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Monetary Dialogue – 10 September 2008
Topics for the monetary experts
(Preparatory Meeting – 9 September, 10.30-12.30hrs)

Topics chosen:

1) How much inevitable US-euro area interdependence is there in monetary policy?

2) Are we experiencing a new (and lasting) upward shift in inflation?

1) How much inevitable US-euro area interdependence is there in monetary policy?

With a monetary policy across the Atlantic recently very different from that of the euro zone and with increasing pressure to comment on the transatlantic interest rate differential, President Trichet has repeatedly stated that the euro area and the US remain two totally different policy areas, reflecting the partly very different fundamentals and the different situations of the real economies (and housing markets). As a logical consequence, ECB monetary policy should be evaluated only in the light of developments in the euro area and independent of FED actions.

While this statement implicitly claims an absence of interdependence between monetary policy making on both sides of the Atlantic, it may not be entirely credible. It is evident that there are differences in both the mandates of the two central banks as well as the underlying problems. However, this as such is not sufficient to imply the absence of interdependence, unintended as this dependence may be. In order to validate Mr Trichet's claim of independent policy decisions for the euro area, it would be interesting to look at some of the existing research on transatlantic interdependence in monetary policy, and to evaluate this in the light of the present policy challenges. The following questions are interesting in this regard:

- Is there significant interdependence in the first place? What is the nature and intensity of that interdependence? (e.g. interest rate levels, exchange rates, liquidity provision, communications and announcements etc). To what extent can these be quantified?

- Direction of (inter)dependence: Has the ECB been influenced in its decision-making by the FED or vice-versa and to what degree? Are the two central banks equals in their interaction or is there a leader-follower relationship? Has the relationship changed in the past year/years, and if so, in that direction?

- What has been the effect of monetary policy announcements on one side of the Atlantic on the other side of the Atlantic? What has been the (evolving) effect of EMU, i.e. has US markets' understanding and anticipation of monetary policy decisions in the euro area improved over time?

2) Are we experiencing a new (and lasting) upward shift in inflation?

The latest inflation estimates by Eurostat, published on 30 June, reported a 4% annual inflation for June 2008, considerably higher than the ECB target of below but close to 2%. Even though most mid-term forecasts predict a decrease from this peak, there is a considerable risk that the official target might not be achieved even over the medium term. Indeed, some people argue that the times of low inflation are over and an era of higher inflation has begun as inflation expectations are being revised upwards. Coupled with unsatisfactory growth forecasts most recently, the danger of stagflation has also been floating in discussion.

Reasons for this new boost in the levels of inflation (expectations) could include the following:

The role of emerging economies: prices of raw material surge due to higher demand in the emerging economies; these economies experience a boost in wage growth which indicates that the times of cheap imports are fading;

Regulatory interventions: climate change policies impose higher prices in energy and energy-intensive goods and services;

High liquidity: the excessively high growth of monetary aggregates may be finally translating into consumer prices.

Against this background, it could be the right time to review our practical understanding of "low inflation" and whether an upward shift has actually happened. It has to be stressed that the purpose of this topic should not be to question the well-established rationale behind "low inflation" as the guiding principle of monetary policy. Rather, the idea is to trace the recent empirical pressures which may have induced a level shift in inflation to take place. Please qualify your analysis according to the role of commodity and asset market developments.

Inflation literally refers to a decrease in the value of the unit of currency. Practically, it has to be measured in percentage rates of change in some price indices. There is a multitude of inflation concepts like headline inflation and core inflation (that excludes food and energy prices). Most definitions of inflation ignore asset prices such as house prices.

What should be considered as low inflation? Has the management of medium term price stability (at a level of 2%) become more difficult following recent events?

How suitable is the HICP? Does it need to be reviewed? Is there a discrepancy between officially measured and "true" levels of inflation (measured by "true" consumer preferences)? Do inflation perceptions play a role?

