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DEBT AND MONETARY POLICY:
THE POLICY ISSUES

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ABSTRACT

The paper explores the implications of high debt for monetary policy. In Europe, debt (and deficits) play a special role at present in the run up to Maastricht because large debts are seen as a threat to the integrity of the new European money. The paper reviews two historical episodes-- the German, UK, and French experience in the 1920s and the US debt liquidation of the 1950-1980 period. The theoretical review focuses on hypotheses of Keynes, Clark and Sargent-Wallace. The paper adds to the range of concerns private balance sheet vulnerability.

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DEBT AND MONETARY POLICY: THE POLICY ISSUES¹

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This paper explores issues in the relation of debt and monetary policy. Deficits are large, debts are rising absolutely and relative to GDP, unfunded liabilities greatly add to the explicit stock of debt. Debt (and deficits) play a special role at present, in the run up to Maastricht: the membership hurdle in terms of debts and deficits is hardly met by anyone. Debt is important in this context because large debts are seen as a threat to the integrity of the new European money or, at least, a serious complication and potential political pressure point in the exercise of sound monetary policy. But debt is also of interest in a less dramatic context from the simple question of what role it plays in the transmission mechanism of monetary policy.

These issues come in four quite separate ways.

* First and in the most simple way, large debts are seen as a standing invitation for a big inflation designed to reduce the debt

burden.

* The presence of large debts, while perhaps not inviting an extreme inflation, may seriously hamper the exercise of sound monetary policy. The higher the interest rate, the more debt is in a snowballing mode as interest adds to the debt, etc. Monetary restraint, therefore, while appropriate in other ways has a difficult side effect and hence may not be pursued with the requisite vigor.

* Private debts, or balance sheet fragility more broadly, may be at issue. In such a context, monetary policy might be sidetracked from a narrow price stability objective to become enlisted as a tool of financial engineering.

* Finally, far away from these themes, there is the question of how the existing stock of debt comes into the question of the transmission effects of monetary policy. One intriguing possibility is that higher interest rates in the course of monetary restraint might actually be expansionary because they raise disposable income and hence possibly aggregate spending.

The immediate interest of the topic is shown in at least two ways. First, as Table 1 brings out, debts and deficits are high almost everywhere and extravagant to say the least in some countries such as Italy or Belgium, not to speak of Greece.

Table 1 Debts and Deficits:1996
(% of GDP)

	Deficit	Debt
EC	3.9	70.4
B	3.9	132.3
DK	1.2	74.4
D	2.4	58.1
GR	10.2	116.2
E	4.8	65.2
F	3.9	52.8
IRL	2.6	80.8
I	8.1	124.4
L	-1.5	7.8
NL	2.5	77.1
AT	3.9	67.4
P	4.7	70.7
FI	1.1	64.6
SE	5.8	85.7
UK	2.9	51.5
US	1.8	63.1
Japan	4.2	83.1

Note: Data for European economies' debt and deficits are based on the EC Maastricht definitions.

Source: European Economy No 50, Tables 6 and 7 and, for the US and Japan, OECD Economic Outlook December 1995.

This concern for debt in the context of fiscal policy is noted by the European Commission (European Economy 1995, p.14):

"The failure to realize greater progress in budgetary consolidation sustains, in many cases, a situation where fiscal policy is severely constrained by a high and rising burden of interest payments; it also undermines price and exchange rate stability, increases uncertainty about the course of fiscal policy, and erodes the credibility of

policies."

In the same way, and with considerably more specificity, the German Sachverständigenrat (1996,p.247) identifies a stable fiscal situation, on entry and beyond, as a sine qua non for an effective performance of the new monetary authority.

Next, and judged in this context, the transition to a common money raises the question whether debt and deficit considerations pose a serious problem for the proper functioning of a monetary union. The Maastricht criteria quite obviously assume that such a problem exists and accordingly make provision for limiting membership to partners who are not in the midst of an acute fiscal difficulty. A recent statement of support of EMU by Gros (1996) reiterates the desirability of EMU and the need for fiscal compliance as a safeguard for the good functioning of the scheme.

But in the United States, too, debt in relation to monetary policy is an issue. A percentage point increase in the interest rate amounts to \$30 billion, roughly, in extra deficit or half a percentage point of GDP. At a time where budget balancing is on the political agenda, an extra half percent of GDP in the wrong direction is trouble, an extra half percent of GDP budget bonus is nothing but highly desirable.

We start the discussion with a brief review of some important historical inflation-debt episodes.

A. EXTREME INFLATION

The extreme link between debt and monetary policy occurs in the context of hyperinflation. Debt is simply wiped out. The experience of Germany at the end of World War I is a dramatic case in point. Figure 1 shows the real value (measured in gold marks) of German total public debt. The index assumes a value of 1 in 1910, well away from the war. It reaches a peak in 1918, a value of 16.9 which represents basically a debt financed war. By 1924, after stabilization, a meager level of .00027 is left.²

There is an interesting question of just why the debt disappeared; the fact that it was wiped out by inflation still leaves open at least three questions. One, was the inflation made to wipe out the debt? Second, if that was not the case, why did the government shift from debt to money finance? Third, is the complete inflationary liquidation of the German debt an easy situation, possibly repeated elsewhere, or is it a rather dramatic event benefiting from very special circumstances?

