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The Effects of the Financial Market and Economic Crisis on Inflation

Due to the substantial increase of government debt as well as the central bank money supply there have been warnings of a risk of high or very high inflation in the medium to long run (especially in the USA). If the central banks reverse the increase of the central bank money supply sufficiently rapidly as soon as the crisis abates and governments present credible measures to consolidate public finances, so that inflation expectations will not rise significantly, the risk of a sustained increase of the inflation rate following the expansionary monetary and fiscal policies seems low. A surge in demand for agricultural products and energy commodities (especially crude oil) combined with a merely sluggish expansion or even a stagnation of their supply is a more likely cause of higher inflation in the medium run.

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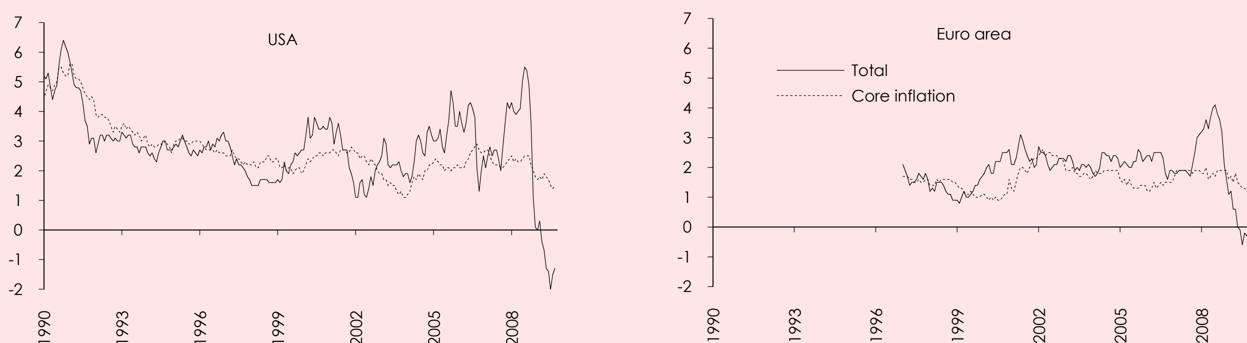
Current situation and outlook until 2011

Following the acceleration of inflation between mid-2007 and summer 2008, which was driven by a significant price increase for food and energy, the inflation rate reached a long-term low throughout the world in 2009, in some months it was even negative (Figure 1). As a consequence of the most severe recession since the "Great Depression" fears of deflation arose. However, the strong decline of the annual headline inflation rate did not reflect broad price reductions for many different product categories, but was mostly the consequence of the collapse of prices of oil products after the commodity price bubble had burst in summer 2008. Taking the core inflation rate as an indicator a deflation can be diagnosed neither for the USA nor for the euro area – for these currency areas the core inflation rate was 1¼ percent and 1¾ percent, respectively.

Figure 1: International comparison of inflation and core inflation

In percent, monthly data



Source: OECD.

Economic activity will gradually recover in 2010 and 2011 while capacity utilisation will remain substantially below potential (Figure 2). As unemployment is likely to rise further, meagre wage increases are expected. Thus, neither the demand nor wage

trends exert any inflationary pressure. Due to rising commodity prices consumer price inflation will accelerate to about 1 percent and 1½ percent, respectively, in 2010 and 2011 (Figure 3; *European Commission,* 2009, *OECD,* 2009, *IMF,* 2009).

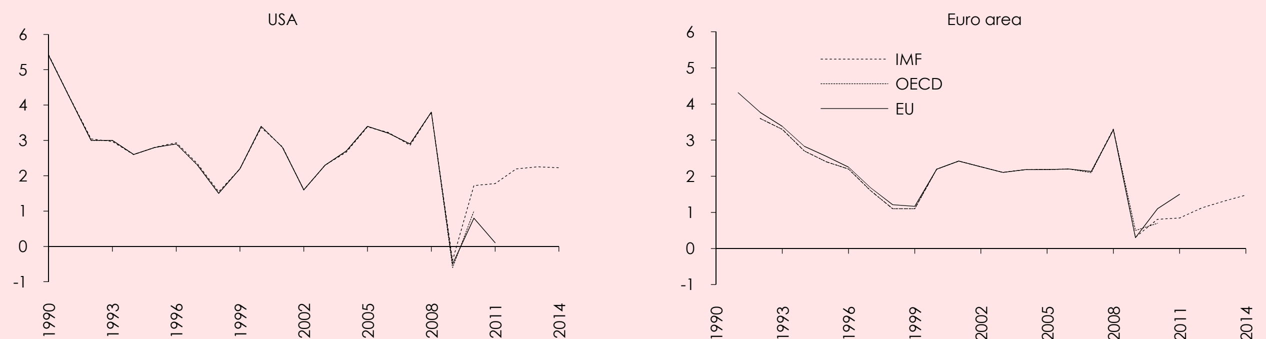
Figure 2: Output gaps in the USA and the Euro area

As a percentage of GDP, annual data

Source: IMF, OECD, EU. 2009 until 2014: Forecast.