Topic 1

How much inevitable US-euro area interdependence is there in monetary policy?

How much inevitable US-euro area interdependence is there in monetary policy?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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Executive Summary

With a monetary policy across the Atlantic recently very different from that of the euro zone and with increasing pressure to comment on the *transatlantic interest rate differential*, President Jean-ClaudeTrichet of the European Central Bank (ECB) has repeatedly stated that the euro area and the United States remain two totally different policy areas, reflecting the partly very different fundamentals and the different situations of the real economies (and housing markets). As a logical consequence, ECB monetary policy should be evaluated only in the light of developments in the euro area and independent of the actions of the Federal Reserve System (Fed). While this statement implicitly claims an absence of interdependence between monetary policy-making on both sides of the Atlantic, it may not be entirely credible. The following questions are interesting in this regard: (a) Is there significant interdependence in the first place? What is the nature and intensity of that interdependence? (e.g. interest rate levels, exchange rates, liquidity provision, communications and announcements etc). To what extent can these be quantified? (b) Direction of (inter)dependence: Has the ECB been influenced in its decision-making by the Fed or vice-versa and to what degree? Are the two central banks equals in their interaction or is there a leader-follower relationship? Has the relationship changed in the past year/years, and if so, in that direction? (c) What has been the effect of monetary policy announcements on one side of the Atlantic on the other side of the Atlantic? What has been the (evolving) effect of Economic and Monetary Union (EMU), i.e. has the US markets' understanding and anticipation of monetary policy decisions in the euro area improved over time? The first two questions will be investigated in Section 2 of this Briefing Paper and the third and last question will discussed in Section 3. In Section 4 we give our own empirical analysis of the interdependence of ECB and Fed monetary policy decision-making by focusing on the Granger causality and the cointegration relationship between short-term and long-term nominal daily interest rates in the euro area and the US during the last decade.

From both the Granger causality and cointegration analysis, we may conclude that there is a significant interdependence between the US and the euro area, which runs through both the short-term money market and the long-term bond market. Section 5 concludes that there may be decoupling in the short run but not in the long run.

1. Introduction[1]

With a monetary policy across the Atlantic recently very different from that of the euro zone and with increasing pressure to comment on the *transatlantic interest rate differential,* President Jean-ClaudeTrichet of the European Central Bank (ECB) has repeatedly stated that the euro area and the United States remain two totally different policy areas, reflecting the partly very different fundamentals and the different situations of the real economies (and housing markets). As a logical consequence, ECB monetary policy should be evaluated only in the light of developments in the euro area and independent of the actions of the Federal Reserve System (Fed).

While this statement implicitly claims an absence of interdependence between monetary policy-making on both sides of the Atlantic, it may not be entirely credible. It is evident that there are differences in both the mandates of the two central banks as well as the underlying problems. However, this as such is not sufficient to imply the absence of interdependence, unintended as this dependence may be. In order to validate Mr Trichet's claim of independent policy decisions for the euro area, it would be interesting to look at some of the existing research on transatlantic interdependence in monetary policy, and to evaluate this in the light of the present policy challenges. The following questions are interesting in this regard:

(a) Is there significant interdependence in the first place? What is the nature and intensity of that interdependence? (e.g. interest rate levels, exchange rates, liquidity provision, communications and announcements etc). To what extent can these be quantified?

(b) Direction of (inter)dependence: Has the ECB been influenced in its decision-making by the Fed or vice-versa and to what degree? Are the two central banks equals in their interaction or is there a leader-follower relationship? Has the relationship changed in the past year/years, and if so, in that direction?

(c) What has been the effect of monetary policy announcements on one side of the Atlantic on the other side of the Atlantic? What has been the (evolving) effect of Economic and Monetary Union (EMU), i.e. has the US markets' understanding and anticipation of monetary policy decisions in the euro area improved over time?

