic integration, dampening the need for national fiscal stabilisation policies. Additionally, relaxing the assumption of a small economy from above, increased debt in one monetary union member country may affect the business cycle of other members – at the same time pushing up the cost of debt for all in period 1, but also demand for all, without a bilateral flexible exchange rate reacting to such national fiscal policy.[58] Likely the demand spillovers to other monetary union members make a discretionary fiscal policy aimed at national stabilisation only more difficult.

- If credit becomes more cheaply available via lower interest rates, in the normal case of negative capital demand elasticities, governments could be expected to increase their debt. However, a study by Heinemann and Winschel (2001) looking at 19 OECD government budget reactions to borrowing costs since 1970 suggests a slower reaction to lower borrowing costs (defined by the authors as interest minus growth rate) than to rising costs for some countries. Additionally, monetary union has been shown in section 3 to also cause growth and tax income to rise while the interest rate comes down,. If the tax income increases sufficiently, the relative attractiveness of debt financing could even recede for governments, lowering τ.

- A strategic element arises from the problem that monetary union governments may make their own behaviour dependent on what other countries do (suggested by findings of a significant impact on EU-wide fiscal instability on individual country instability in Hughes Hallett, Lewis and von Hagen, 2003, tables 3.5 to 3.7.). Research on pre-EMU fiscal behaviour of Middle and Eastern European countries suggests larger countries may believe to be able to run higher debts due to a better political bargaining position helping to avoid any kind of penalties by future fellow EMU members (Berger, Kopits and Székely, 2004). Larger countries may feel the absolute amount of debt they accumulate will at one point be too big for the other

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[57] On pp. 17-18 of their empirical results, Hughes Hallett, Lewis and von Hagen (2003) show a positive connection of ECB tightening monetary policy and rising risk of breaking the 3% deficit threshold of the SGP. The authors offer either higher fiscal spending as a consequence of monetary policy-induced recessions, or higher fiscal spending in response to the risk of recession from tighter monetary policy. Either way, fiscal policy does not seem to mirror monetary policy.

[58] This reasoning is based on the short-term assumptions of the Mundell-Fleming framework. See Gärtner and Lutz (2004, pp.74-76). Again, as mentioned in footnote 50, this is a mechanism present in all exchange rate regimes.

members or the union central bank to ignore (a "too big to fail"-situation). Tit for tat strategies in the presence of large dominant players in a monetary union may thus be unavoidable. On the other hand, smaller union members may expect to incure too few costs of a bailout to really matter for the whole monetary union and thus choose to become fiscally less stable.

Overall, there seem to be various potential ways how governments in a monetary union could be inclined to raise more debt than before, but they are at best ambiguous in their effect. In some cases, monetary union may even introduce factors to make governments choose a lower primary deficit. The exception likely is the strategic behaviour of governments feeling safe in their expectation for bailouts, which would greatly reduce their costs of debt. This problem could become more complicated with a rising number of monetary union members.

5. Capital markets in a monetary union and considerations on bailouts

It is clear that not only the demand side for public credit will affect the outcome of fiscal stability in a monetary union, but also the supply side – the capital markets.

At this point, therefore, the role of capital markets including the second concern outlined above will be discussed: Why would creditors not be able to foresee fiscally unstable behaviour of fiscal authorities caused by monetary union entry? Why would "the constraints imposed by market forces (…) either be too slow and weak or too sudden and disruptive" (Delors Committee, 1989, p.20)? On this point, the literature, including that of the SGP debate, remains remarkably silent (see also Heinemann and Winschel, 2001, p.3).

Voters may indeed put less attention to real exchange rate movements than nominal exchange rate movements which in turn both are difficult to attribute to fiscal behaviour in the first place (Heinemann, 1998, pp. 12-13). However, they will likely pay attention to rising costs of debt for the government, which could well preserve the penalties for fiscal instability after the introduction of a monetary union.

A monetary union would only be able to prevent capital markets from demanding higher risk premiums for higher debt if the efficiency of the exchange rate market is not replaced by the market for debt. This may be because a flexible exchange rate was able to react faster and in a more appropriate way than sovereign risk premia. Since exchange rates tend to be more volatile than their underlying factors, this could mean an exponential political cost of fiscal instability instead of more linear cost development for sovereign debt interest rates in a

monetary union or a fixed exchange rate regime (similar to the thinking by Tornell and Velasco, 1995 and 1998). However, exchange rates are subject to many influences and even countries with prudent fiscal policies may see their exchange rate come under pressure, reducing the effectiveness of exchange rate movements to penalise profligate governments.[59]

