

### Monetary policy and wage bargaining in the EMU: restrictive ECB policies, high unemployment, nominal wage restraint and rising inflation

Hein, Eckhard

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# WSI

**Diskussionspapiere**

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**Monetary Policy and Wage Bargaining in the EMU:  
Restrictive ECB Policies, High Unemployment,  
Nominal Wage Restraint and Rising Inflation**

Eckhard Hein

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Dr. Eckhard Hein,  
WSI in der Hans Boeckler Stiftung,  
Hans Boeckler Str. 39,  
40476 Duesseldorf, Germany  
e-mail: eckhard-hein@boeckler.de

**Eckhard Hein**

**Monetary Policy and Wage Bargaining in the EMU: Restrictive ECB Policies, High Unemployment, Nominal Wage Restraint and Rising Inflation \***

**Abstract**

Assessing the effects of monetary policy and wage bargaining on employment and inflation in the European Monetary Union (EMU), in the first step a Post-Keynesian competitive claims model of inflation with endogenous money is developed. In this model the NAIRU is considered to be a short-run limit to employment enforced by independent and conservative central banks. In the long run, however, the NAIRU will follow actual unemployment and is therefore also dependent on the forces determining aggregate demand, including monetary policies. But the NAIRU may also be reduced by effectively co-ordinated wage bargaining as has been shown by institutional political economists. Applying these considerations to the economic performance of the EMU, different scenarios determined by wage bargaining co-ordination and the European Central Bank's (ECB) monetary policies are developed. It is shown that the first phase of EMU was dominated by uncoordinated wage bargaining across EMU and an "anti-growth-bias" of the ECB. Therefore, the Euro area was plagued with nominal wage restraint, high unemployment and rising inflation. Economic performance will improve if the ECB abandons its asymmetric monetary strategy. This may be facilitated by a higher degree of effective wage bargaining co-ordination across EMU.

Key words: European Monetary Union, monetary policy, wage bargaining, inflation and employment

JEL classification: E12, E24, E31, E58

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## 1. Introduction

With the introduction of the European Monetary Union (EMU) in 1999 the institutional framework for monetary policies and wage bargaining as well as for their interaction has changed profoundly. Since then monetary policies for the Euro area as a whole have been conducted by the European System of Central Banks (ESCB) with the European Central Bank (ECB) at its top. According to the Maastricht Treaty, the ECB's primary goal is price stability. Only when price stability is achieved the ECB ought to support economic policies of the European Union. In choosing its precise goals and instruments the ECB is independent: it is free to define price stability and to apply the appropriate means to achieve it (Bean, 1998; Bibow, 2002). This institutional design is based on the conviction that politically, economically, and personally independent central banks are the solution to the "time inconsistency problem" of monetary policy. According to this view, elected governments tend to increase money supply in order to surprise the private sector and to achieve higher employment, given some nominal and real rigidities in the economy. The private sector, however, will rationally anticipate increasing money supply and incorporate it into its wage and price setting behaviour. Therefore, increasing money supply will only increase inflation but will have no impact on output or employment. Contrary to elected politicians, independent central banks have no incentives to generate and exploit "surprise inflation". According to this position, a higher degree of central bank independence will be associated with a higher degree of conservatism concerning price stability and a higher degree of credibility in pursuing low inflation.<sup>1</sup> Therefore, central bank independence is viewed to guarantee price stability as a "free lunch", without real costs in terms of output, employment or growth.<sup>2</sup>

There are, however, major doubts whether time inconsistency is the true cause of inflation and whether the role of independent central banks is adequately assessed in this approach (Bibow, 1999; Forder, 1998). From the perspective of a "monetary theory of production" originating from J.M. Keynes and elaborated in Post-Keynesian economics, monetary variables controlled by the central bank determine the real equilibrium of the

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<sup>1</sup> For theoretical foundations see Kydland and Prescott (1977), Barro and Gordon (1983), Rogoff (1985).

<sup>2</sup> The surveys on empirical studies by Eijffinger and de Haan (1996) and Berger, de Haan and Eijffinger (2000) confirm a robust inverse relationship between the index of central bank independence and inflation. There remain, however, major doubts whether central bank independence should really be considered a cause of low inflation. Low inflation and central bank independence could rather be seen as mutual effects of a third factor, i.e. inflation aversion in the society as a whole or the dominance of those social groups interested in stable nominal wealth (Epstein, 1992; Pivetti, 1996; Posen, 1993, 1998; Schürz 2001).

economic system and hence the level of employment.<sup>3</sup> Inflation is not a monetary phenomenon but is caused by conflict over distribution in the private sector. In the face of high inflation caused by incompatible distribution claims a higher degree of conservatism associated with central bank independence should therefore have real effects. There should be losses of employment, at least in the short run, and effects on income shares in the long run.<sup>4</sup> These losses could be avoided, if distribution conflict and hence inflation could be contained by institutional arrangements, i.e. incomes policies. These arrangements should not only aim at nominal wage and price restraints in periods of full employment but also at stable unit wage costs and stable prices in periods of recession in order to avoid devastating macroeconomic effects of disinflation and deflation, especially debt deflation.

That nominal and real effects of conservative monetary policies conducted by independent central banks will depend on institutional and structural features of the labour and the product markets, has also been the result of research on the strategic interaction of central banks and wage bargaining conducted by institutional political economists.<sup>5</sup> Especially the degree of wage bargaining co-ordination and the sector composition of bargaining will be of utmost importance for macroeconomic performance under the condition of independent and conservative central banks. A high degree of horizontal and vertical co-ordination of wage bargaining led by bargaining in export sectors will be conducive to low inflation and low unemployment according to this view. The focus in this kind of analysis is, however, only on institutional conditions for nominal wage restraint. Neither the macroeconomic risks arising from decreasing nominal wages or falling unit wage costs in periods of high unemployment nor the effects of unemployment determined by aggregate demand on the non-inflationary level of unemployment are considered.

As a starting point for our analysis of monetary policies and wage bargaining in the EMU we will sketch a Post-Keynesian model on the interaction of central banks and wage bargaining which will be amended by some insights of institutional political economists into the interaction of independent central banks and wage bargaining institutions in section 2 of the paper. In the Post-Keynesian view, the level of employment is determined by effective

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<sup>3</sup> See Arestis (1996), Davidson (1994) and Lavoie (1992) for comprehensive surveys on Post-Keynesian approaches to economics.

<sup>4</sup> In empirical studies Cornwall/Cornwall (1998), Jordan (1997), Gärtner (1997) and Posen (1998) have shown that low inflation generated by central bank independence is not a “free lunch” but is associated with considerable disinflation costs in the form of higher unemployment and slower growth in the short run as well as in the long run.

<sup>5</sup> See Franzese (2001, 2001a) for surveys on theoretical and empirical issues of the interaction between central bank independence and wage bargaining.

demand on which monetary policy has an inverse but probably asymmetric impact in the short run. The NAIRU (non-accelerating-inflation-rate-of-unemployment) can therefore be considered as a limit to employment in the short run given by distribution conflict and enforced by conservative monetary policies. This limit, however, may not be reached by actual employment due to insufficient aggregate demand because we neither assume a real balance effect nor symmetric effects of monetary policies to be at work. In the long run, the NAIRU follows actual unemployment determined by aggregate demand and is therefore affected by the forces dominating demand, including monetary and fiscal policies. Restrictive monetary policies may therefore be an inappropriate method for a reduction of the NAIRU in the long run. But the NAIRU can also be influenced by effective wage bargaining co-ordination through its capacity to generate stable unit wage costs. These will not only prevent monetary interventions in periods of falling unemployment but will also prevent devastating effects of deflation on the macro-economy in periods of rising unemployment.

In section 3 of the paper we will use the implications derived from the theoretical discussion to assess the implications of institutional change for the interaction of monetary policy and wage bargaining in EMU. It is revealed that the development of employment and inflation will depend on wage bargaining co-ordination across EMU, on the one hand, and on the monetary strategy chosen by the independent ECB, on the other hand. Different scenarios are derived and it is shown, that the first three years of EMU seem to display the features of the worst case scenario. Under the conditions of uncoordinated wage bargaining across EMU and a restrictive ECB monetary policy – rather imitating the asymmetric Bundesbank strategy than the symmetric strategy of the Federal Reserve - the Euro area is plagued with high unemployment considerably above the NAIRU, a tendency towards nominal wage deflation with restrictive effects on employment and growth, but also with inflation above the ECB's target rate. It is concluded in section 4 that macroeconomic performance in the Euro area will improve, if the ECB will be forced to choose the symmetric and hence more expansive strategy of the Federal Reserve and if cross-country wage bargaining co-ordination will make progress. Although fiscal policies are not explicitly discussed in this paper it can be added that a less restrictive stance of fiscal policies than the one enforced by the Maastricht Treaty and the Amsterdam Stability and Growth Pact would also improve macroeconomic performance in EMU.

## **2. Monetary policy and the effects of wage bargaining co-ordination: an amended Post-Keynesian view**

### **2.1 Conflicting claims inflation and monetary policy: the NAIRU as a short run limit to employment**

In order to facilitate the analysis of the effects of a changing institutional framework on monetary policy and wage bargaining in EMU we will draft a simple Post-Keynesian model of wage bargaining, inflation and monetary policy which will then be amended by some results of institutional political economists on strategic interaction between wage bargaining institutions and independent central banks.

In an open economy without economic activity by the state, the level of employment is determined by effective demand expected by entrepreneurs, when labour productivity is given or following an exogenous trend. The effect of foreign demand on domestic employment is given by the current account surplus which is determined by the real exchange rate – if we assume the Marshall-Lerner condition to hold - and by the growth differential between the domestic and the foreign economies. With the propensities to save out of profit exceeding that out of wages and both propensities given, private investment is the main domestic determinant of effective demand. Investment depends positively on the expected rate of profit and negatively on the monetary interest rate.

The interest rate in a monetary economy is an exogenous variable for the income generating process and is determined by the central bank, whereas the volumes of credit and money are endogenously given by effective demand financed by credit.<sup>6</sup> With the technical conditions of production given, the expected rate of profit depends on the development of the profit share and of capacity utilisation. Capacity utilisation reflects the development of aggregate demand. The profit share is determined by firms' mark-up pricing on unit variable costs in incompletely competitive markets, i.e. by the mark-up and by the relation of costs of intermediate products to wage costs.<sup>7</sup>

The mark-up is determined by the degree of domestic and foreign competition in the goods market. As the mark-up has to cover the firm's actual and imputed interest payments,

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<sup>6</sup> For the sake of simplicity we assume that the central bank controls the base rate, and that the market rates are determined by mark-ups of commercial banks according to risk and the duration of credit. If the mark-ups are constant, the central bank directly affects the market rates of interest in financial markets which are important for investment decisions (Smithin, 1994, pp. 111). On endogenous money in Post-Keynesian theory see Lavoie (1984; 1992, pp. 149; 1996), Cottrell (1994), Hewitson (1995), Moore (1989), Rousseas (1998, pp. 75) and Smithin (1994, pp. 64).