Figure 3: Headline inflation in the USA and the Euro area

In percent, annual data



Source: IMF, OECD, EU. 2009 until 2014: Forecast.

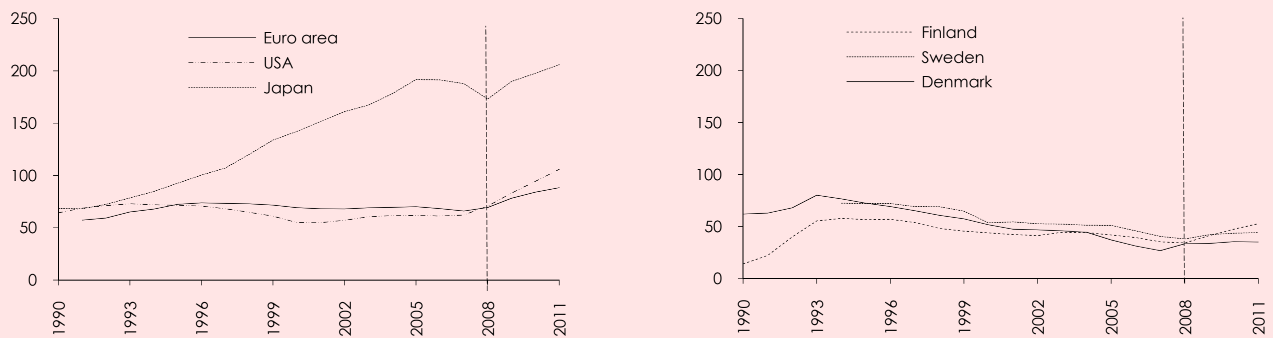
Influence of government debt on long-run inflation trends

Currently there is a widespread discussion of the risk that the increase of government debt in the USA and in the euro area of 35 percent and 19 percent of GDP, respectively, from 2008 until 2011 (Figure 4) might entail an acceleration of inflation in the medium to long run. This expectation partly derives from the experience of hyperinflation in Germany and Austria in the 1920s: The high government debt in the wake of the first world war was largely financed by direct central bank credit to the government (monetising government debt).

However, no sustained inflationary pressures resulted from the expansion of government debt in the industrialised countries during the last 40 years. *Giannitsarou – Scott* (2006), for example, show that the steady rise of government debt in the G5 countries from the early 1960s until 2005 by between 30 percent and 120 percent of GDP did not lead to any significant inflationary tendencies. Nor did the expansion of government debt in the wake of the recession in Sweden and Finland (+44 percent of GDP in a few years) at the beginning of the 1990s or the surge of government debt caused by the recession in Japan (+123.5 percent of GDP in 15 years) trigger any increase of inflation (Figures 4 and 5). As the developments in Sweden and Finland show, it is also possible to turn a high deficit caused by a severe recession into a surplus within few years.

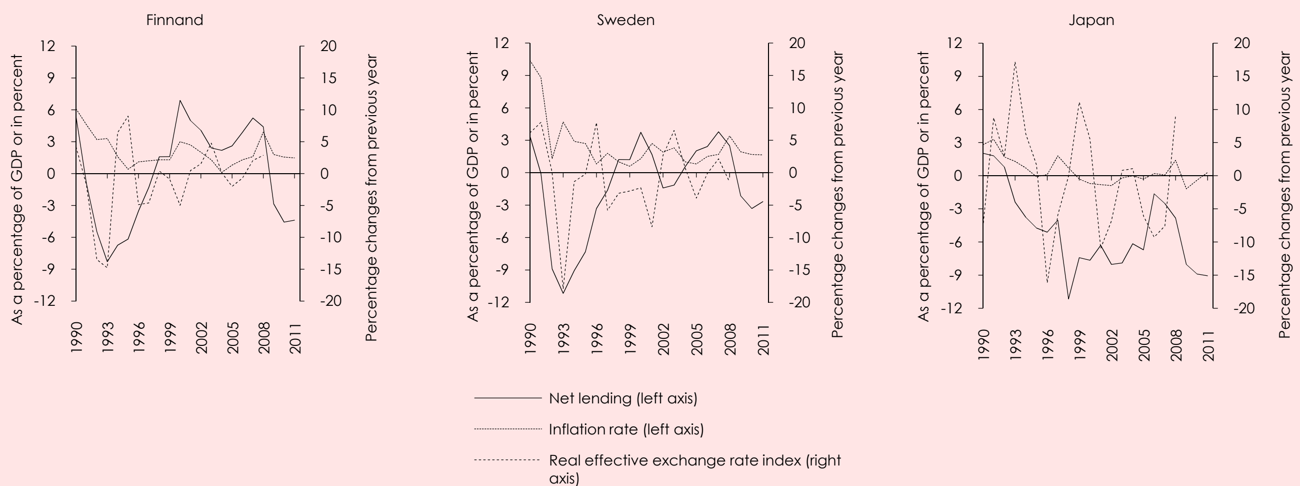
Figure 4: International comparison of government debt