At the end of World War I, German debt was not unusually large. Graham (1928,p.6), for example, notes that German debt was no larger than that of Britain or the other belligerents.

"Measured in terms of the actual values of their respective currencies as expressed in wholesale price levels, the obligations of the four chief financial powers engaged in the war, Great Britain, France, Germany and the United States, showed indeed a close equivalence at its close. It is true

that the domestic short-time floating debt in Germany, even at this time, formed an unduly large part of the total, but the German situation in this respect was not materially worse than the French....So far as inflation and government finances were concerned, the end of the war found the Reich in a position by no means hopeless."

An unexpected increase in inflation, mechanically, wipes out long term debt. In Germany, by 1918, more than 40 percent of the debt were bonds and even a portion of Treasury bills had maturities well above a few months.³ It is obvious that after a rise in the price level of the order of a billion or more, the real value of a 50 year bond is gone. The interesting part is short term debt. If a short debt were rolled, with inflationary expectations perfect, higher interest rates would offset the inflationary erosion. The wiping out of all debt means one of two things, either that short debt was just paid off by money creation or else that the inflationary explosion was an ongoing surprise. It is not heroic to assume that the latter played an important role. ⁴

The deeper question is whether the hyperinflation was created with the deliberate purpose of wiping out debts?⁵ According to a rough estimate, debt in 1918 was about 100 percent of GDP and thus, in addition to reparations and postwar charges, a very substantial burden.⁶ There is no evidence in support of this view even if ultimate stabilization was made possible or at least helped by the elimination of debt. Neither Bresciani-Turroni nor Graham, for

example, raise the issue of debt much except in the context of the monetization of deficits by the Reichsbank discounting of T-bills. Still, Graham (1928,p.11) notes:

"The attitude of the Reichsbank [toward inflation] was one aspect of a fairly general complacency toward currency depreciation. The burden of the great internal government debt, piled up during and immediately after the war, meant exceedingly high taxes unless it should be lightened by a decline in the value of the counters in which it was expressed. Though currency depreciation meant confiscation of the property of holders of the government debt it was the line of least resistance for the Treasury and thus was not unwelcome in official circles. The policy of inflation had, in addition, powerful support from influential private quarters.... Inflation was therefore combated but halfheartedly."

It is interesting to compare the case of the UK and Germany. By our estimate the UK increase in the debt GDP ratio was probably more pronounced than that in Germany; in the UK the debt was carried, in Germany it was wiped out. In the UK, sterling returned to the prewar par and deflation was the rule. The debt level per se can therefore probably not be taken as an indicator of what will come in terms of inflationary liquidation. Of course, this is not to suggest that Germany and the UK had the same interest in returning to gold at the prewar par. Germany had undergone

revolution, Britain retained much of the inherited social structure; Britain had the interests of the City, Germany had no comparable financial stake in monetary stability.

France was an intermediate case.⁷ In France social instability was apparent in the turnover of governments, the Cartel des Gauches, inflation and currency depreciation, macroeconomic instability. Just as in Britain, deflation followed World War I. Deficits were very large-- "Germany will pay being the story." But that prospect did not last as Germany increasingly disintegrated. In the face of very large debt and deficits, inflation and disarray developed 1923-26. Ultimately a very conservative strategy prevailed under Poincare who stabilized the Franc in 1926. Unlike Britain, France never returned to the prewar par; that would have been too much. Some inflationary debt liquidation did occur. But the extent was limited.

Table 2. French Debt, Deficits and Inflation

	Debt ^a	Deficit ^a	Inflation
1913	66.6	n.a.	
1920	226.7	26.4	22.0
1921	283.0	21.7	-32.1
1922	257.2	12.7	-5.5
1923	256.9	9.8	28.8
1924	201.1	3.2	16.4
1925	219.7	1.9	12.8
1926	157.8	0.5	27.2

^aPercent of GDP

Note: Debt and net borrowing data are from Haig (1928). GDP and inflation from Patat and Lutfalla (1986).

In interpreting then the implication of large debts for monetary policy, in the perspective of the risks of extreme inflation, it would seem that it takes more than large debts. It probably takes also a dramatic social convulsion that weakens the victims of the debt liquidation politically to the point where they don't really matter at least on the scale of events. Germany in the 1920s was a case in point-- or Austria and Hungary-- Britain was not, nor was France quite in that class. The political economy aspects of that debt liquidation remain an issue even though directions suggested by Persson and Tabellini (1990) or Alesina and Drazen (1991) already suggest possibilities.

Before moving on to more moderate experiences of debt liquidation, it is important to retain an idea of the mechanism of debt liquidation. The combination, in the German case, was first a very substantial long term debt which, in time, any inflation could

liquidate. More important, the short debt was wiped out by explosive inflation. In an environment where interest rates do at least partially adapt to inflation, extreme and explosive inflation is necessary to do the job. The point of looking at these mechanisms is to recognize that "inflating away debts": is not that easy.

B. MODERATE INFLATION

The full elimination of debt by dramatic inflation is, of course, an exceptional situation. More plausible is the possibility of shaving off part of the debt. A good example here is the United States in the long period from 1948 to 1980. The US case is of interest in that it shows that even quite a bit of debt liquidation is possible provided it is done as a sideshow, in an ambiguous regime where the existence of inflation as a normal fact of life only gradually gets to be expected. At the same time, the story is helped by fiscal moderation.