<sup>7</sup> See Bhaduri and Marglin (1990) for a Post-Keynesian open economy model of distribution and investment in which different regimes for the effects of distribution on capacity utilisation and capital accumulation are derived for the closed as well as for the open economy.

the minimum mark-up is also affected by the interest rate. For the same reason, the rate of interest determines the minimum rate of profit on real investment in the long run. In the short run, however, there need not be an immediate positive impact of interest rate variations on the mark-up, the profit share and the profit rate, but we can rather suppose an inverse effect on investment and employment.<sup>8</sup> The short-run effects of interest rate variations on investment may be asymmetric. Permanently rising interest rates will choke investment and hence employment at a certain point. Falling interest rates, however, may not be able to stimulate investment and employment, if entrepreneurs' expectations are depressed and firms do not expect to realise a potential rate of profit above the rate of interest. If changes in the interest rate generated by monetary policy are lasting, mark-up and profit share may change in the same direction, because in the long run, firms can only sustain those production processes which yield the minimum rate of profit determined by the interest rate.<sup>9</sup> Changing mark-ups and income shares, however, have no unique effects on investment and employment. Rising mark-ups mean rising unit profits but also falling consumption demand and perhaps falling export demand, if increasing mark-ups are associated with rising domestic prices and hence decreasing international price competitiveness of domestic producers. The overall effects of changing income shares on investment and employment, therefore, depend on the savings propensities out of wages and out of profits, on the elasticities of investment with respect to interest rates, unit costs and capacity utilisation and on the effects through foreign demand.<sup>10</sup>

Having so far sketched the determinants of distribution and aggregate demand in our Post-Keynesian approach we may now discuss the interaction of wage bargaining and monetary policy. Figure 1 displays a “conflicting claims” model of employment and inflation assuming constant production coefficients.<sup>11</sup>

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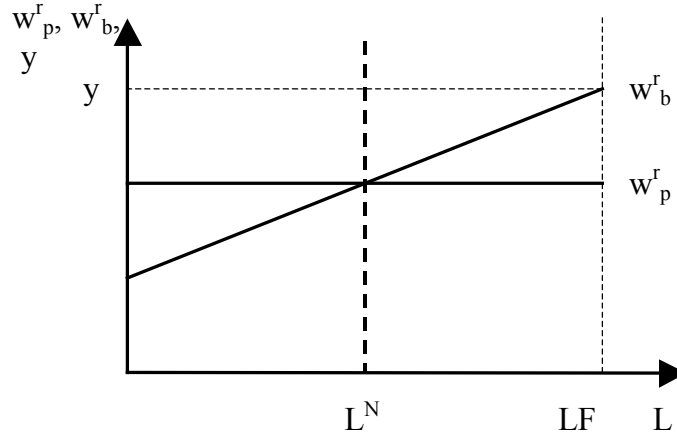
<sup>8</sup> As it is shown in Hein (1999) the inverse effects of interest rate variations usually assumed in Post-Keynesian models need qualification. In order to have an inverse effect of interest rate hikes on investment and capacity utilisation and hence on employment, investment has to be very interest rate elastic and the propensity to save out of interest income has to be quite high.

<sup>9</sup> As in Post-Keynesian models of distribution and growth the rate of profit need not be equal to the rate of interest in equilibrium, rising interest rates may also compress profits of enterprise (Hein 1999).

<sup>10</sup> See Bhaduri and Marglin (1990) for a non-monetary model of distribution and accumulation with different accumulation regimes and Bowles and Boyer (1995), Hein and Krämer (1997) and Sawyer (1997) for empirical applications of the approach. See Lavoie (1993) and Hein (1999) for monetary extensions of the Bhaduri/Marglin approach and Hein and Ochsén (2000) for an empirical assessment.

<sup>11</sup> For “conflicting claims” models of inflation see Rowthorn (1977), Carlin and Soskice (1990, pp. 135), Layard, Nickell and Jackman (1991), Lavoie (1992, pp. 391) and Sarantis (1994).



**Figure 1: Employment and distribution conflict**

Although wage bargaining is concerned with money wage rates it is assumed that labour unions intend to achieve a certain real wage rate – and with labour productivity ( $y$ ) given and anticipated a certain wage share. The labour unions' target real wage rate ( $w_b^r$ ) depends positively on the volume of employment ( $L$ ) determined by aggregate demand and, with the working population ( $LF$ ) given, on the employment rate, because the rate of unemployment has a negative impact on union bargaining strength:

$$(1) \quad w_b^r = w_b^r \left( \frac{L}{LF}, y \right).$$

At this stage we assume that unions do not consider the macroeconomic effects of their nominal wage demands. There is neither co-ordination between unions in different firms or industries nor between wage bargaining and monetary policy. Full employment is therefore associated with a union target real wage rate equal to labour productivity ( $y$ ). Therefore, unemployment has the function to curtail distribution claims of labourers, a view already held by Marx (1867) and Kalecki (1943).

The feasible real wage rate ( $w_p^r$ ) is given by mark-up pricing of firms. In incomplete markets firms set prices ( $p$ ) according to a constant mark-up ( $m$ ) on constant unit variable costs consisting of wage costs and costs for intermediate products which are assumed to be imported:

$$(2) \quad p = (1 + m) \left( \frac{w}{y} + \alpha p_f \right),$$

where  $w$  is the nominal wage rate,  $\alpha$  is the input-output coefficient of imported intermediates,  $e$  is the exchange rate and  $p_f$  is the price of imported intermediates in foreign currency. The feasible real wage rate given by firms' pricing is therefore determined as:

$$(3) \quad w_p^r = \frac{w}{p} = \left( \frac{1}{1+m} - \alpha e \frac{p_f}{p} \right) y.$$

With the simplifying assumptions of a constant coefficient technology, a constant mark-up up to full capacity output and a constant real exchange rate ( $ep_f/p$ ), the feasible real wage rate curve in figure 1 is just a horizontal line.

The unions' target real wage and the feasible real wage only coincide by accident. Only if aggregate demand in the goods market generates a volume of employment of  $L^N$ , the distribution claims of domestic firms, domestic labourers and foreign countries will be compatible and there will be no acceleration or deceleration of inflation. The rate of unemployment  $[(LF-L^N)/LF]$  associated with this volume of employment may therefore be termed the "Non-Accelerating-Inflation-Rate-of-Unemployment" (NAIRU). It defines a distribution equilibrium between the claims of domestic labourers, domestic firms and foreign countries. If the actual level of employment given by effective demand in the goods market exceeds  $L^N$ , there will be increasing inflation rates due to escalating conflict. If employment falls short of  $L^N$ , inflation rates will be falling because high unemployment enforces nominal wage moderation on labour unions. Finally deflation may arise.

In a model with endogenous money and with investment dominated by expectations related to profitability and aggregate demand, the NAIRU cannot be considered a strong attractor of actual unemployment determined by aggregate demand in the short run, because there is no "real balance" effect. If unemployment exceeds the NAIRU, inflation rates will be decreasing and, with some price rigidities, wage shares will be falling as well.<sup>12</sup> Falling domestic consumption demand but rising foreign demand due to improved price competitiveness will have an undetermined impact on capacity utilisation and hence investment. But slowing and finally falling output prices will deteriorate profit expectations and will have a negative impact on investment which may be exacerbated by debt deflation (Fisher, 1933). If unemployment falls short of the NAIRU and the central bank accommodates increasing inflation, rising prices will stimulate investment demand due to improved profitability expectations and to debt inflation. Domestic consumption demand will also be

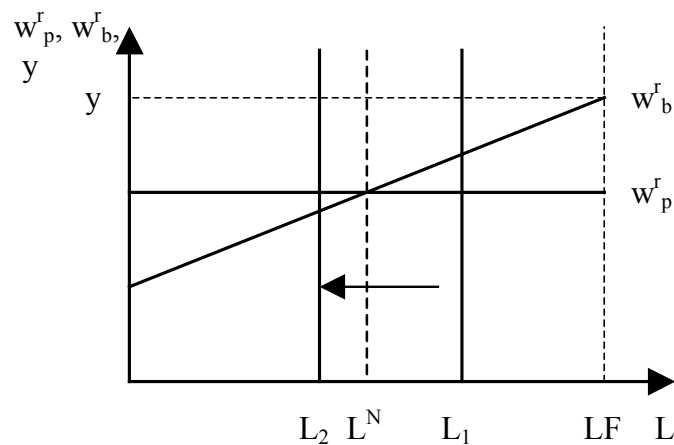
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<sup>12</sup> This constellation of falling inflation rates and falling labour income shares has prevailed in the advanced OECD-countries since the 1980s, whereas the 1970s saw rising inflation rates accompanied by rising labour income shares (Hein and Ochsén, 2000).

accelerated as soon as unanticipated inflation rates make physical goods the only form to secure households' wealth. Foreign demand, however, will decline due to deteriorating international price competitiveness.

But accelerating inflation rates originating from unemployment falling short of the NAIRU will be terminated by monetary policies already in the short run, especially under the conditions of an independent and conservative central bank. The central bank's policy instrument is the short-term nominal interest rate. Its variations will have lagged effects on the long-term rate in financial markets. Figure 2 shows the short run effects of restrictive monetary policies on investment demand, effective demand and hence employment.

**Figure 2: Short-run effects of rising interest rates**



As it has already been mentioned above, the capacities of the central bank to adjust inflation to target inflation are asymmetric. Accelerating inflation caused by an unemployment rate falling short of the NAIRU can finally be stopped by central banks permanently increasing interest rates, whereas decelerating inflation and deflation caused by an unemployment rate exceeding the NAIRU cannot be converted by the central bank in each case. Therefore, in our model the NAIRU is only a limit to employment enforced by central banks reacting upon conflict inflation.<sup>13</sup> The NAIRU is not the equilibrium rate of unemployment originating from labour market imperfections as in New Keynesian models. In these models either a real balance effect or symmetric reactions and effects of monetary policies have to be assumed in order to neglect long-term effective demand impacts on unemployment and to interpret the NAIRU as the equilibrium rate of unemployment given by supply conditions.<sup>14</sup>

<sup>13</sup> See also Sawyer (1997, 1999, 2002) for the interpretation of the NAIRU as an “inflation barrier”.

<sup>14</sup> See Layard, Nickell and Jackman (1991), Gordon (1997), Blanchard and Katz (1997), Staiger, Stock and Watson (1997) and for a critique Galbraith (1997) and Sawyer (1997, 1999, 2002).