As a percentage of GDP, annual data



Source: EU. 2009 until 2014: Forecast.

Figure 5: Net lending, inflation and exchange rate index in Finland, Sweden and Japan



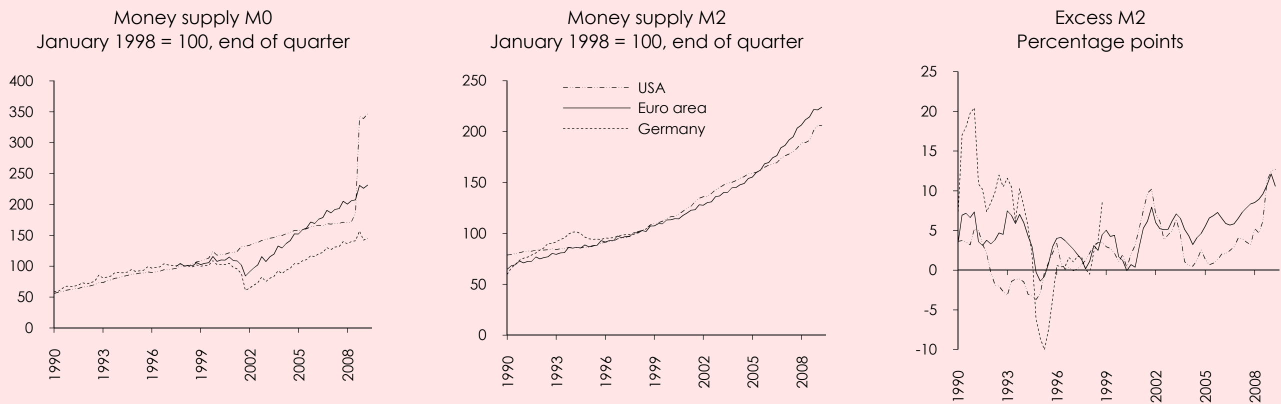
Source: IMF, OECD, EU.

Influence of money supply trends

Based on the quantity theory of money, the risk of a significantly higher future inflation rate is also explained by the increase of the money supply, especially the stock of central bank money M0, in the second half of 2008 (USA +100 percent, euro area +13 percent; Figure 6). However, the simple application of the quantity theory on the stock of central bank money M0 neglects a few important aspects:

- The strong expansion of central bank money was necessary to ensure the refinancing of commercial banks despite the collapse of the interbank money market (*Url,* 2010). In addition, the bulk of liquidity is held within the commercial banking system and flows to the real economy only to very small extent. Measured by the broader monetary aggregate M2, which also includes commercial banks' money creation by lending, the increase of the money supply was 9 percent both in the USA and in the euro area in the second half of 2008. With an output gap of –5 percent to –3 percent an expansionary monetary impulse of this size cannot be expected to result in demand-driven inflationary pressures.
- In the long run there is an empirical relationship between the trend of the broader monetary aggregates, such as M2 and M3, and the inflation trend, whereas there is little empirical evidence for a positive and statistically significant relationship between the trend of central bank money M0 and the inflation rate (e.g., *Calza – Sousa,* 2003).

Figure 6: A comparison of monetary aggregates



Source: IMF, OECD. Excess M2: Annual growth rate of money supply M2 minus growth rate of real GDP.

- According to a cross-section analysis of 116 countries for the period 1969 to 1999 by *De Grauwe – Polan* (2005) the money supply has to increase strongly or very strongly for an extended period, to facilitate a proportional acceleration of inflation. The result of a close and positive relationship between money supply growth and inflation trends is mostly based on countries with high inflation or hyperinflation. For countries where the long-term annual inflation rate remains below 10 percent the relationship between money supply growth and the inflation rate is very weak and often insignificant. In addition, *De Grauwe – Polan* (2005) show that the meaning of "long-run" depends on the level of the inflation rate: For economies with persistently high or very high inflation, a year already means a long-run horizon.