The story of US monetary policy and public debt must start in the 1930s with the understanding that monetary policy should not get in the way of debt management. The Fed was to support refinancing, if necessary, with accommodating monetary expansion. Bond yields rates were to be kept at or below 2.5 percent. This was the "repressed finance" case common until a while back in most of the world. Between the mid-30s and the mid-50s, short and long rates had indeed remained below 2.5 percent. That regime lasted

until the "Accord", a Treasury-Fed agreement in March 1951 which relieved the Fed of the responsibility in the face of the Korean war inflation. The newfound freedom of the Fed was not, in fact, used to do much about interest rates. The Eisenhower fiscal restraint cooled off the economy and inflation was not an issue until the mid-60s.

Figure 3 shows the US debt/GDP ratio in the postwar period. Coming out of World War II, the debt in the hands of the public was close to 80 percent. By 1980, it had fallen to less than 30 percent of GDP. True, there were periods of outright debt retirement under Eisenhower, and in the 1950-s, the deficit averaged merely 0.4 percent of GDP. There were long periods where the primary budget was in surplus, there was growth all along to help. But as important was the fact that real interest rates were low and on occasion even negative. The statement is to be interpreted in terms of the debt dynamics equation

$$b' = (r-y)b - d \quad (1)$$

where b' is the rate of increase in the debt ratio, r and y are the real interest rate and growth rate, and d is the primary budget surplus as a share of GDP.

Part of the debt liquidation, just as in the German case, is due to the presence of long term debt in a setting of rising inflation. At the outset of the period, the average maturity of the debt was near 6 years; by the mid-70s it had declined to less than 3 years. (See Figure 4) But part was also a negative realized real

interest rate. These negative real rates are in part the other side of the supply shocks. But in good measure they also reflect the ambiguity in monetary regime. By the late 1960s overexpansion had definitely led to an inflationary economy, reinforced then by oil shocks and dollar decline. But it probably took to the mid-70s before economic agents substantially recognized the regime shift. The ambiguity helped debt reduction at a time where debt was really not an issue in public debate.

It is clear that once the public adapted to the change in inflation regime, and the Fed for its part took the other side (belatedly, in the late 1970s) inflationary debt erosion was no longer possible. In fact, high real interest rates combined with primary deficits rapidly brought the debt up and enough so to create a perception of a deficit problem. In the 1980s, the US had moved to the other side of the inflation and real interest regime--real rates high enough to exceed the growth rate and as a result debt accumulation (relative to GDP) almost on automatic pilot. Much the same, of course, had happened around the world.

The point to be retained from the US experience is twofold. First, there was a sustained period where a high debt situation was explicitly accommodated by pegged, low interest rates. Fortunately that regime was suspended in time to avoid protracted inflation emerging from the Korean war inflation. Moreover, budget surpluses helped both reduce indebtedness and cool off demand and inflation.

C. DEBT AND CREDIBILITY

The historical examples suggest that there is, indeed, a debt and inflation linkage and that high debts, in some instances at least, are eroded or wiped out by inflation. That experience can very naturally be turned around into the proposition that large debts are a risk to the integrity of monetary policy. That position was taken quite explicitly by Keynes (1923), Colin Clark (1945) and, more formally by Sargent and Wallace (1986).

Keynes took the position that large debts must give way simply because they are progressive. There are three ways to get rid of them, taxation, repudiation or inflation. Keynes' (1923,p.56-58) judgment was that society prefers inflation.

"The active and working elements in no community, ancient or modern, will agree to hand over to the rentier or bond holding class more than a certain proportion of the fruits of their work. When the piled-up debt demands more than a tolerable proportion, relief has usually been sought in one or another of two out of three possible ways."

Keynes proceeds to identify repudiation, depreciation and a capital levy ("the scientific remedy") as the alternative courses.

"Experience shows with great certainty that the active part of the community will not submit in the long run to pay too much to vested interest, and, if necessary adjustment is not made in one way, it will be made in another--probably by the depreciation of the currency."

Sharing the historical background and perspective, Colin Clark (1945) lays out the case in a similar manner :

"But excessive taxation, levied for payment of interest on public debt, and capable therefore of being relieved (in real terms) by a general rise in prices, may cause a temporary allegiance from the deflationary to the inflationary side on the part of politicians, bankers, economists and others, sufficient to alter the balance of power. The parliamentarian, banker or administrator, confronted with what he considers excessive taxation (or with a large deficit which holds out the prospects of higher taxation in the near future) becomes, consciously or unconsciously, more reluctant to erect those barriers which in more normal times, he would erect against rising wages and prices...When the value of money has been reduced sufficiently to make the burden of the budget bearable, there will be a retransfer of allegiances: government authorities and bankers will resume their normal opposition to all proposals which they think would have an unduly expansionist effect."