Although there are no market forces adjusting unemployment to the NAIRU in the short run, there may be some forces making the NAIRU move into the direction of actual unemployment in the long run and make it therefore endogenous to the development of aggregate demand. These forces may either cause a shift of the target real wage curve of labour unions or of the feasible real wage curve given by firms' pricing. If unemployment persistently exceeds the NAIRU, de-qualification and stigmatisation will reduce the number of unemployed competing effectively for jobs, shift the unions' target real wage curve upwards and increase the NAIRU (Layard, Nickell and Jackman 1991). If rising unemployment has been caused by a persistent increase in interest rates, the mark-up may have to increase as well shifting the feasible real wage curve downwards and adjusting the NAIRU to the actual unemployment rate. This process will be reinforced, if the dampening effect of slow investment growth on productivity growth and hence the feasible real wage rate is considered as well.<sup>15</sup> If slow domestic growth causes domestic currency depreciation in international financial markets, rising import prices will also contribute to a downward shift of the feasible real wage curve and an increasing NAIRU.<sup>16</sup>

If unemployment determined by aggregate demand falls short of the NAIRU, excess demand for qualified labour will lead to qualification and re-integration of marginal groups into the labour market, increase effective competition for jobs, shift the unions' target real wage curve downwards and reduce the NAIRU. This reduction may be amplified, if the increase in employment is accompanied by a persistent decline in interest rates which may reduce the mark-up and shift the feasible real wage curve upwards. Accelerating effects of high rates of capital stock growth on productivity growth will support this tendency as well as the effects of high GDP growth on currency appreciation in financial markets causing declining import prices.

From the endogenous nature of the NAIRU sketched above it follows, that distribution and growth effects of rising interest rates chosen to terminate accelerating inflation in the short run may have adverse effects on inflation in the long run. As a persistent increase in interest rates may cause a higher mark-up, the feasible real wage curve will shift downwards and trigger a higher NAIRU, as shown in figure 3. A negative impact of high interest rates on

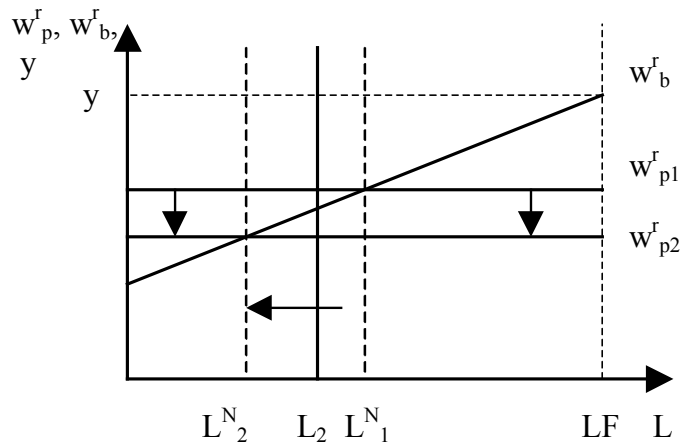
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<sup>15</sup> See Sawyer (1999, 2002) for a discussion of the effects of productive capacity and productivity growth on the NAIRU. In order to achieve these effects it has to be assumed that labour unions target a certain real wage rate and not a certain wage share.

<sup>16</sup> Slow domestic growth (imposed by too restrictive monetary policies) may cause currency depreciation because assets in domestic currency may be less attractive to monetary wealth holders due to curtailed prospective returns associated with slow growth prospects (Bibow, 2001a, 2002).

productivity growth through dampened capital stock growth may also contribute to a rising NAIRU. The same is true, if slow domestic growth causes domestic currency depreciation in international financial markets and hence rising costs of imported intermediates. The increase in unemployment generated by the short-run inverse effect of restrictive monetary policies on investment, aggregate demand and output may therefore be insufficient for long run stability of inflation; the economy will rather be plagued with stagflation. Unemployment will therefore have to increase again through even more restrictive monetary policies in order to reduce inflation. This downward spiral reveals that containing inflation by means of increasing interest rates may not only be harmful for production and employment but may also be ineffective in achieving stable inflation rates.

**Figure 3: Long-run effects of rising interest rates**



In our model, the NAIRU as a short run limit to employment, on the one hand, depends on those factors which have an impact on distribution claims of labour unions and their capacities to enforce nominal wage hikes. On the other hand, the NAIRU is affected by the determinants of the feasible real wage, especially the mark-up and the real exchange rate. Given that independent and conservative central banks will prevent unemployment from falling short of the NAIRU, the sustainable degree of employment will be affected by the ability of wage bargaining institutions to anticipate and internalise the effects of wage hikes on inflation. But the sustainable degree of employment also depends on the actual path of employment and growth on which monetary policies of independent and conservative central banks have a major impact which, however, may be asymmetric.

## 2.2 The beneficial effects of wage bargaining co-ordination

Impacts of wage bargaining institutions on macroeconomic performance have been discussed since the well known work by Calmfors and Driffill (1988), but without taking strategic interactions of wage bargaining and monetary policies into account. Calmfors and Driffill postulated a hump-shaped relation between the degree of centralisation of wage bargaining and unemployment in international comparison.<sup>17</sup> Highly centralised wage bargaining at the national level as well as highly decentralised systems of bargaining at the firm level perform better than intermediate systems with wage bargaining at the industry level. Calmfors (1993) assuming an inverse relationship between real wages and employment relates this result to the different abilities to moderate real wages at the different levels of centralisation. Soskice (1990), however, has shown that not centralisation but rather the degree of formal and informal co-ordination of wage bargaining (for instance pattern bargaining) and the degree of “local pushfulness” of unions, determined by the strength of local unions and their tendency towards short run results, are of utmost importance for macroeconomic performance. Contrary to the “hump-shaped”-hypothesis by Calmfors and Driffill, he derives a linearly inverse relationship between the degree of co-ordination and unemployment and a positive connection between “local pushfulness” and unemployment. The Calmfors/Driffill hypothesis is also rejected by a comprehensive study of the OECD (1997). The authors rather find, although not statistically significant in each case, “(...) some tendency for more centralised/co-ordinated bargaining systems to have lower unemployment and higher employment rates compared with other, less centralised/co-ordinated systems” (OECD, 1997, p. 64). Traxler (1999) and Mesch (2000), who have found a positive impact of the degree of co-ordination on employment as well, make the valuable distinction between horizontal and vertical co-ordination. A high degree of horizontal co-ordination between industries, through pattern bargaining, state imposed co-ordination, intra-associational co-ordination by the peak association, inter-associational co-ordination or state-sponsored co-ordination, is a necessary but not a sufficient condition for wage setting to take its macroeconomic effects into account. In order to translate and implement the results of horizontal co-ordination and to prevent wage-drift or wage-dumping, also a high degree of vertical co-ordination within industries is needed, through a high level of union and bargaining agreement coverage, legal enforceability of collective agreements and peace obligations.

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<sup>17</sup> See Calmfors (1993), Flanagan (1999) and OECD (1997) for comprehensive surveys of the relevant studies and their conceptual and empirical problems in assessing the impact of labour market institutions on macroeconomic performance.

The view that effective co-ordination of wage bargaining is able to internalise negative wage externalities has recently been applied to the analysis of strategic interaction between independent central banks and wage bargaining institutions by some institutional political economists.<sup>18</sup> Evaluating the joint macroeconomic effects of central bank independence and the degree of wage bargaining co-ordination, Hall (1994) as well as Hall and Franzese (1998) find, that a higher degree of central bank independence is associated with a lower inflation rate. Comparing countries with a similar degree of central bank independence they derive, that a higher degree of co-ordination of wage bargaining is associated with a lower “misery index”, as the sum of the inflation rate and the rate of unemployment. From this it follows, that in economies with a high degree of wage bargaining co-ordination the reduction of inflation rates by independent central banks is accompanied by less employment losses than in economies with a low degree of co-ordination. Franzese (2001) has extended this analysis and shown that successful internalisation of wage externalities not only depends on co-ordinated wage bargaining but also on the dominance of the private over the public sector in wage bargaining co-ordination and on a major impact of export industries in economy-wide bargaining. There is an incentive for wage moderation in export industries in order to maintain international price competitiveness and also for the private sector as a whole in order to avoid restrictive monetary policies succeeding accelerating inflation fuelled by excessive nominal wage hikes. Under the condition of independent and conservative central banks a high degree of co-ordination of wage bargaining led by bargaining in export sectors will therefore be conducive to low inflation and to low unemployment. Kittel and Traxler (2001) support the conclusion of beneficial effects of wage bargaining co-ordination for employment and inflation and demonstrate, that the successful anticipation of real effects of restrictive monetary policy following excessive wage hikes especially rests on working vertical co-ordination in the labour market which solves the problem of implementation of horizontally co-ordinated bargaining agreements.

The focus in the institutional political economists’ analysis is, however, only on institutional conditions for nominal wage restraint in order to avoid restrictive monetary policies by independent and conservative central banks and to maintain high levels of employment as well as low inflation. Neither the macroeconomic risks arising from decreasing nominal wages or falling unit wage costs in periods of high and increasing unemployment nor the long run effects of aggregate demand on non-inflationary employment

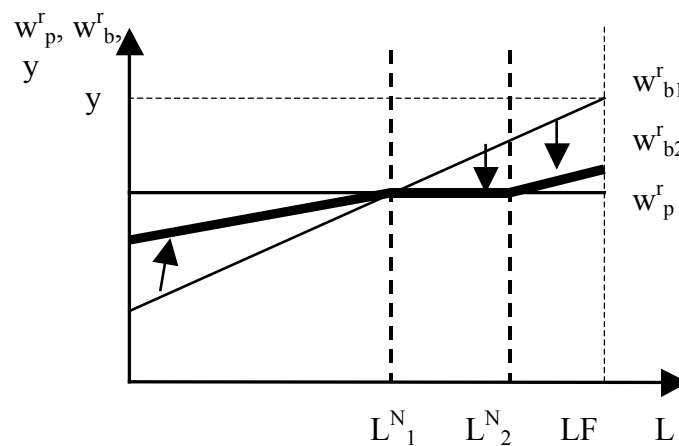
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<sup>18</sup> For studies on central bank independence and wage/price bargaining institutions see the surveys by Franzese (2001, 2001a).

are considered. These omissions, however, can only be justified, if a real balance effect or symmetric monetary policy effects can be assumed to be at work which make actual employment always equal to the non-inflationary level of employment. These assumptions, however, have to be rejected in a Post-Keynesian model as the one sketched above.

The influence of “effective” co-ordination of wage bargaining (successful vertical and horizontal co-ordination dominated by the private sector – and led by export industries especially in small open economies) on sustainable employment are shown in figure 4.

**Figure 4: Effective co-ordination of wage bargaining**



With an increasing degree of effective wage bargaining co-ordination, the labour unions’ target real wage rate changes compared to non-co-ordination. The target real wage curve shifts from  $w_{b1}^r$  to  $w_b^r$ . Between  $L^N_1$  and  $L^N_2$  the bargaining partners are able to accept the feasible real wage and to exhaust the scope for distribution taking into account the inflation objective of independent central banks. If employment falls short of  $L^N_1$ , unions will be too weak to exhaust the scope for distribution. If employment exceeds  $L^N_2$ , union members will push for higher wages and a higher wage share, and either unions will demand redistribution in favour of wages or wage drift due to excess demand for labour in some sectors may arise. This will accelerate inflation and cause central bank intervention forcing employment down to  $L^N_2$ .