The first two questions will be investigated in Section 2 of this Briefing Paper and the third and last question will discussed in Section 3. In Section 4 we give our own empirical analysis of the interdependence of ECB and Fed monetary policy decision-making by focusing on the Granger causality and the cointegration relationship between short-term and long-term nominal daily interest rates in the euro area and the US during the last decade. From both the Granger causality and cointegration analysis, we may conclude that there is a significant interdependence between the US and the euro area, which runs through both the short-term money market and the long-term bond market.
Section 5 concludes that there may be decoupling in the short run but not in the long run.

[1] The author gratefully acknowledges the very helpful comments of Prof. Dr. Hans Blommestein and Drs. Edin Mujagic, MSc and the excellent research assistance of Mr. Rob Nijskens, MSc.

2. Evidence of US-euro area interdependence and its direction2

One of the most recent manifestations of monetary policy interdependence is of course the concerted liquidity intervention of December 12, 2007 by the ECB, Fed, Bank of Canada, Bank of England and the Swiss National Bank. This was called the Term Auction Facility (TAF), and it was followed by the Term Securities Lending Facility (TSLF) on March 11, 2008 (Guttman, 2008). The liquidity crisis has tested the institutional setup of both the ECB and the Fed and their cooperation capacities, but has also highlighted the issue of monetary policy interdependence. Several authors have investigated the degree of interdependence between the euro area and the US, in terms of interest rates, exchange rates, bond markets and equity markets.

Ehrmann and Fratzscher (2002) and Ehrmann and Fratzscher (2005) took US, German and Euro area macroeconomic news and monetary policy announcements to gauge the interdependence between the euro area and the United States. Their sample period runs from 1993 to 2003, where they have taken Germany and the Deutsche Bundesbank as proxies for the euro area until 1999. They have modeled the process of interest rate changes in a weighted least squares (WLS) framework, to take into account negative skewness, excess kurtosis, non-normality and serial correlation. In their regressions, the authors include past interest rates in both currency areas, monetary policy surprises and day-of-the-week effects. The results indicate that the euro area and the US money markets have increasingly become more interdependent over time, where spillovers go both ways. This effect has become stronger with the advent of EMU, as structural break tests indicate. Nevertheless, the euro area reacts more strongly to US macroeconomic news than vice versa; this effect has also become significant only after the formation of EMU in 1999. Additionally, the authors try to explain why these results hold true. Their conclusion is that US macroeconomic news announcements have become good leading indicators for euro area economic developments, and euro area macroeconomic announcements and expectations are highly correlated with the US announcements. The overall conclusion is that US and euro area money markets have become more interdependent since 1999, which is attributable to the increased real integration between the two areas.

Ullrich (2003) sets up reaction functions for both the ECB and the Fed to analyze interdependence. She splits the sample period to gauge the effect of EMU and ends up with the periods 1995:1 to 1998:12 and 1999:1 to 2002:8. The conclusion is that average European interest rate reacts mainly to inflation before 1999, while the ECB focuses more on the output gap and money growth. Ullrich also finds that there is an influence of the Fed on ECB in policymaking, especially from 1999 on. This does not hold the other way around. Also, these results have to be assessed with caution because of the small sample period.

Goldberg and Leonard (2003) compare US and German bond markets and the effect of US, German and euro area macroeconomic news on the yields in these markets. This news contains information about variables such as GDP, the labour market, unemployment, prices, business confidence and industrial production. They measure the difference between the actual numbers in the news releases and market expectations, to determine the real news (surprise) component of the announcement. Then, the authors gauge the effect of these surprises on both the US and German bond yields, at two- and ten-year maturities.

[2] For a more general analysis and description of the ECB and its policies see: Jakob de Haan, Sylvester Eijffinger and Sandra Waller (2005), *The European Central Bank: Credibility, Transparency, and Centralization,* MIT Press, Cambridge MA.