The analysis of Sargent and Wallace (1986) has become the technical statement of this paradigm. Deficit finance, with a real interest rate that exceeds the growth rate of output, leads to rising debt. Rising debt, increases the deficit and hence leads to ever-increasing debt and debt ratios. Monetary policy enters the debate via seigniorage. The more inflation the monetary authorities

accept (on the upward sloping portion of the Laffer curve), the smaller the deficit that needs to be financed by debt and hence the smaller the accumulation of debt. Moreover, the analysis assumes that the monetary authorities are always the lenders of last resort-- there is no repudiation nor deficit correction, only monetization. Thus Sargent and Wallace, (1986,p159) commenting on the dilemma of the Fed in the early 1980s,note:

"With the budget persistently in deficit and real interest rates exceeding the economy's growth rate, the Fed must choose between fighting present inflation with 'tight' monetary policy now or fighting future inflation with 'easy' monetary policy now. Put differently, without help from the fiscal authorities, fighting current inflation with tight monetary policy must eventually lead to higher future inflation."

Of course, the Sargent-Wallace argument stretches a point: there is no deficit correction and real interest rates exceed the growth rate. But the basic claim is this: high debt always has a rendezvous with high inflation. In the Sargent-Wallace story it is to get the seigniorage for deficit finance and slow down debt accumulation; for Clark and Keynes it is the inflationary erosion of long dated debt by surprise inflation.

For Clark and Keynes the issue is one of a social game between rentiers and the productive classes with the arbiters of the status quo stepping aside for a moment to let happen what must. For Sargent and Wallace, by contrast, it is a policy game between the

monetary authorities and the fiscal powers. The question as to who determines how large seigniorage must be. It does not really matter which perspective we adopt. High debts create a presumption of inflation even if this is vigorously denied by all parties.

Moreover, in the exercise of monetary policy, the more the monetary authorities lean toward tightness, the more they render the debt problem worse in four separate ways.

* Tightness means that the real interest rate increases. For any level of debt, that means higher debt service and hence more rapid growth of debt.

* A tightening of policy will reduce the primary surplus because of the cyclical component of the budget--reduced tax or increase the primary deficit revenues and increased unemployment compensation.

* Higher real interest rates will slow down the growth rate of the economy and hence tend to speed up the rise in the debt/GDP ratio.

Finally, tighter monetary policy implies a reduction in seigniorage. That, in turn, means a larger portion of the deficit must be financed by increased debt.

To the extent that monetary and fiscal authorities work at cross purposes, we might also imagine a further effect: the fiscal authorities expand even as the monetary authorities try to restrain economic activity. That means certainly even larger primary deficits.

Thus, when fiscal policy is unrestrained or, worse, committed to a full employment policy, monetary policy must become suspect. Can the monetary authorities, in fact, pursue responsible policy and just how long will it take before the implications for debt force an abandonment or at least moderation of restraint? The popular acceptance of the Sargent-Wallace paradigm translates into a deep skepticism of the possibilities of serious monetary policy in high debt economies. That skepticism remains even in the face of a valiant effort to build a reputation-- the more debt rises in the course of establishing credentials, the more serious the problem of continuing the effort, the less the credibility that faced with yet another shock, the monetary authorities will hang in there and keep fighting.

The Sargent-Wallace story involves the resolution of the dilemma by a big inflation some time down the road, or the acceptance of more inflation today. Of course, it is not necessary to tell the story quite that way. We can also imagine that at the tail end there is oppressive taxation to make good on the debt or repudiation. Either way, the monetary authorities face a dilemma in that they will be seen as contributing to if not creating single-handedly a major social problem. A fading of confidence in the pursuit of hard money is therefore close at hand. The only resolution of the dilemma, as Sargent-Wallace note in their premonition of the Maastricht criteria, is low debt and low deficits.

The interwar tradition thought of a one-time inflationary move to wipe out long term debts, clean the slate and start all over again-- with a reminder from the Conliffe Commission in 1928: if you must do it, do enough of it. A different perspective emerges from the rational expectations perspective in a world where debts are short term. Here agents anticipate the temptation, build it into inflation expectations and interest rates and it does not happen! Debt leads to inflation even though inflation does not help reduce indebtedness.

This strand of thinking about the debt-inflation problem comes from the Barro-Gordon paradigm explored, for example, in Bohn (1989, 1990). Empirical support comes from Campilo and Miron (1995). In this setting the public understands that the government can, by inflationary surprises, reduce the real value of debt. The rational expectations, no-surprise Nash equilibrium can be constructed in the following manner. Suppose the government has in its objective function real debt growth (relative to GDP) and inflation, and primary surpluses all of which are viewed as negatives.

$$V = [r+p^e-p -y)b-d]^2 + ap^2 + cd^2 \quad (2)$$

Here the coefficients a and c measure, respectively, the relative aversion to primary surpluses and inflation compared to debt accumulation.

The government controls the actual rate of inflation which could differ from expected inflation. The nominal interest rate is

the given real rate plus anticipated inflation p^e . The equilibrium solution, denoted by an asterisk, is:

$$p^* = k(r-y)b^2 \quad k=c/(1+c)a \quad (3)$$

In the Nash equilibrium with $p=p^e$. The public's expected inflation-- knowing the government preferences and hence the temptation-- is equal to actual inflation. There is inflation, but it fools no one, is embodied in nominal interest rates and hence does not help reduce debt. The rate of inflation is higher, the higher the real interest rate relative to the growth rate, and the higher the debt ratio. A high relative aversion to inflation as opposed to debt accumulation, captured by the coefficient "a" in (2) above tends to reduce equilibrium inflation. By contrast, a high aversion to primary surplus captured in the coefficient c tends to raise equilibrium inflation.