By means of effectively co-ordinated wage bargaining a constant inflation rate becomes compatible with a range of employment levels, and the NAIRU as the short run limit to employment is no longer unique.<sup>19</sup> As an increasing degree of effective wage bargaining

<sup>19</sup> This fact may explain the difficulties to estimate the NAIRU with sufficiently small confidence intervals, especially for economies with co-ordinated wage bargaining (Staiger, Stock and Watson, 1997).



co-ordination decreases the NAIRU, a higher level of employment can be achieved without contradicting the inflation objective of an independent central bank. Contrary to prevailing propositions, a reduction of the NAIRU can be attained by means of organising the labour market and co-ordinating the bargaining parties and does not require decentralisation of wage bargaining and deregulation of labour markets. A high degree of effective wage bargaining co-ordination also has the additional virtue that increasing unemployment will not cause immediate disinflation or deflation with its negative impacts on effective demand and employment. Effective wage bargaining co-ordination is therefore not only a superior method to contain inflation in an economic upswing, compared to restrictive monetary policies, it is also able to stabilise the economy in an economic downswing.

### **3. Monetary policies and wage bargaining in the Euro area**

#### **3.1 Potential scenarios**

The transition to European Monetary Union in 1999 has caused major changes for the institutional framework and the interaction between monetary policy and wage bargaining.<sup>20</sup> The personally, politically and economically independent European Central Bank with its primary objective of price stability has since then been faced with different national wage bargaining systems without effective co-ordination across the Euro area. According to our arguments developed above, under the conditions of an independent and conservative central bank the perspectives for employment and inflation in the Euro area depend on the development of effective wage bargaining co-ordination, on the one hand, and on the central bank's monetary policies, on the other hand. The development of effective wage bargaining co-ordination affects the short run limit to employment given by the NAIRU and the stability of actual unemployment determined by effective demand which may feed back on the NAIRU as well. The monetary policies of the central bank have an important immediate impact on actual unemployment through their short run effects on aggregate demand and furthermore an indirect impact on the NAIRU through their long run effects on the mark-up, on capital stock and productivity growth, on the real exchange rate and hence on the feasible real wage rate. Each determinant of macroeconomic performance in EMU as well as their interaction will be discussed in what follows.

At the start of EMU wage bargaining systems of member countries differed substantially. Since then systems with a high degree of national co-ordination (Austria,

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<sup>20</sup> For a more detailed treatment of the potential developments within EMU see Hein (2002).

Germany, Finland, the Netherlands) have coexisted with systems of low co-ordination on the national level (France, Italy, Ireland, Portugal, Spain).<sup>21</sup> Under these conditions there have been several attempts of labour unions to co-ordinate wage bargaining across borders.<sup>22</sup> In the Declaration of Doorn (1998), the trade union federations of Germany and the Benelux-countries agreed to aim at real wage increases according to productivity growth in order to prevent wage dumping. At the sector level, the German IG Metall districts have installed cross-border collective bargaining networks. The European Metalworker Federation (EMF) has been the first to develop concepts of European co-ordination of bargaining demands based on productivity growth rates and inflation. This line has now been followed by most of the European industry federations and by the European Trade Union Confederation (ETUC). Trans-national wage bargaining co-ordination, however, faces serious obstacles, which are rooted in the different national wage bargaining systems and the different degrees of national co-ordination. These basic problems are enforced by some overall trends in the development of wage bargaining institutions. According to Calmfors (2001) and Pichelmann (2001), on the one hand, there has been a general trend towards decentralisation of wage bargaining since the 1970s because of decentralisation of business decisions, stronger international competition and a desire of capital to limit union power. On the other hand, there has been a tendency towards national social pacts since the 1980s which aim at nominal wage moderation in order to maintain or improve international price competitiveness of national business under the conditions of slow growth.<sup>23</sup> Although these two tendencies might contradict each other, they are both detrimental to wage bargaining co-ordination across EMU-countries.<sup>24</sup>

The lack of effective wage bargaining co-ordination within some EMU-countries and especially across EMU-countries as well as the tendencies towards decentralisation of wage bargaining and “competitive corporatism” may have harmful effects on macroeconomic performance. When employment is generally increasing or when there are exogenous shocks limiting the national scopes for distribution, there will arise major problems for those

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<sup>21</sup> For the differences between national wage bargaining systems at the start of EMU see Mesch (1999) and Traxler (1999).

<sup>22</sup> On the state of co-ordination of wage bargaining in EMU see Hoffmann and Mermet (2000), Mesch (2000), Pichelmann (2001), Schulten and Bispinck (2001), Schulten (2001a, 2002) and Traxler (1999).

<sup>23</sup> Also Crouch (2000), Pichelmann (2001) and Schulten (2001) identify a major tendency towards “competitive corporatism” in EMU member countries. According to Calmfors (2001), there are pacts for competitiveness in Belgium, Germany, Greece, Finland, Italy, Ireland, the Netherlands, Portugal and Spain.

<sup>24</sup> Calmfors (2001) projects that the prevailing tendency towards decentralisation will not only impede trans-national co-ordination of wage bargaining in EMU but will also undermine national co-ordination within competitive corporatism. If trans-national co-ordination develops, it is most likely to occur within multinational firms, according to his view. See also Pichelmann (2001) for a similar view. Crouch (2000) rather identifies some tendencies towards “organised decentralisation” within corporatist systems, as in Austria, the Netherlands or in Denmark.

economies without effective wage bargaining co-ordination. With no nominal wage moderation, small countries with only minor impacts on inflation in the Euro area will suffer losses in market shares and employment. A lack of wage moderation and increasing inflation in intermediate or bigger countries with major impacts on inflation in the Euro area will make the ECB intervene and cause overall losses in output and employment in the Euro area. Economies with effective wage bargaining co-ordination will, however, be able to contain inflation when employment is increasing or when they are hit by exogenous shocks.<sup>25</sup> With persisting and increasing unemployment, these countries may also make active use of their co-ordination advantage and keep their bargaining agreements below those of their competitors in Euro area. This competitive corporatism does not destabilise macroeconomic development as long as its introduction is confined to small countries (as the Netherlands or Ireland). A “beggar thy neighbour” policy will, however, become a major macroeconomic problem and may cause a deflationary race to the bottom in EMU as soon as it is pursued by some major economies.<sup>26</sup>

The risks of accelerating inflation in phases of falling unemployment as well as the dangers of disinflation and deflation in periods of high and rising unemployment could be avoided, if the degree of effective wage bargaining co-ordination across EMU would increase. With wage demands of labour unions related to national productivity growth and the target inflation rate of the ECB, the corridor for stable inflation levels of employment could be widened. In this way, the European NAIRU could be reduced, destabilising monetary interventions with long run increasing effects on the NAIRU could be avoided and the risks of

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<sup>25</sup> Soskice/Iversen (2001), however, assume that the transition to EMU will also relax the constraints imposed by the former Bundesbank on the highly co-ordinated German wage bargaining and increase the NAIRU in Germany and in the Euro area as a whole. If the ECB does not consider German wage bargaining as inflation setter for EMU, German labour unions lose the incentive for wage moderation, according to their view. If the ECB considers German wage bargaining as inflation setter for EMU, but German labour unions do not expect the other unions in EMU to follow, there is also no incentive for wage moderation in Germany, because German unions may fear that their relative wage position will be weakened. Only if German wage bargaining is targeted by the ECB and if German labour unions can be sure to act as wage setter in co-ordinated European wage bargaining, there will be an incentive for wage moderation in Germany. But these considerations may only apply to periods of low and decreasing unemployment. In periods of high and increasing unemployment as the present one, also German wage bargaining may be tempted to take advantage of its superior co-ordination and to keep unit wage cost growth and inflation below that of competitors in the Euro area in order to improve export performance. This is what seems to have happened indeed during the first three years of EMU: unit wage cost growth and inflation in Germany remained below that of the Euro area as a whole and Germany's export surpluses exploded.

<sup>26</sup> Simulations with the Oxford Economic Forecasting Model by Fritsche et al. (1999) show that nominal wage reductions in Germany improve international competitiveness and hence production and employment in Germany but also reduce output and employment in the other EMU countries by a considerable amount. The reduction of interest rates made possible by German wage moderation does not have sufficiently compensating effects. If the Netherlands, however, follow a “beggar thy neighbour” strategy there are neither effects on output and employment in the other EMU economies nor on the interest rate.

deflationary spirals caused by increasing actual unemployment could be confined as well. A potentially viable road towards co-ordination of wage bargaining across the Euro area could be the metal sector developing the core of pattern bargaining across EMU led by the German IG Metall, because in this sector the conditions for efficient horizontal and vertical co-ordination seem to develop. Centralised, top down wage bargaining at the EMU-level seems to be impossible under present conditions.<sup>27</sup>

The development of inflation and employment in the Euro area is not only determined by wage bargaining co-ordination but also by the ECB's monetary policy through its effects on aggregate demand and on the scope for distribution. Under the conditions of uncoordinated wage bargaining and perhaps further deregulation of labour market institutions, decentralisation of wage bargaining, the reduction of social benefits and hence the reservation wage rate and through active labour market policies increasing the qualifications of labour supply,<sup>28</sup> the NAIRU may be reduced, as the US-experience in the 1980s and 1990s has shown (Gordon, 1997). The success of this strategy relying on weakened union wage bargaining power, however, crucially depends on central bank policies matching with deregulation of labour markets and rewarding deregulated markets with symmetric reactions to deviations from target inflation. A reduction of the NAIRU by means of deregulation has therefore to be accompanied by expansive monetary policies (Allsopp and Vines, 1998) which, if successful, not only increases actual unemployment but also contributes to further reductions in the NAIRU through the channels developed above. But it should be noted, that symmetric monetary policy reaction may have asymmetric effects on investment, output and employment. Decreasing interest rates by central bank interventions may not be sufficient to convert a recession, with unemployment considerably above the NAIRU, into an investment boom, if investors' expectations have deteriorated. In this case, also matching fiscal policies and/or increasing world demand for goods will be needed.<sup>29</sup> If these conditions are not given, central banks may not be able to stop falling unemployment and deflation.

There is, however, not only the symmetric strategy of the US Federal Reserve that can be chosen by the ECB, but also the asymmetric strategy of the German Bundesbank, which

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<sup>27</sup> See Kittel and Traxler (2001), Mesch (2000), Soskice (2000) and Traxler (1999) for similar views on the perspectives of wage bargaining co-ordination in the Euro area. Wage bargaining co-ordination within multinational enterprises, seen as the most likely form of trans-national co-ordination in the Euro area by Calmfors (2001), will, however, not be sufficient for macroeconomic stabilisation.

<sup>28</sup> This is the strategy recommended by those authors who view European unemployment to be predominantly "structural" (see Calmfors, 1998).