Then there may be a bubble of market optimism resulting in interest rates below those warranted by fiscal fundamentals (note that the pre-EMU government bond yield convergence had ensued without corresponding harmonisation of national debt levels, reflecting lower interest rates on the back of expectations of improved inflation and fiscal *outlook* mainly). However, it is hard to see a difference of reaction in two highly liquid markets (foreign exchange and government bonds) coming from creditors, even if shifts in the exchange rate may meet higher resistance by the general public. A rational investor will always want to be compensated for the risk she or he takes in lending. The former risk of exchange rate devaluation would simply be replaced by an appropriate change in sovereign default risk.[60]

It is clear that certain conditions have to be met for markets to properly discipline the fiscal instability of governments in a monetary union: markets must be open, information readily available, the sovereign borrowers have to react to rising costs of debt before they are excluded from capital markets, and there must be no anticipation of bailouts or other interference with the market process (Lane, 1993). Higher financial market integration can be expected to improve the first two conditions – even if capital market shortcomings as suggested by the behavioural finance literature, or rational bubbles and the moral hazard of banking systems may all still be present.[61] As such, monetary unions should be able to increase fiscal discipline from this side. Additionally, the few studies on sovereign borrower reactions to changes in the cost of debt (Bayoumi, Goldstein and Woglom, 1995, or Heinemann and Winsche, 2001) find evidence of capital markets being able to restrain excessive debts by governments. Capital market reaction could, however, be non-linear

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[59] So-called models of second and third generation for the explanation of currency crises point into this direction, including contagion effects that originate, in this case, outside the monetary union countries. See Pesenti and Tille (2000) for an overview.

[60] See also Eichengreen and von Hagen (1995, p. 26). A study by Bernoth, von Hagen and Schuknecht (2004) also finds a significant impact of EMU on sovereign risk pricing. As outlined in section 3, the overall interest rate may still be lower in a monetary union due to increased capital market efficiency.

[61] In this respect, the case of the New York debt crisis of the 1970s could be used by some Maastricht criteria proponents as an example of slow and abrupt reactions of capital markets vis-a-vis a fiscal authority inside a currency union. However, the reaction of capital markets at that time can also be considered to have worked properly (Fuest, 1993, pp.134-135). In a more recent paper, Cohen and Portes (2004) see problems of market discipline in the case of confidence crises, but they do not differentiate between fixed and flexible exchange rate regimes.

(Ardagna, Caselli and Lane, 2004) and remain so in a monetary union, therefore reacting more slowly to rising debt if initial debt levels are comparatively low.

Credibly ruling out a bailout may prove to be the "Achilles´ heel" of market discipline, though (Lane, 1993, p. 83). Admittedly, in the current set-up of EMU, the speed of a bail-out by fiscal transfers would be low due to a lack of institutions to effect the bailout (there is no central fiscal institution apart from the EU commission with only around 1% of European Union member GDP as budget), a difficulty to achieve unanimous agreements between 25 EU members, as well as the outright prohibition of such help in the EU treaties.

But there remains the possibility of a bailout by the ECB. Until a government is actually allowed to default, capital markets will tend to reflect a rather high probability of bailout from a union central bank in their sovereign interest rate premia.[62] The problem is that, similar to the moral hazard of financial systems, the default of one union member (expecially if it is one of the larger ones) may cause such a high macroeconomic instability for the whole union that even an independent central bank, due to its commitment to price stability, will have to trigger a bailout.

How exactly could such a scenario play out?[63] Assuming the largest national debtor in EMU, the Italian government, decided to default on its debt (for simplicity, the assumption here is that it totally defaults which may be quite unrealistic since tax income can be expected to meet at least part of the interest rate liabilities). The economic agents immediately affected would be the holders of Italian government bonds (private or institutional investors like pension funds) who have to write off these assets as loss.[64] This may cause problems for them to meet their own liabilities, possibly triggering a strain on the overall financial system.[65]

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[62] A haunting proof of this may be the surprisingly small sovereign debt interest spreads in EMU, although debt levels still vary substantially. Conversely, subnational fiscal authorities in Canada or the US face significantly more different interest costs, which may be due to the fact that there have been instances in the recent past where creditors either were threatened with default (as in the case of the province of Saskatchewan in Canada) or had to endure default (as in Orange County, in the US). Eichengreen and von Hagen (1995, p.27) have already prior to EMU focused on the bailout problem in this respect, seeing credible possibilities of default whenever the fiscal authorities within a monetary union are left independent in both their spending and their income, without a supranationally re-distributing institution.

[63] Eichengreen and Wyplosz (1998, pp. 78-83) try to simulate a debt run scenario for EMU and use Scandinavian government reaction to drops in house prices in the late 1980s and early 1990s as a proxy for the sensitivity of public authorities to strain on bank´s balance sheets. They conclude that such dangers would likely only be relevant for banking systems in Spain and Italy, and cast doubt on contagion effects for the rest of the monetary union.