Solving for the equilibrium primary budget surplus, we have:

$$d^* = (r-y)b/(1+c) \quad (4)$$

Thus the primary budget will tend to be higher, the smaller the aversion to deficits as compared to debt accumulation.

In our discussion below we argue that today inflating away debts no longer works; even so, the present discussion underlines that the mere presence of debts and the resulting temptation is a source of inflation unless credible commitments can be made.

D. EXTENSIONS OF THE ARGUMENT

At this point it is worth noting that the story need not be

told around a public debt. Much the same line argument can be used around private debts in a situation where the Central Bank or the Treasury are the lenders of last resort. Monetary policy has a major impact on balance sheets. That is desirable from a point of view of its impact, but it is also very potentially very dangerous of the pervasive effects when, rather than slowing down the economy, the central bank wipes out entire sectors.

Most obvious in this context is a private banking system which is poorly regulated, has developed balance sheet problems, and now is vulnerable. If there is an inflation problem and the monetary authorities respond by tight money, the rise in real interest rates and the slowdown in economic growth will inevitably worsen the quality of loans and put in higher gear the process of loan quality deterioration. Refinancing rates will rise relative to loan rates, loan rates are pushed up, good loan customers leave and bad customers are rolled in a process that continues until the bank is bust. Japan is a case in point or, for that matter, the US S&L experience, and commercial banks, in the 1980s.

The same issue is latent in any banking system where there is some mismatching of maturities, poor supervision and recent financial opening. Mexico today is another case in point or, increasingly, Brazil.

To the extent that the vulnerability of the financial system or major private sector non-bank businesses becomes a constraint on monetary policy, the pursuit of price stability finds its

limitations. Moreover, in a more extreme situation, restoring financial viability by negative real interest rates is a very tempting alternative to a large scale socialization of ailing institutions. The US experience in the 1980s can be interpreted in those terms. Japan's current policy goes in the same direction and in many observers judgment is hardly a mistake except that it might have come much earlier and avoided much of the problem.

The issue of debt and interest rates is not limited to the private banking system. The same is true typically for large, leveraged private borrowers of any kind, notably in real estate and in finance. The prevalence of derivatives and off balance sheet exposures simply makes these issues even bigger, going all the way to systemic payments risk.

Yet another way in which the constraint on monetary policy can arise is the following: In the presence of large external deficits, and debt, financing is required. Monetary policy is taken hostage to provide the yields that attract and finance the imbalances simply because the right policy mix-- fiscal restraint and a more depreciated external balance-- are not acceptable. In time, the high real interest rates create rising loan losses and the financial vulnerability discussed above. At that point there is literally no way out and the Sargent-Wallace result comes in its fullest force.

E. HOW MUCH EVIDENCE OF CONSTRAINTS ON POLICY?

In the past decade, just how much has debt limited the scope for prudent monetary policy. Specifically, has high and rising debt become an important constraint for policy in the sense of leading monetary authorities to accept more inflation than they would otherwise. And, has the existence of high debt led to a loss of confidence in the willingness and/or ability of the monetary authorities to do the right thing in high-debt countries?

The question has received relatively little empirical evidence. Studies by Blinder (1983) and Joines (1985) looked at the US case. They concluded that there was no evidence of systematic monetization of deficits. Since then, the topic has fallen entirely by the way side. An informal enquiry at various monetary institutions led to answers like "surely in Latin America..etc". There was apparently no empirical study in the last decade documenting any actual relation between debt and monetary policy.

That leaves the issue of credibility. Even if, in fact and for the time being, central banks have not yielded to the temptation of monetizing deficits, they should at least be suspect. Other things equal, the higher their debts the more likely the inflationary exit and hence the higher the long term interest rates, relative to current inflation, that will compensate bond holders for the prospective acceleration in inflation.

A cursory view of yield differentials, adjusted for current inflation, does not suggest that high debt countries are singled out for the expectation of anticipated, accelerated depreciation.⁸

True, Italy, Sweden and Canada pay extra, but the point is that the premia are very small. Of course, while they are absolutely small in terms of the prediction of an inflationary liquidation of debt, they are not small in the debt-growth process. Hence the emphasis of central banks to find more ways of establishing their commitment.

Table 3 Debts and Real Interest Rates

	Debt Ratio	Long Real Rate ^a
US	63.1	3.0
Japan	83.1	3.3
Canada	97.3	5.5
France	52.8	4.7
UK	51.5	5.2
Italy	124.4	5.7
Belgium	132.3	4.8
Sweden	85.7	5.8

^aLong rate adjusted for current inflation.

Any evidence that today, among major industrial countries, central banks behave as if they felt constrained is absent. True, Italy's central bank is aware that raising rates, or not lowering them at the slightest opportunity, has budget implications. But it is also understood that misstepping in the control of inflation is ultimately even more costly. As a result, central bankers have turned their eyes away from the budget implications and pursued vigorous anti-inflation policy. That is clear in Canada just as it is the case in Italy.

Because debt is so short, and the sensitivity of markets to inflation is so intense, and debt is so widely held, old-style

inflationary escape from debt is simply no longer an issue. Keynes preferred way is gone. Anyone who tries reaps higher real interest rates, not lower rates. This change in the environment, and in the adaptation of central banks, suggests that the Maastricht criteria were fighting the last war, not a present issue. The debt issues are real, but their impact on monetary policy is not.