<sup>29</sup> As has been shown by Flassbeck et al. (1997), Kalmbach (2000), Palley (1998) and Solow (2000), the superior performance of the US-economy compared to Germany and Europe in the 1990s was rather due to co-ordinated macroeconomic policies than to labour market deregulation.

increased interest rates whenever inflation climbed above the target rate, but which did not relax monetary policy immediately, when inflation rates fell below its target.<sup>30</sup> The Bundesbank strategy supposed powerful strategic actors in the labour market as causes for inflation, who had to be disciplined by appropriate monetary policies, whereas the Fed strategy supposes powerless actors and attributes inflation to the market constellation in the labour market (Franzese, 2001). Contrary to the Fed, the Bundesbank also had to take into account the higher degree of openness of the German compared to the US economy and was very successful in its strategy of “stability oriented under-valuation” of the D-Mark which persistently combined current account surpluses with appreciation tendencies of the currency. Finally, the Bundesbank was (as well as the ECB is today) primarily responsible for price stability, whereas the Federal Reserve has a dual mandate including price stability and full employment (Meyer, 2001).

Summing up, the development of inflation and employment in EMU is determined, on the one hand, by the ECB’s choice of monetary policies and, on the other hand, by the development of effective wage bargaining co-ordination, as can be seen from table 1.<sup>31</sup> If we only distinguish between effective co-ordination of wage bargaining and non-co-ordination, which may be associated with further deregulation in the labour market, decentralisation of wage bargaining and national “social pacts”, on the one hand, and between a symmetric reaction function of the ECB imitating the Fed and an asymmetric approach following the Bundesbank, on the other hand, we can derive four scenarios which show the medium to long run perspectives for inflation and employment in the Euro area.

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<sup>30</sup> This strategy was therefore associated with higher sacrifice ratios than the Fed strategy (Horn, 1999; Debelle and Fischer, 1994). Bibow (2001) shows, that the asymmetric Bundesbank strategy, compared to the symmetric strategy of the Federal Reserve, accounts for a major part of the growth differentials between the USA and Germany in the 1990s.

<sup>31</sup> Of course, also fiscal policies in EMU will have a major impact on demand and hence on employment and inflation. But here it is not the place to attempt a detailed discussion.

**Table 1: Potential scenarios for macroeconomic performance in the Euro area determined by wage bargaining co-ordination and by the ECB's monetary policy**

		ECB's monetary policy	
		German Bundesbank (asymmetric)	Federal Reserve (symmetric)
Effective co-ordination of wage bargaining	yes	1: Price stability, intermediate rate of unemployment, constant NAIRU	2: Price stability, low rate of unemployment (stable), falling NAIRU
	no	3: Downward nominal wage pressure, high rate of unemployment, rising NAIRU, inflationary pressures	4: Price stability, low rate of unemployment (unstable), falling NAIRU

If effective co-ordination of wage bargaining is attained and the ECB follows the Bundesbank strategy, the Euro area will achieve price stability and an intermediate rate of employment (scenario 1). The short run potentials for stable inflation rates of employment will not be exhausted, because the ECB will react asymmetrically to deviations from its inflation target. This will also prevent the NAIRU from falling in the long run. Under the conditions of co-ordinated wage bargaining a better employment performance in the short run as well as a reduction of the NAIRU in the long run will be achieved, if the ECB follows the Fed strategy (scenario 2). If wage bargaining remains uncoordinated at the EMU level and if further deregulation in the labour market is introduced, the choice of the Fed strategy will also lead to a high level of employment in the short and a reduction in the NAIRU in the long run (scenario 4). But high employment will be far more unstable than in the case of effectively co-ordinated wage bargaining. If unemployment exceeds the NAIRU, there will be the immediate threat of disinflation and deflation which will be especially pronounced if there are no stabilising fiscal policy interventions in this situation. As fiscal policies in EMU are restricted by the Stability and Growth Pact of Amsterdam and orientated towards consolidation by means of expenditure cuts, there rather have to be expected pro-cyclical policies (Arestis, McCauley and Sawyer, 2001). If the ECB chooses the Bundesbank strategy under the conditions of uncoordinated wage bargaining across EMU, the degree of employment will remain below the stable inflation rate of employment and there will be permanent pressure on nominal wages which might be exacerbated by pro-cyclical fiscal policies (scenario 3). This stagnation scenario may be associated with inflationary pressures as well: a rising NAIRU may be caused by increasing mark-ups due to high interest rates, slow productivity growth

due to weak investment, and depreciation of the currency and hence rising import prices due to slow growth prospects and less attractiveness of assets denominated in Euro for monetary wealth holders.

### **3.2 What has happened since 1999?**

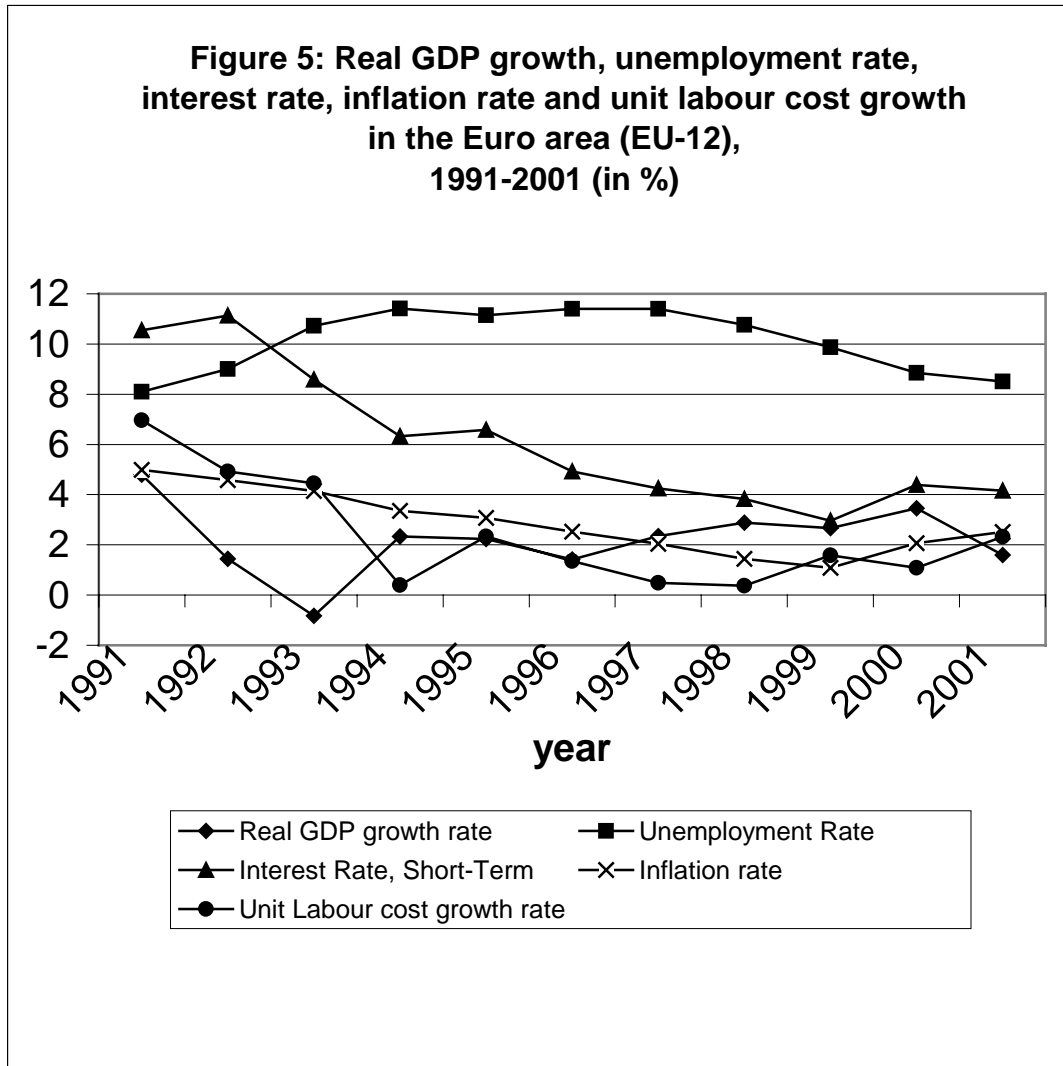
Since the introduction of EMU in 1999 the ECB has been faced with uncoordinated wage bargaining across the Euro area. Although labour unions have been pushing for co-ordination a contradictory tendency towards decentralisation of wage bargaining and towards national social pacts for wage moderation have prevailed. Whether scenario 4 or the worst case scenario 3 have to be considered the more appropriate description of macroeconomic performance in the Euro area has therefore to be decided by an assessment of the ECB's monetary policies. Although final judgements should not be made after only three years of experience, some tendencies have already become obvious.<sup>32</sup>

When the ECB started operations in 1999, inflation rates and nominal short-term interest rates in the Euro area had come down in the course of the convergence process (figure 5). Nominal unit labour cost growth had also slowed down and had been substantially below consumer price inflation. From this it follows, that the wage share in national income had been decreasing during the 1990s. But a high price had to be paid for disinflation and increased profitability through redistribution at the expense of labour: real GDP growth slackened and unemployment increased in the first half of the 1990s and remained at a high level during the second half.<sup>33</sup>

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<sup>32</sup> For a more detailed assessment of the ECB's monetary policies during its initial period also focussing on internal contradictions and insufficiencies in the monetary strategy see Bibow (2001a, 2002) as well as Heine and Herr (2001).

<sup>33</sup> See Bibow (2001) and Lombard (2000) for a detailed account of the restrictive macroeconomic effects of the EMU convergence process.

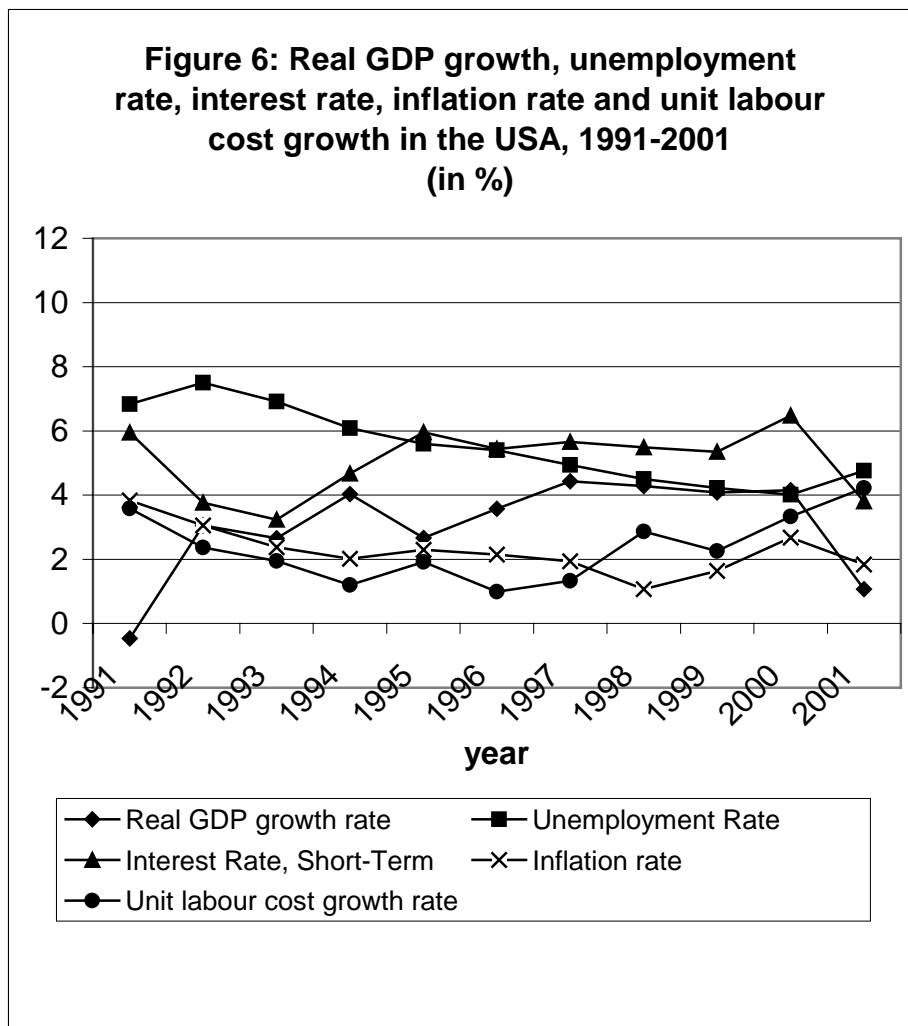


Source: OECD (2001)