[64] Of course, the general public in Italy would also suffer from less leeway in public income in the future, since any public spending would then have to be paid by taxes only, if capital markets remain unforgiving. The more longer-term and social problems arising from this are not considered here, though.

[65] A recent example of such an anticipated domino effect and subsequent central bank bailout is the LTCM debacle in the US in September 1998 that was countered by the US Fed with direct liquidity support for LTCM and interest rate cuts.

However, there are conditions for such a scenario to unfold:

1. Due to such a a default, the holders of Italian debt have to be no longer able to meet their own liabilities, and in a sufficient number to be in a position to endanger EMU financial markets (i.e. most holders of Italian debt have to be EMU investors). The biggest debtor in EMU, the Italian government, has bonds outstanding that constitute 28% of EMU government bond issues (part of this debt is held by investors outside of EMU).[66] However, including money market securities, as well as private sector bonds, the percentage of Italian government bonds in the worldwide debt market is much lower, namely only close to 3%. Furthermore, the likely percentage of Italian bonds in total portfolios and assets of investors is again substantially reduced after the inclusion of equities, cash and real estate.

2. Even with such a low share of Italian debt in total internationally traded securities, there may be problems if the proportion of Italian bonds in investor portfolios deviates strongly from those shares dictated by the efficient market hypothesis[67]. However, while such deviations have been shown empirically (for instance, the home bias in the Feldstein-Horioka paradox), the integrating effect of a monetary union on financial markets makes a more even distribution of Italian debt likely.

If the ECB is able to monitor the structure of financial markets, it will use this information to react less quickly in the face of such a national debt default. Refering to the problem of strategic behaviour of governments above that hope to be too big to fail or a too small to incure a noticable cost for the union as a whole: a government trying this way may find itself caught in a situation where this strategy would not work. If only one fiscal authority in a monetary union defaults, the impact on the overall monetary union stability may not be big enough to trigger a central bank bailout. This reasoning even counterbalances the increasing problems with a rising number of union members: the larger the monetary union, the less likely the central bank will step in for only one member whose relative weight is declining,

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[66] Calculations based on June 2004 data of the BIS Quarterly Review of September 2004, in the internet on: http://www.bis.org/publ/qtrpdf/r_qa0409.pdf#page=70 .

[67] This does not mean that in the case of Italian government bonds, all investors have to hold a proportion of these bonds relative to their whole securities close to 3% (= their current value in proportion to the value of the total debt market). Each investor will adjust her or his portfolio in such a way that market risk is eliminated via cross-correlations of the various debt securities (see, for example, Levich, 1998, pp. 503-521), resulting in different percentages of Italian bond holdings. Still, if a complete default of Italian debt does not happen overnight, but rather as a more gradual decline in the Italian government bond prices, portfolios will react accordingly to reduce the rising risk involved in holding Italian government bonds, reducing the need for ECB intervention.

Since the fiscal authority cannot be sure that other governments´ fiscal policies follow suit in unsustainable debt paths, it may be too risky for an individual government to rely on a central bank bailout in a monetary union. It is not unconceivable that pressure groups unable to threaten the whole financial system with their losses would, anyhow, try to push their respective governments to build pressure on the ECB for a bailout. Again, though, the outcome for such strategies are highly uncertain, making it difficult for an individual government to bet on such events.

6. Concluding remarks and outlook

Combining the various influences on fiscal stability behaviour of governments in a monetary union, the picture seems much less clear than assumed in the SGP debate which largely centers on the shape and implementation of fiscal rules, rather than its preconditions. One major danger for fiscal stability remains: the strategic behaviour of governments hoping for bailout in the case of debt problems which can be hardly avoided even by a credible union central bank, although in a monetary union it may feel the pressure later than on a national level. Somewhat reassuringly, there are various factors that could even work to increase fiscal stability in a monetary union, including macroeconomic gains as suggested by OCA theory and more efficient capital markets to discipline any increased national public debt demand.

Further research points into two directions. One would be a deeper analysis of the role of capital markets, including a comparison of the cost of default for fiscally unstable governments in a flexible exchange rate regime and a monetary union. The other should focus on the interplay of fiscal authorities and the central bank in a monetary union regarding the propensity for higher debt and the bailout probability by the central bank. Insights from game theory may be useful in such an analysis, including answers to the effect of an increasing number of members in a monetary union, as well as their relative size, on their respective fiscal stability.

Finally, it could be interesting to apply more comprehensive theoretic results to empiric analysis of countries that aspire to join a monetary union, such as the new EU members of Middle and Eastern Europe. It is important to note that since a majority of potential EMU candidates are part of the emerging markets category, theoretic insights from the stabilisation effect of fixed exchange rate regimes on those countries´ fiscal policies may outweigh considerations that formed the basis of fiscal rules like the SGP for them. Furthermore, such

countries could have their own fiscal stability factors that change the outcome of the general explanations, as is likely the case for transition economies.

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