One final remark concerns appropriate measurement of debt. The vast implicit debts implied by public sector pensions must clearly be part of the calculation. The issue of aging-induced fiscal crises lies 15 or 20 years ahead, but it clearly fits in the horizon of a monetary union. If debt is important, than all of debt is and there is a lot hidden at present. A recent OECD study simulates the implications of aging for various OECD countries. While, no doubt, the details are open to discussion, the basic message is clear. If debts matter for monetary policy, there is very bad news ahead. The fact that this is totally outside the discussion is baffling. The other implication, of course, is that on the distant horizon, Britain looks like a hard currency country.

Table 4 Net Financial Liabilities
(Percent of GDP)

	1995	2015	2030
Germany	46	49	105
Italy	121	82	146
France	36	40	103
UK	47	14	-9

Source: European Economy June 1995, Table 18

F. TWO OBSERVATIONS ON MAASTRICHT

If debt and deficits are now no longer an important de facto constraint on monetary policy, are there other worries that are more real, more realistic? And are there alternative Maastricht criteria that might make more sense, perhaps as a supplement or restatement of the existing ones?

The unemployed are an all-out threat to monetary stability! It is clear that unemployment is at least as important a constraint to monetary policy as is public debt. When unemployment is high, monetary authorities are under pressure not to fight any inflation that is around. That is true if a good part of unemployment is structural and it is even more true if much of unemployment is cyclical.

In the context of a monetary union, countries that enter with high levels of unemployment are a threat to monetary stability. Their central banks may, in the past, have been impervious to unemployment (just as they might have disregarded debt issues), but the very fact that unemployment is high means that the risk of social pressure for easy monetary policy is present.

Part of an effective Maastricht criterion might to be a maximum unemployment rate.⁹ For example, any country that has more than 6 percent unemployment cannot participate or can only do so, if the rate is falling significantly. A case in point might be Finland. The unemployment rate is 17 percent, three times as large as it was at the beginning of the 1990s! The criterion might be

refined to take into account long term unemployment, but it cannot be excluding structural unemployment.

It is well known, for example from the German experience of the late 1980s, that any kind of unemployment can be relieved by demand. As a result, the monetary community faces the risk of opposition to correct monetary policy from high unemployment partners and must make provision for this by setting appropriate benchmarks. This in turn suggests that the transition to joint money might be marked by a period of expansion, absolute and relative, and labor market liberalization to enter with a clean slate. The consideration is all the more important if restructuring lies ahead and if society increasingly is concerned about permanent unemployment.

A second observation concerns incentive-compatible arrangements. Baldassari and Modigliani (1996) have suggested that a country like Italy could solve its fiscal difficulties by the stroke of a pen by converting its debt into Deutsche Marks. Bohn (1989,1990) has provided the theoretical background for such strategy. Since the Italian primary budget is already in surplus, the sharp reduction in interest rates that would accompany the DM-indexation of debt would produce a budget balance. In a growing economy, with moderate real interest rates and a primary surplus it would only be a question of time before the debt ratio is down to Maastricht levels.

The scheme is ingenious. Of course, the immediate question is

whether the entire debt could be floated in DM at the modest premium over German debt that now prevails on the foreign-currency denominated Italian debt. Italy would still be a high-debt country and the question of the willingness and ability to pay would remain. But it might cost less if inflationary avenues to paying the debt are explicitly excluded. To that extent, transition to Maastricht might be eased.

Moreover, on the way to Maastricht, the incentive would clearly be to maintain a strong currency. Denominating debt in foreign currency is a strong commitment technology. Tight monetary policy would avoid depreciation and, in that fashion, keep down debt service and debt growth. Indexing much or all of debt in DM is therefore a policy that is incentive compatible-- it puts the Central Bank and the Treasury in the same boat.

REFERENCES

- Alesina,A. (1988) "The End of Large Public Debts." in Giavazzi,F. and L.Spaventa (eds) (1988) High Public Debt: The Italian Experience. (CEPR and Cambridge University Press).
- Alesina,A. and A.Drazen "Why are Stabilizations Delayed?" American Economic Review. December, pp.1170-1188.
- Baldassari,M. and F.Modigliani (1996) "Il Miracolo Possibile". Unpublished Manuscript, Massachusetts Institute of Technology, Cambridge.
- Blinder,A. (1983) "On the Monetization of Deficits." in L.Meyer (ed.) The Economic Consequences of Budget Deficits. (Boston: Kluwer/Nijhoff).
- Bohn,H. (1990) "A Positive Theory of Foreign Currency Debt." Journal of International Economics 29, November, pp.273-292.
- (1991) "The Time-Consistency of Monetary Policy in the Open Economy." Journal of International Economics, 30, May, pp.249-266.
- Campilo,M. and J.Miron (1996) "Why Does Inflation Differ Across Countries?", mimeo, (Cambridge, MA: National Bureau of Economic Research).
- Clark,C.(1945) "Public Finance and Changes in the Value of Money." Economic Journal. December.
- Connolly,B. (1995) The Rotten Heart of Europe. (London: Faber and Faber).
- Dornbusch,R. and M.Draghi (eds.)(1990) Public Debt Management:

Theory and History. (CEPR and Cambridge University Press) European Commission (1995) European Economy No.60

George, E.A.J. (1996) "EMU- Considerations for British Membership." Speech at the Royal Institute for International Affairs, London, March 13th.