This weak performance of the countries to become the Euro area will become especially apparent when compared to the performance of the US economy during the 1990s (figure 6). The USA experienced low inflation which had been decreasing until 1998 and was then increasing until 2000, high real GDP growth rates especially from the mid 1990s until 2000 and an unemployment rate constantly falling to 4% in 2000. Unit labour cost growth had been below consumer price inflation until 1997 and has increased above the inflation rate since then. The expansive character of the Federal Reserve's monetary strategy accounts for the sustained boom in the second half of the 1990s when the Fed refrained from monetary contraction although the unemployment rate fell below 6% what was then considered to be the US-NAIRU. The federal funds rate - which has a direct impact on the short-term interest rate displayed in figure 6 - was neither increased when unit labour cost growth began to accelerate in 1998. Only when in 2000 unit labour cost growth exceeded 3%, consumer price



inflation approached 3% and the stock market price exaggerations had to be confined, the Fed began to tighten and contributed to the growth slowdown in 2001. Between November 1999 and May 2000 the federal funds rate was mildly increased by 1.25 percentage points (table 2). When growth slowed down in 2001 and unemployment began to increase, however, the Fed reacted promptly and decreased the federal funds rate from 6% in January to 1.75% in December although annual unit labour costs growth continued to rise in 2001. The real effects of expansive monetary policies, however, have still to be waited for.



Source: OECD (2001)

How has the ECB performed compared to the Fed? Under the conditions of slow European growth, high unemployment, nominal wage restraint and low inflation, the goal and instrument independent ECB defined its primary goal, price stability, to be achieved when annual growth of the Harmonised Index of Consumer Prices (HICP) remains below 2% in the

medium term (ECB, 1999). This is a quite restrictive interpretation of price stability, because it undercuts the 3% medium term inflation record of the former core economy of the EMS, Germany, (Bibow, 2002) and it neglects that sustained upswings in OECD countries have usually been associated with inflation rates considerably above 2% (Heine and Herr 2001). The potentially restrictive stance of the ECB also becomes clear in its “two pillar strategy” which consists of a reference value for the growth of M3, on the one hand, and a broadly based assessment of the outlook for future price development and risks to price stability in the euro area as a whole, on the other hand.<sup>34</sup> The reference value for M3 growth was set at 4.5% and was based on the assumption of a trend decline of velocity of 0.5% to 1%, an inflation rate of 1% to 2% and a trend rate of real GDP growth of 2% to 2.5%. Here it is neither the place to discuss the sensibleness of using monetary quantities as target or reference values for monetary policy - which certainly does not make sense in an endogenous money approach – nor to illuminate the potential inconsistencies which may arise from the simultaneous use of monetary aggregates and inflation prospects as guidelines for monetary policies.<sup>35</sup> Rather the implications of the assumed low trend rate of real GDP growth underlying the reference value for M3 is of interest in our context. With its modest assumption for potential GDP growth the ECB simply extrapolates the modest growth experience of the 1990s without recognising that European growth in this period was itself a result of restrictive monetary and fiscal policies. From this a more expansive monetary policy than the one enforced by the Bundesbank on the EMS during the 1990s could not be expected at the very start of EMU. The ECB did not seem to intend “to give growth a chance” (Bibow 2002). The fall in the European NAIRU associated with falling nominal and real interest rates and with increasing competition in goods markets due to more market transparency could not be expected to be utilised by the ECB in order to promote employment, growth, and hence a further decline in the NAIRU.

These rather pessimistic expectations have been fulfilled by the ECB during the first three years. Although in 1999 HCPI growth remained considerably below the ECB target of 2% (table 2) and annual unit labour cost growth also did not cause any inflation pressure (figure 5), the ECB refused to lower its interest rate on main refinancing operations remarkably. The minor reduction of the ECB’s key rate from 3% to 2.5% in April was reversed in November under the impression of a continuous decline in the Euro exchange rate

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<sup>34</sup> This assessment is based on the outlook of the development of wages, exchange rates, bond rates, term structures of interest rates, real economic activity, fiscal indicators, price and cost indicators, industry and consumer expectations.

<sup>35</sup> See Heine and Herr (2001) for a comprehensive critique of the ECB strategy on these points.

(table 2). GDP growth remained modest and although employment increased, the potentials for substantial reduction of unemployment were not exhausted.

**Table 2: Federal funds rate, ECB interest rate on main refinancing operations, Euro exchange rate, and growth of Harmonised Consumer Price index 1999 - 2001**

	Date of change in federal funds rate	Fed: Federal funds rate (%)	Date of change in ECB's main refinancing interest rate	ECB: Main refinancing operations, interest rate (%)	Euro exchange rate (US-\$/€)	Annual Growth of HCPI (Harmonised Consumer Price Index, %)
<b>1999</b>		4.75	Jan. 01	3.00	1.161	0.8
2					1.121	0.8
3					1.088	1.0
4			April 09	2.50	1.070	1.1
5					1.063	1.0
6	June 30	5.00			1.038	0.9
7					1.035	1.1
8	Aug. 24	5.25			1.060	1.2
9					1.050	1.2
10					1.071	1.4
11	Nov. 16	5.50	Nov. 05	3.00	1.034	1.5
12					1.011	1.7
<b>2000</b>					1.014	1.9
2	Feb. 02	5.75	Feb. 04	3.25	0.983	2.0
3	March 21	6.00	March 17	3.5	0.964	2.1
4			April 28	3.75	0.947	1.9
5	May 16	6.50			0.906	1.9
6			June 09	4.25	0.949	2.4
7					0.940	2.3
8					0.904	2.3
9			Sept. 01	4.50	0.872	2.8
10			Oct. 06	4.75	0.855	2.7
11					0.856	2.9
12					0.897	2.6
<b>2001</b>	Jan. 03/31	6.00/5.50			0.938	2.4
2					0.922	2.6
3	March 20	5.00			0.910	2.6
4	April 18	4.50			0.892	2.9
5	May 15	4.00	May 11	4.50	0.874	3.4
6	June 27	3.75			0.853	3.0
7					0.861	2.6
8	Aug. 21	3.50	Aug. 31	4.25	0.900	2.4
9	Sept. 17	3.00	Sept. 18	3.75	0.911	2.3
10	Oct. 2	2.50			0.906	2.4
11	Nov. 6	2.00	Nov. 9	3.25	0.888	2.1
12	Dec. 11	1.75			0.892	2.0

Sources: ECB (1999-2002), Federal Reserve Bank of New York (2002)

In 2000 inflation rates continued to increase and exceeded the ECB's target in the second half of the year. This acceleration of inflation, however, was not fuelled by excessive wage hikes. On the contrary, nominal wage moderation under the conditions of high unemployment, uncoordinated wage bargaining across the Euro area and social pacts for wage moderation made unit labour cost growth decline and kept it below the inflation rate. Rising inflation in the Euro area was rather caused by import price hikes (crude oil and derivatives) and the continued devaluation of the Euro. But although labour unions refrained from demanding compensation for rising consumer prices and although the wage bargainers in Germany – by some perceived to be the European wage setters - agreed on two-year contracts with moderate nominal wage increases, the ECB rose its key interest rate by 1.75 percentage point from November 1999 to October 2000. With these interest rate hikes the ECB tried to prevent second round effects of rising consumer price inflation – which labour unions already had abstained from – and attempted to stop the decline of the Euro. But this attempt was in no way successful: the Euro exchange rate determined in international financial markets continued to depreciate and the inflation rate accelerated until June 2001 (table 2).<sup>36</sup> GDP growth slightly increased because of rising world demand and improved price competitiveness of European exports and unemployment was reduced but remained on a high level.

The Euro area dilemma of nominal wage restraint, tight monetary policies, slow growth, high unemployment, a weak Euro and inflation above the ECB's target also dominated in 2001. When world economic growth stumbled and the Fed started to lower interest rates in January, finally by 4.25 percentage points at the end of the year, the ECB hesitated until May when the downswing could no longer be neglected and reduced interest rates in four small steps by 1.5 percentage points (table 2). HCPI growth still above the target during the whole year did not seem to allow for more expansive policies. But again, nominal wage growth put no pressure on inflation. Increasing growth of unit labour costs (figure 5) was rather caused by slow productivity growth in a period of economic stagnation. The main causes for rising inflation arose from increasing prices for oil derivatives and rising food prices caused by animal diseases. These exogenous shocks, however, will only cause problems for the stability of the aggregate price level and will justify restrictive monetary policies, if relative price changes trigger second round effects of nominal wages, which was

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<sup>36</sup> As Arestis et al. (2001) and Bibow (2001a, 2002) have shown, the Euro declined because Euro area assets became less attractive to international monetary wealth holders due to curtailed prospective returns associated with slow growth caused by the ECB's monetary policies.

not the case in 2001. The rather restrictive ECB reactions were neither conducive to European growth and employment nor to the internal and the external value of the Euro: the inflation rate exceeded the ECB's target and the exchange rate continued to deteriorate after some improvements around September 11 (table 2).

This brief review reveals a profound "anti growth bias" (Bibow 2002) of ECB's monetary policies during the first three years of operation. The ECB did not follow the Fed's symmetric strategy but focused rather asymmetrically on the short-term outlook of upward price risks without taking care of growth and employment whenever the absence of any risk for accelerating inflation would have allowed to. In this sense the ECB followed the Bundesbank's monetary strategy, but under different conditions and therefore with less success than the Bundesbank. Whereas in Germany as "a small open economy" the effects of restrictive Bundesbank policies on domestic demand could be compensated by increasing export surpluses, this compensation was less effective in the Euro area as "a big closed economy" where also no relief through more expansive fiscal policies could be expected under the conditions of the Amsterdam Stability Pact. And whereas the Bundesbank was confronted with co-ordinated wage bargaining and strategic actors in the labour market which had to be disciplined in order to stabilise the internal and the external value of the currency as well as the export performance whenever the Bundesbank's inflation target was not taken into account by wage bargaining, the ECB faced uncoordinated wage bargaining across the Euro-area which under the conditions of high unemployment did not exert any inflationary pressure but rather delivered nominal wage restraint through labour market mechanisms and national social pacts which then accelerated the restrictive effects of monetary policies on domestic demand, growth and employment.