US announcements are found to have an effect on German yields within an hour of their release, which confirms the very high degree of interdependence between the US and euro area markets. Some of these announcements had an even greater effect than German releases. In contrast, German and euro area announcements influence US Treasury yields much less. The authors find three explanations for this. First, the US is increasingly perceived as the engine of global economic growth, and business cycles across major industrialized countries have become more synchronized. Second, linkages between the US and the euro area suggest that US and European yields respond to similar macroeconomic conditions. Third, US data releases have typically come out earlier than releases from individual euro area countries.

Andersson et al (2006) extend this methodology using also French and Italian news announcements. They analyze the effect of US, German, French, Italian and aggregate Euro area news on German bond yields. German yields can be used as a reliable proxy, since spreads have been small and relatively stable since the introduction of EMU in 1999. They use five-minute prices of long-term German government bond futures, from the beginning of 1999 to December 2005. They use a GARCH model to capture changes in returns as well as volatility. Their results indicate that US announcements influence German bonds more than euro area and national news. Additionally, this effect has increased over time. The authors provide three reasons for this, which are similar to the reasons that Goldberg and Leonard (2003) have provided. First, aggregate euro area data releases are published after national announcements. Second, national releases may not be perceived to provide timely and complete information about the euro area. Thirdly, as in Goldberg and Leonard (2003), the results may suggest that investors perceive the US as an engine for global economic growth.

Janssen and de Haan (2005) have focused on exchange rate reactions on ECB announcements. They investigate statements by ECB officials from January 4, 1999 to May 17, 2002, and relate these statements to the daily euro/dollar exchange rate. Their results suggest that the effects on the level of the exchange rate are small, but that ECB statements have had considerable impact on the volatility of the exchange rate. This is logical, since statements bring news and will thus induce price adjustment. Furthermore, the authors find that some statements on monetary policy have influenced the level of the exchange rate, where in most cases there is a negative relationship between interest rates and exchange rates, and between inflation and the exchange rate.

Other authors have specifically aimed research at the direction of interdependence of monetary policy. Monticini and Vaciago (2004) have investigated the impact of monetary policy announcements of the ECB, Fed and the Bank of England on domestic interest rates and the money market rates in foreign markets. To measure this, they use money market futures contracts on the Euribor, USD LIBOR and LIBOR, all for one month and one year maturities in a sample ranging from January 1999 to December 2003. They find that there is no relevant impact of ECB decisions on the US money market. However, the Fed decisions spill over to the European money market, showing that the European (futures) money market takes into account Fed policy decisions, but that this relation does not hold the other way around.

Chinn and Frankel (2005) analyze the behaviour of world interest rates, focusing on the formation of EMU. To this end, they use monthly data from 1973-03 to 2004-09, divided in two subsamples 1973-03-1995-12 and 1996-01-2004-09, where they use Germany as a proxy for the euro area until 1999. A vector error correction model is specified, imposing long run co-integration between the nominal and real rates of interest.

In the early sample, US rates seem to affect European long-term rates, while the opposite is not true. The results are more ambiguous in the later sample, where US long-term real rates seem to move closer to European rates. For short-term rates, the same result holds. The authors conclude that, although financial integration has increased a lot, the direction of the effects runs predominantly from the US to the euro area. The introduction of EMU has not alleviated this asymmetry.

Ehrmann et al. (2005) have analyzed the degree of transmission between money, bond and equity markets and exchange rates within and between the United States and the euro area. Using an empirical methodology that identifies financial shocks by heteroskedasticity, they can determine different regimes to pin down the direction of financial transmission. The results, from a sample from the period 1989-2004, indicate the importance of international spillovers, within asset classes and across different markets. US short-term interest rates, for instance, have a significant influence on euro area bond yields and equity markets; they explain as much as 10% of the movements. However, this effect also runs in the opposite direction. Overall, US financial markets explain (on average) more than 25% of the movements in euro area financial markets, while euro area markets only explain 8% of the US asset price variance. Additionally, the authors find that direct transmission of financial shocks within asset classes is magnified by as much as 50% by indirect spillovers coming from other markets.