Giavazzi, F. and L.Spaventa (eds.) (1988) High Public Debt: The Italian Experience. (CEPR and Cambridge University Press).

Gros, D. (1995) Towards Economic and Monetary Union: Problems and Prospects. (Brussels, CEPS).

Haig, R.M. (1929) The Public Finances of Post-War France. (New York: Columbia University Press).

Hallasson, M. and J.Tobin (1990) "The Macroeconomics of Government Finance." in B.Friedman and F.Hahn (eds.) Handbook of Monetary Economics Vol. 2, North Holland.

Joines, D. (1985) "Deficits and Money Growth in the United States." Journal of Monetary Economics, 16, pp.329-351.

Keynes, J.M. (1923) A Tract on Monetary Reform. (London: Macmillan).

Masson, P. et al (1990) Multimod Mark II: A Revised and Extended Model IMF. Occasional Paper No.71.

Matsushita, S. (1929) The Economic Effects of Public Debts. (New York: Columbia University Press).

Mitchell, B.R. (1978) European Historical Statistics: 1750-1970. (New York: Columbia University Press).

----- (1962) Abstract of British Historical Statistics (Cambridge: Cambridge University Press).

Parke Young, J. (1925) European Currency and Finance Vol. I US Congress, Commission of Gold and Silver Inquiry, United States Senate.

Patat, J.P. and M.Lutfalla (1986) Histoire Monetaire de la France au XX^e Siecle. (Paris: Economica).

Persson, and Tabellini (1990) Macroeconomic Policy, Credibility and Politics. (Chur: Harwood).

Rogers, J.H. (1929) The Process of Inflation in France (New York: Columbia University Press).

Romer, D. (1996) Advanced Macroeconomics. (New York: McGraw-Hill Co).

Sachverständigenrat (1995) Im Standortwettbewerb Jahresgutachten 1995/96. Metzler/Poesche.

Sargent, T. and N.Wallace (1986) "Unpleasant Monetarist Arithmetic" in T.Sargent Rational Expectations and Inflation. Harper.

Taylor, J. (1995) "Monetary Policy Implications of Greater Fiscal Discipline." in Federal Reserve Bank of Kansas, Budget Deficits and Debt: Issues and Options. Kansas City.

Wolff, R. (1943) Economie et Finance de La France. (New York: Brentano's).

NOTES

1. I am indebted to Mervyn King, Manuel Guitian and others for helpful suggestions
2. The data are based on European Currency and Finance (1925 pp.540-541)
3. I have been unable to ascertain the maturity structure of Treasury bills. But in 1924 the Statistische Jahrbuch reports under the heading treasury bills debts with maturities in 1932 and 1935.
4. Unpublished historical research by the Bundesbank shows that nominal debt peaked in 1921; from then on deficits and debts were just financed by money creation. Since "gold clauses" were resisted, it is not surprising that debt issue simply became impossible.
5. A parallel thesis that has received historical attention was the pursuit of hyperinflation to create conditions where reparations had to be abandoned or at least diminished.
6. In 1913, the debt/GDP ratio was 9 percent. The number quoted is arrived at by assuming constant real GDP and applying the rise in real debt.
7. For the French experience see in particular Haig (1929), Rogers (1929), Wolff (1943).
8. Of course, the level of the current real exchange rate, the primary budget, arrangements such as those between Luxemburg and Belgium,, are part of a broader picture.

9. Mr Edy George, the Governor of the Bank of England, has advocated this position. See George (1996).

FIGURE 1

GERMANY: REAL PUBLIC DEBT
(Index 1910=1)