Dominated by uncoordinated wage bargaining across EMU and an "anti growth bias" in the ECB's monetary policy (and restrictive fiscal policies dominated by the Stability and Growth Pact) the performance of the Euro area from 1999 to 2001 has indeed displayed the main characteristics of our worst case scenario 3. Within connected vicious circles, high unemployment and social pacts for international competitiveness caused nominal wage restraint, which was not rewarded by the ECB's asymmetric monetary policy (and neither by restrictive fiscal policies). Nominal wage restraint and tight monetary policies then caused slow growth which was insufficient to reduce actual unemployment substantially and to relieve pressure on nominal wages. High and rising interest rates associated with restrictive monetary policies and the negative effects of slow GDP growth on productivity growth and on the exchange rate increased the inflation rate and prevented the NAIRU from falling

substantially. This induced asymmetric monetary policies either not to relax or to become even more restrictive. The ECB became a victim of its own strategy.

An improved performance of the Euro area will only be achieved, if the ECB changes its monetary strategy and abandon its “anti growth bias”. As the conditions compared to those for the Bundesbank have changed markedly, there is no need for the ECB to imitate the Bundesbank. More symmetric and hence more expansive monetary policies will be facilitated by the improvement of wage bargaining co-ordination across EMU. Co-ordinated wage bargaining, targeting nominal wage hikes determined by national productivity growth and the ECB’s inflation target will stabilise the price level whenever employment increases or decreases. The NAIRU will be reduced and deflationary processes will be prevented. This would allow the ECB to accept responsibility for employment and growth without neglecting its primary goal. More expansive fiscal policies will be needed as well whenever the economy slides into recession. This kind of co-ordinated macroeconomic policy, however, may require major institutional reforms in the Euro area.<sup>37</sup>

#### 4. Conclusions

Starting from the observation that the literature on “time inconsistency” and “central bank independence” may neither be able to capture the true causes of inflation in a monetary production economy nor to assess the effects of independent and conservative central banks on inflation, employment, distribution and growth in an adequate way, in this paper we have sketched a Post-Keynesian model with endogenous money, in which inflation is caused by conflict over distribution and not by “time inconsistency” of monetary policy. With labour unions wage demands propelled by the degree of employment, this model generates a NAIRU as a short run limit to employment given by distribution conflict and enforced by conservative monetary policies of independent central banks. It is shown that the NAIRU is not a strong attractor for actual employment determined by effective demand in the short run and that in the long run the trend of the NAIRU is rather influenced by the development of actual unemployment determined by aggregate demand through different channels. These are the effects of actual unemployment on effective labour supply and hence on labour unions’ bargaining power, on the one hand. On the other hand, there are the effects of capital stock growth on labour productivity, the effects of the domestic economy’s growth prospects on the real exchange rate, and the effects of interest rate variations on the mark-up, each of which

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<sup>37</sup> See for example Arestis, McCauley and Sawyer (2001) for a proposal of an alternative stability pact for the European Union.

influence the feasible real wage rate given by mark-up pricing. From this it follows, that restrictive monetary policies will not be effective in containing inflation in the long run. Amending the Post-Keynesian model of conflict inflation by some insights of institutional political economists in the interaction of central bank independence and labour market institutions it is concluded, that effective co-ordination of wage bargaining, i.e. successful vertical and horizontal co-ordination dominated by the private sector, may considerably reduce the NAIRU.

Applying the theoretical considerations to the development of unemployment and inflation in EMU from 1999 – 2001, in the first step four potential scenarios have been derived which depend on the development of wage bargaining co-ordination across EMU and on the monetary policy strategy chosen by the independent ECB. Although there have been several attempts of European labour unions to improve wage bargaining co-ordination, the trends towards decentralisation of bargaining and towards national social pacts for competitiveness have been major obstacles to effective bargaining co-ordination. Under the conditions of uncoordinated wage bargaining the macroeconomic performance of EMU has therefore been dominated by the monetary policy choice of the ECB. In the second step, the monetary policies of the ECB have therefore been analysed. It has been shown that the ECB followed an asymmetric strategy in achieving its primary goal - price stability. Although conditions for monetary policies have changed considerably, the ECB rather imitated the more restrictive Bundesbank strategy than the more symmetric and expansive strategy of the Federal Reserve. This prevented that the reduction in the European NAIRU made possible by decreasing interest rates and increasing competition in the goods markets could be exploited by more expansive aggregate demand. Dominated by uncoordinated wage bargaining across EMU and an “anti growth bias” in the ECB’s monetary policy (and restrictive fiscal policies prescribed by the Stability and Growth Pact) the performance of the Euro area from 1999 to 2001 has displayed the main characteristics of our worst case scenario. High unemployment and social pacts for international competitiveness caused nominal wage restraint, which was not rewarded by the ECB’s asymmetric monetary policy. Nominal wage restraint and tight monetary policies then caused slow growth, which fed back on the NAIRU through the effects of low capital stock growth on productivity growth and of modest GDP growth prospects on the exchange rate. Currency depreciation and inflation above the target then induced the ECB either not to relax or to become even more restrictive.

It has finally been concluded that improved performance of the Euro area in terms of employment and inflation will require the ECB to give up its “anti growth bias”. More

symmetric and hence more expansive monetary policies will be facilitated by the improvement of wage bargaining co-ordination across EMU stabilising the price level whenever employment increases or decreases. This would allow the ECB to accept responsibility for employment and growth without having to neglect price stability. More expansive fiscal policies will also be needed whenever the economy slides into recession. But this kind of co-ordinated macroeconomic policy may require major institutional reforms in the Euro area.

## References

- Allsopp, C. and Vines, D. 1998. The assessment: macroeconomic policy after EMU, *Oxford Review of Economic Policy*, vol. 14 (3), 1-23
- Arestis, P. 1996. Post Keynesian economics: towards coherence, *Cambridge Journal of Economics*, vol. 20, 111-135
- Arestis, P. et al. 2001. The causes of Euro instability, in Arestis, P., Brown, A. and Sawyer, M. (eds) *The Euro. Evolution and Prospects*, Cheltenham, Edward Elgar
- Arestis, P., McCauley, K. and Sawyer, M. 2001. An alternative stability pact for the European Union, *Cambridge Journal of Economics*, vol. 25, 113-130
- Barro, R.J. and Gordon, D.B. 1983. Rules, discretion and reputation in a model of monetary policy, *Journal of Monetary Economics*, vol. 12, 101-121
- Bean, C. 1998. Monetary policy under EMU, *Oxford Review of Economic Policy*, vol. 14 (3), 41-53
- Berger, H., de Haan, J. and Eijffinger, S.C.W. 2000. Central Bank Independence: An Update of Theory and Evidence, CESifo Working Paper Series, No. 255, Munich
- Bhaduri, A. and Marglin, S. 1990. Unemployment and the real wage: the economic basis for contesting political ideologies, *Cambridge Journal of Economics*, vol. 14, 375-393
- Bibow, J. 1999. Reflections on the Current Fashion for Central Bank Independence, *Beiträge aus dem Institut für Statistik und Ökonometrie der Universität Hamburg*, No. 41
- Bibow, J. 2001. Making EMU work: some lessons from the 1990s, *International Review of Applied Economics*, vol. 15, 233-259.
- Bibow, J. 2001a. Easy Money through the Back Door, Working Paper No. 323, Jerome Levy Institute at Bard College
- Bibow, J. 2002. The monetary policies of the European Central Bank and Euro's (mal)performance: a stability-oriented assessment, *International Review of Applied Economics*, vol. 16, 31-50
- Blanchard, O. and Katz, L.F. 1997. What we know and do not know about the natural rate of unemployment, *Journal of Economic Perspectives*, vol. 11, 51-72
- Bowles, S. and Boyer, R. 1995. Wages, aggregate demand, and employment in an open economy: an empirical investigation, in Epstein, G.A. and Gintis, H.M. (eds) *Macroeconomic Policy after the Conservative Era*, Cambridge, Cambridge University Press
- Calmfors, L. 1993. Centralisation of wage bargaining and macroeconomic performance – a survey, *OECD Economic Studies*, No. 21, 161-191
- Calmfors, L. 1998. Macroeconomic policy, wage setting, and employment - what difference does the EMU make?, *Oxford Review of Economic Policy*, vol. 14 (3), 125-151
- Calmfors, L. 2001. Wages and wage-bargaining institutions in the EMU – a survey of the issues, *Empirica*, vol. 28, 325-351
- Calmfors, L. and Driffill, J. 1988. Centralization of wage bargaining, *Economic Policy*, 1988, 13-61
- Carlin, W. and Soskice, D. 1990. *Macroeconomics and the Wage Bargain. A Modern Approach to Employment, Inflation and the Exchange Rate*, Oxford, Oxford University Press
- Cornwall, J. and Cornwall, W. 1998. Unemployment costs and inflation targeting, in Arestis, P. and Sawyer, M. (eds) *The Political Economy of Central Banking*, Cheltenham, Edward Elgar
- Cottrell, A. 1994. Post-Keynesian monetary economics, *Cambridge Journal of Economics*, vol. 18, 587-605
- Crouch, C. 2000. National wage determination and European Monetary Union, in Crouch, C. (ed) *After the Euro. Shaping Institutions for Governance in the Wake of European Monetary Union*, Oxford, Oxford University Press
- Davidson, P. 1994. *Post Keynesian Macroeconomic Theory*, Aldershot, Edward Elgar