Finally, Belke and Gros (2005) have investigated the following question: Does the ECB follow the Fed? This seems to be "conventional wisdom", but the authors try to give a more documented answer to this question. They do this by executing Granger causality tests on interest rates, which are daily realizations of different maturities of money market rates. Their results indicate that the relationship between the Fed and the ECB changes over time. There is a significant structural break around the formation of EMU in terms of the relationship of short-term interest rates. By splitting the sample, the authors find that there has not been an asymmetry in this relationship, especially not since the advent of EMU. Only for a short time after September 2001 and around the turn-of-year 2000-01 there is a significant influence of the US on the euro area, with little in the other direction. However, the sample period for this study is too small to give significant results. The authors explain the ECB following the Fed in situations with higher global uncertainty by inflexibility of the euro area economy. This waiting for interest rate changes may be valuable in situations with a large degree of uncertainty.

As an overview, the International Monetary Fund (IMF) has devoted a chapter in its 2007 *World Economic Outlook* to the question if the world can decouple from the US. The general answer from the IMF is "no", since the world has become increasingly integrated. This has been analyzed by *Eurointelligence*[3], which has come up with a number of positive and negative points from this report. As can also be seen before, the main linkage between the euro area and the US is the financial market. This also implies that the euro area will be mostly hit by a financial downturn, more than by an economic downturn. Unfortunately, this is what has happened. However, as Eurointelligence says: there is good news and bad news. The euro area has become more resistant to shocks for three reasons. First, the size effect says that a large and increasingly integrated monetary union is less prone to external shocks. Second, an improved monetary policy assures an anti-cyclical policy response if the euro area is hit by a symmetric shock.

[3] Eurointelligence ECB Watch, *Some thoughts on decoupling from a European perspective*, 11-04-2007, http://www.eurointelligence.com/Article3.1018+M5cb25163573.0.html

Third, the Stability and Growth Pact (SGP) has introduced a counter-cyclical fiscal policy in many countries, with automatic stabilizers to cushion the effect of external shocks. However, the bad news is that financial distress easily spills over to the euro area, as is documented in the IMF report in a special box. It concludes that asset markets in the euro area are driven more by US shocks than by domestic shocks, which is bad news if we look at the events surrounding the credit crisis. These financial linkages are the reason why Europe can't decouple from the US.

3. Effect of monetary policy announcements by the ECB and Fed

Neri and Nobili (2006) have studied the transmission of monetary policy from the US to the euro area using a two-country structural VAR, with a dataset ranging from 1982:3 to 2005:2. The analysis shows that a monetary contraction in the US has a short-run positive effect on output in the euro area, which is not persistent. In the medium run, there is a more persistent and negative effect. The euro depreciates on impact, and then slowly appreciates back to fulfill the uncovered interest rate parity condition. Pass-through of this change into consumer prices is incomplete. Also, the short-term nominal interest rate increase does not compensate the hike in prices and thus the real short-term interest rate declines. This explains the initial expansion in output, which disappears in the medium run. Finally, the authors find that the trade balance plays a negligible role in transmission, which suggests that other channels, like financial markets, play a bigger role in transmitting US monetary policy to the euro area.

Dees et al. (2005) use a Global Vector Autoregression (GVAR) analysis to gauge the effects of a US monetary policy shock to euro area markets. They find that US financial shocks travel rapidly towards the euro area, and often get amplified when they cross the Atlantic. Their effect is mainly on equity and bond markets, while the effects on euro area output and inflation are lagging, limited and not highly significant. The model also highlights second round effects, which is especially interesting in the light of the current events. Shocks in the US are amplified through the return impacts of shocks to output and inflation in the euro area. Also, the euro area will react to the US shocks transmitted via their trading partners. Additionally, the transmission of shocks takes place via financial variables that have significant spillover effects on real variables.