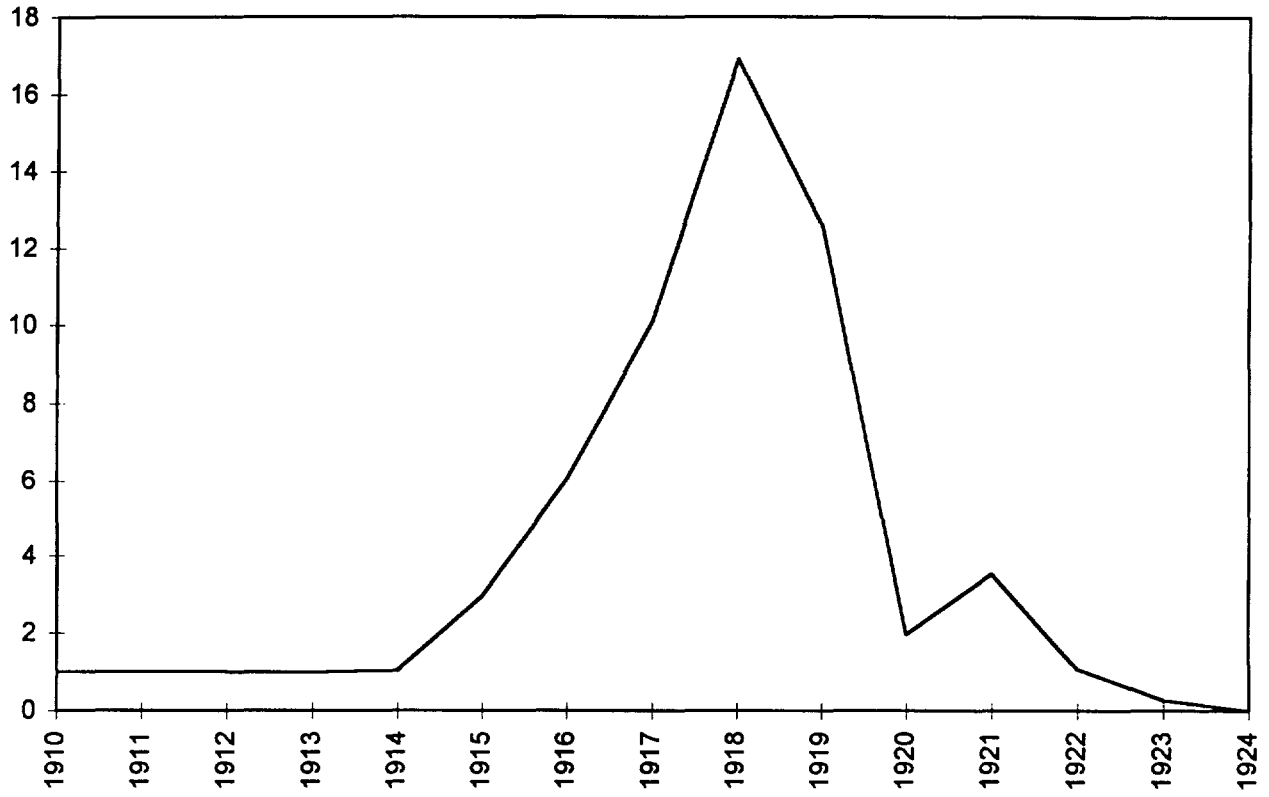


FIGURE 2



FIGURE 3

US DEBT/GDP RATIO

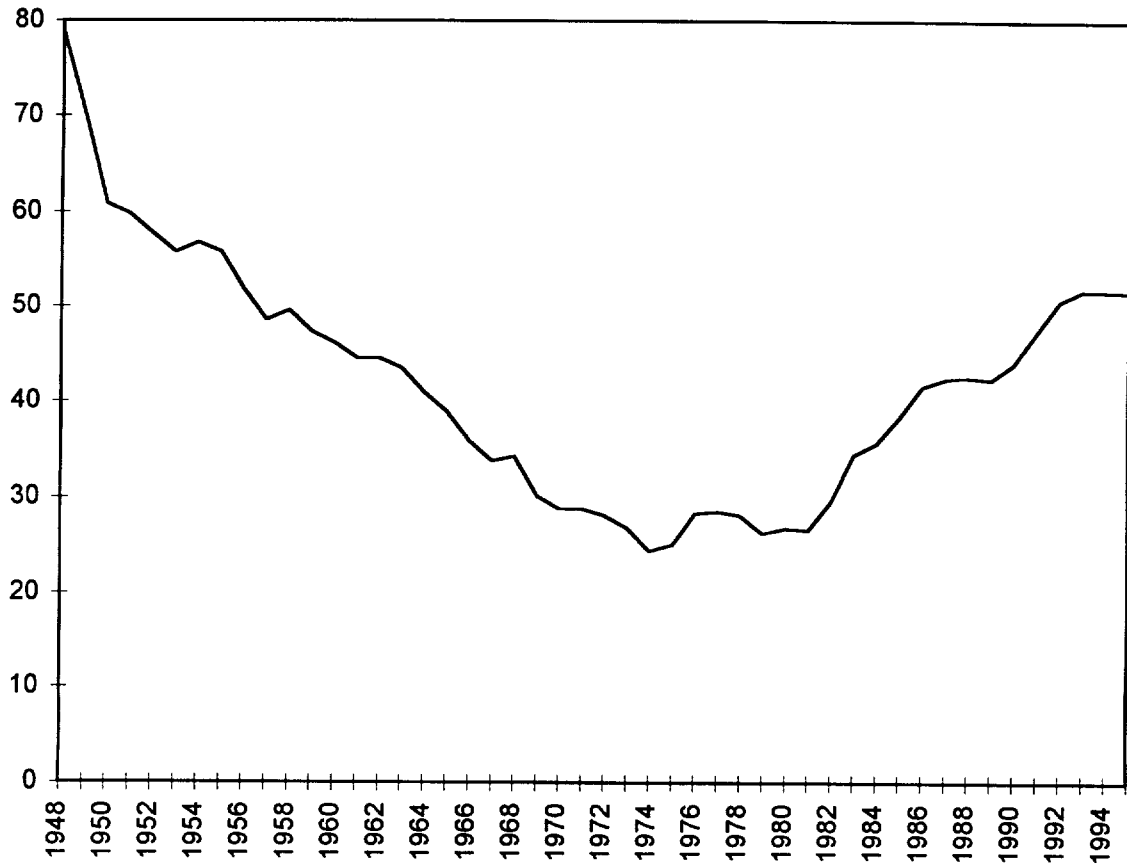


FIGURE 4

INFLATION AND DEBT MATURITY