- Debelle, G. and Fischer, S. 1994. How independent should a central bank be?, in Fuhrer, J.C. (ed) *Goals, Guidelines, and Constraints Facing Monetary Policymakers*, Federal Reserve Bank of Boston Conference Series No. 38
- ECB 1999. Die stabilitätsorientierte geldpolitische Strategie des Eurosystems, in *Monatsbericht*, January 1999, 43-56
- ECB 1999-2002. *Monthly Bulletins*, Frankfurt.
- Eijffinger, S. and De Haan, J. 1996. The Political Economy of Central Banking, Special Papers in International Economics, No. 19, May 1996, Princeton University, New Jersey
- Epstein, G.A. 1992. Political economy and comparative central banking, *Review of Radical Political Economics*, vol. 24, 1-30
- Federal Reserve Bank of New York 2002. Historical Changes of the Fed Fund and Discount Rate (1971-Present), <http://www.ny.frb.org/pihome/statistics/dlyrates/fedrate.html>
- Fisher, I. (1933). The debt-deflation theory of great depressions, *Econometrica*, vol.1, 337-357.
- Flanagan, R.J. 1999. Macroeconomic performance and collective bargaining: an international perspective, *Journal of Economic Literature*, vol. XXXVII, 1150-1175
- Flassbeck, H. et al. 1997. Unemployment in Europe and the U.S.: macroeconomics is the key, *Internationale Politik und Gesellschaft*, 4/97, 412-424
- Forder, J. 1998. Central bank independence - conceptual clarifications and interim assessment, *Oxford Economic Papers*, vol. 50, 307-334
- Franzese, R.J. 2001. Institutions and sectoral interactions in monetary policy and wage/price-bargaining, in Hall, P.A. and Soskice, D. (eds) *Varieties of Capitalism. Institutional Foundations of Comparative Advantage*, Oxford, Oxford University Press
- Franzese, R.J. 2001a. Strategic interaction of monetary policymakers and wage/price bargainers: a review with implications for the European common-currency area, *Empirica*, vol. 28, 457-486
- Fritsche, U. et al. 1999. Is there a need for a co-ordinated European wage and labour market policy?, in Huemer, G., Mesch, M. and Traxler, F. (eds) *The Role of Employer Associations and Labour Unions in the EMU*, Aldershot, Ashgate
- Galbraith, J.K. 1997. Time to ditch the NAIRU, *Journal of Economic Perspectives*, vol. 11, 93-108
- Gärtner, M. 1997. Central bank independence and the sacrifice ratio: the dark side of the force, *Swiss Journal of Economics and Statistics*, vol. 133, 513-538
- Gordon, R.J. 1997. The time-varying NAIRU and its implications for economic policy, *Journal of Economic Perspectives*, vol. 11, 11-32
- Hall, P.A. 1994. Central bank independence and coordinated wage bargaining: their interaction in Germany and Europe, *German Politics and Society*, Autumn 1994, 1-23
- Hall, P.A. and Franzese, R.J. 1998. Mixed signals: central bank independence, coordinated wage bargaining, and European Monetary Union, *International Organization*, vol. 52, 505-535
- Hein, E. 1999. Interest rates, income shares and investment in a Kaleckian model, *Political Economy. Review of Political Economy and Social Sciences*, issue 5, 5-22
- Hein, E. 2002. Central bank independence, labour market institutions and the perspectives for inflation and employment in the European Monetary Union, *Political Economy. Review of Political Economy and Social Sciences*, issue 10, (forthcoming)
- Hein, E. and Krämer, H. 1997. Income shares and capital formation: patterns of recent developments, *Journal of Income Distribution*, vol. 7, 5-28
- Hein, E. and Ochsén, C. 2000. Monetary Interest Rates, Income Shares, and Investment: Theory and Empirical Evidence for France, Germany, the UK, and the USA, Schriftenreihe des Promotionsschwerpunktes „Makroökonomische Diagnosen und Therapien der Arbeitslosigkeit“, No. 11/2000, Stuttgart-Hohenheim
- Heine, M. and Herr, H. 2001. *Das Eurosystem: Eine paradigmensorientierte Darstellung und kritische Würdigung der europäischen Geldpolitik*, Berlin, Rosa Luxemburg Stiftung
- Hewitson, G. 1995. Post-Keynesian monetary theory: some issues, *Journal of Economic Surveys*, vol. 9, 285-310
- Hoffmann, R. and Mermet, E. 2000. Wage coordination in the European Union – challenges for the coordination of collective bargaining, in Hoffmann, R. et al. (eds) *Transnational Industrial Relations in Europe*, Düsseldorf, Hans Böckler Stiftung
- Horn, G.A. 1999. Zur Koordination von Geld- und Lohnpolitik. Eine empirische Analyse für die USA und Deutschland, in Filc, W. and Köhler, C. (eds) *Macroeconomic Causes of Unemployment: Diagnosis and Policy Recommendations*, Berlin, Duncker & Humblot
- Jordan, T.J. 1997. Disinflation costs, accelerating inflation gains, and central bank independence, *Weltwirtschaftliches Archiv*, vol. 133, 1-21
- Kalecki, M. 1943. Political aspects of full employment, in Kalecki, M., *Selected Essays on the Dynamics of the Capitalist Economy*, Cambridge, Cambridge University Press, 1971

- Kalmbach, P. 2000. *Höhere Arbeitsmarktflexibilität oder flexiblere Wirtschaftspolitik? Zu den Ursachen der unterschiedlichen Beschäftigungsentwicklung in den USA und in Deutschland*, Friedrich-Ebert-Stiftung, "Wirtschaftspolitische Diskurse", No. 132, Bonn
- Kittel, B. and Traxler, F. 2001. Lohnverhandlungssysteme und Geldpolitik, *Wirtschaft und Gesellschaft*, vol. 27, 11-40
- Kydland, F.E. and Prescott, E.C. 1977. Rules rather than discretion: the inconsistency of optimal plans, *Journal of Political Economy*, vol. 85, 473-492
- Lavoie, M. 1984. The endogenous flow of credit and the Post Keynesian theory of money, *Journal of Economic Issues*, vol. 18, 771-797
- Lavoie, M. 1992. *Foundations of Post-Keynesian Economic Analysis*, Aldershot, Edward Elgar
- Lavoie, M. 1993. A post-classical view of money, interest, growth and distribution, in Mongiovi, G. and Rühl, C. (eds.) *Macroeconomic Theory: Diversity and Convergence*, Cambridge, Cambridge University Press
- Lavoie, M. 1996. Horizontalism, structuralism, liquidity preference and the principle of increasing risk, *Scottish Journal of Political Economy*, vol. 43, 275-300
- Layard, R., Nickell, S. and Jackman, R. 1991. *Unemployment. Macroeconomic Performance and the Labour Market*, Oxford, Oxford University Press
- Lombard, M. 2000. Restrictive macroeconomic policies and unemployment in the European Union, *Review of Political Economy*, vol. 12, 317-332
- Marx, K. 1867. *Das Kapital. Kritik der politischen Ökonomie, Erster Band: Der Produktionsprozeß des Kapitals*, Marx-Engels-Werke, Band 23, Berlin, Dietz, 1962
- Mesch, M. 1999. Vom Wettbewerbskorporatismus zur transnationalen Koordination der Lohnpolitik in der EU? (Teil 1), *Wirtschaft und Gesellschaft*, vol. 25, 387-422
- Mesch, M. 2000. Vom Wettbewerbskorporatismus zur transnationalen Koordination der Lohnpolitik in der EU? (Teil 2), *Wirtschaft und Gesellschaft*, vol. 26, 7-63
- Meyer, L.H. 2001. Inflation targets and inflation targeting, *Federal Reserve Bank of St. Louis Review*, vol. 83 (6), 1-13.
- Moore, B.J. 1989. The endogeneity of credit money, *Review of Political Economy*, vol. 1, 65-93
- OECD 1997. Economic performance and the structure of collective bargaining, in: *Employment Outlook*, July 1997, 63-92
- OECD 2001. *Economic Outlook*, No. 70, Data on CD-Rom, Paris
- Palley, T. 1998. Restoring prosperity: why the U.S. model is not the answer for the United States or Europe, *Journal of Post Keynesian Economics*, vol. 20, 337-352
- Pichelmann, K. 2001. Monitoring wage developments in EMU, *Empirica*, vol. 28, 353-373
- Pivetti, M. 1996. Maastricht and the political independence of central banks: theory and facts, *Contributions to Political Economy*, vol. 15, 81-104
- Posen, A. 1993. Why central bank independence does not cause low inflation: there is no institutional fix for politics, in O'Brien, R. (ed) *Finance and the International Economy*, Oxford, Oxford University Press
- Posen, A. 1998. Central bank independence and disinflationary credibility: a missing link?, *Oxford Economic Papers*, vol. 50, 335-359
- Rogoff, K. 1985. The optimal degree of commitment to an intermediate monetary target, *Quarterly Journal of Economics*, vol. 100, 1169-1189
- Rousseas, S. 1998. *Post Keynesian Monetary Economics*, 3. ed., Basingstoke, MacMillan
- Rowthorn, R.E. 1977. Conflict, inflation and money, *Cambridge Journal of Economics*, vol. 1, 215-239
- Sarantis, N. 1994. Inflation, in Arestis, P. and Sawyer, M. (eds) *The Elgar Companion to Radical Political Economy*, Aldershot, Edward Elgar
- Sawyer, M. 1997. Income Distribution, Macroeconomic Analysis and Barriers to Full Employment, *Journal of Income Distribution*, vol. 7, 147-160
- Sawyer, M. 1999. The NAIRU: a critical appraisal, *International Papers in Political Economy*, vol. 7(2), 1-39.
- Sawyer, M. 2002. The NAIRU, aggregate demand and investment, *Metroeconomica*, vol. 53, 66-94
- Schulten, T. 2001. A European Solidaristic Wage Policy? Conceptual reflections on a Europeanisation of trade union wage policy, Discussion & Working Papers, DWP 2001.01.01, Brussels, European Trade Union Institute
- Schulten, T. 2001a. The European Metalworkers' Federation's Approach to a European Coordination of Collective Bargaining – Experiences, Problems and Prospects, in Schulten, T. and Bispinck, R. (eds) *Collective Bargaining under the Euro. Experiences from the European Metal Industry*, Brussels, European Trade Union Institute.

- Schulten, T. 2002. Europeanisation of Collective Bargaining. An Overview on Trade Union Initiatives for a Transnational Coordination of Collective Bargaining Policy, WSI Discussionpaper No. 101, Düsseldorf, WSI in der Hans-Böckler-Stiftung
- Schulten, T. and Bispinck, R. (eds) *Collective Bargaining under the Euro. Experiences from the European Metal Industry*, Brussels, European Trade Union Institute
- Schürz, M. 2001. Die Glaubwürdigkeit der Federal Reserve Bank: Vertrauen zwischen Eliten, *Wirtschaft und Gesellschaft*, vol. 27, 69-86
- Smithin, J. 1994. *Controversies in Monetary Economics. Ideas, Issues and Policy*, Aldershot, Edward Elgar
- Solow, R. M. 2000. Unemployment in the United States and in Europe: a contrast and the reasons, *Ifo-Studien*, vol. 46, 1-12.
- Soskice, D. 1990. Wage determination: the changing role of institutions in advanced industrialized countries, *Oxford Review of Economic Policy*, vol. 4, 36-61
- Soskice, D. 2000. Wage determination in the EMU, in Hoffmann, R. et al. (eds) *Transnational Industrial Relations in Europe*, Düsseldorf, Hans Böckler Stiftung
- Soskice, D. and Iversen, T. 2001. Multiple wage bargaining systems in the single European currency area, *Empirica*, vol. 28, 435-456
- Staiger, D., Stock, J.H. and Watson, M.W. 1997. The NAIRU, unemployment and monetary policy, *Journal of Economic Perspectives*, vol. 11, 33-49
- Traxler, F. 1999. Wage-setting institutions and European Monetary Union, in Huemer, G., Mesch, M. and Traxler, F. (eds) *The Role of Employer Associations and Labour Unions in the EMU*, Aldershot, Ashgate