Long-term inflation expectations

After a pronounced decline at the end of 2008 long-term inflation expectations (break-even inflation rates) rose again in summer 2009, but are likely to have stabilised at about 2 percent to 2½ percent. This is what the estimation based on the yield spread between inflation-linked and conventional (non-indexed) bonds with equal maturity (Figure 7) shows. Among financial market participants the (implicit) inflation targets of the Fed and the ECB of 2 percent still enjoy high credibility, and the measures of monetary and fiscal policies are not expected to lead to any substantial inflationary tendencies in the medium to long-run. Other indicators based on inflation-linked swaps and the survey of professional forecasters support this view.

Conclusions

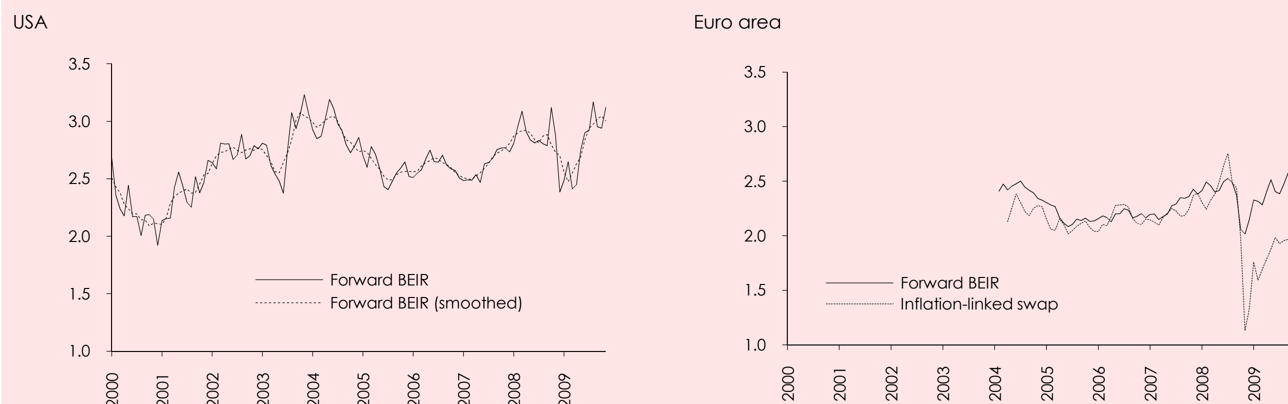
The highest risk of a medium-run acceleration of consumer price inflation does not result from monetary and fiscal policy measures in the wake of the financial and economic crisis, but from price trends for agricultural products and energy commodities: According to the International Energy Agency (*IEA*, 2009) the global energy demand is likely to grow faster in the medium to long term than the supply, so that energy prices will rise permanently. According to *OECD – FAO* (2009) food prices will also increase again in the long run.

If the recession-induced expansion of government debt is not monetised, but a credible fiscal policy can consolidate the budget both on its revenue and its expenditure side, the level of government debt is not expected to cause any increasing inflationary tendencies.

It is up to the institutions of monetary policy to withdraw the liquidity, which was provided in the wake of the financial and economic crisis and which, at the moment, is mostly hoarded by the commercial banks, from the financial system in time, as soon as the interbank money market begins to work again. Thus, the short-term increase of the monetary base can be prevented from resulting – via the money creation process of commercial banks – in a significant long-term rise of M2 or M3, which would also cause monetary inflation pressures in the long run.

Figure 7: Inflation expectations for the euro area and the USA measured by inflation-linked swaps and forward break-even inflation rate (BEIR) five years ahead

In percent



Source: Fed, ECB.

As inflation expectations of economic agents play an important role for macroeconomic price formation, it is the responsibility of monetary and fiscal policies to ensure that these expectations remain anchored at a low level due to credible, stability-oriented economic policies. The risk of a "self-fulfilling prophecy" – that expected inflation turns into actual inflation – can thus be avoided.

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The Effects of the Financial Market and Economic Crisis on Inflation – Summary

In view of the substantial increases of government debt and the central bank money supply, it has been mooted that a high to very high inflation rate must be expected in the medium to long run. Under the condition that central banks will be able to sufficiently cut down their money stocks once the crisis abates, and provided that governments propose credible measures to consolidate their public finances so that inflation expectations will stay anchored, there is little danger of a long-term increase of the inflation rate as a consequence of the expansionary monetary and fiscal policies. In the medium to long run, we are faced with a greater risk of inflation driven by a new surge in global demand for agricultural and energy commodities, while their supply is growing at a more modest rate.