Ehrmann and Fratzscher (2003) take into account monetary policy announcements on both sides of the Atlantic. They first define three channels through which foreign announcements may affect domestic markets. First, foreign news may be domestically relevant if the exchange rate is a key variable. Second, global spillover effects may occur through integrated financial markets. Third, real integration of economies may play a role if foreign monetary policy decisions change domestic macroeconomic decisions. The authors investigate the degree of dependence by measuring the daily reaction of money market interest rates to monetary policy announcements on both sides of the Atlantic. They use data for the US and Germany until 1999, and data for the US and the euro area from 1999 on, to arrive at a dataset that comprises January 1993 until February 2002. They focus on the surprise component as the difference between market expectations and the actual announcement, as markets react merely to surprise news. Then they use an exponential GARCH (EGARCH) framework to determine the conditional mean and volatility of interest rates and their reaction to policy announcements. Their results point to general market linkages across the Atlantic, an interdependence that has grown larger since EMU. First, spillovers in the mean of interest rates have become larger over time, mainly from the US to the euro area. Second, volatility spillovers from each market to the other have increased, in both directions. Regarding foreign monetary policy surprises, spillover effects to money markets are restricted to low maturities, both for the US and Germany in the period 1993-1998.

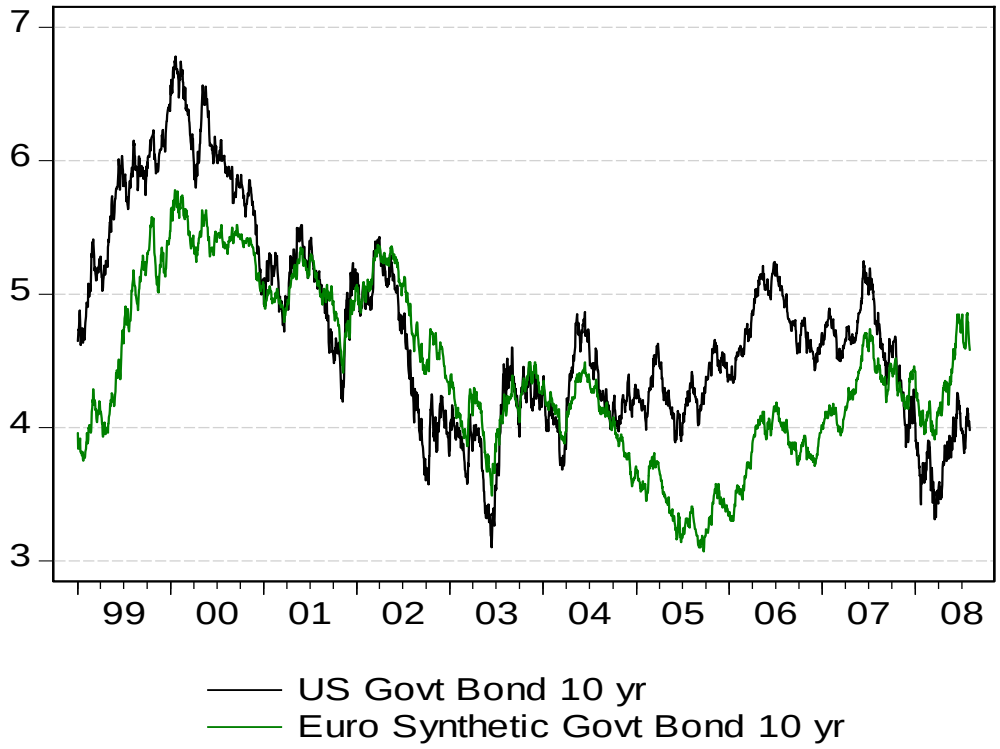
However, since EMU this effect has strengthened: responses become larger, are significantly different and extend also to higher maturities. Notably, this effect comes on top of the general market linkages as described above. Finally, the volatility of money markets seems to be largely unaffected by monetary policy announcements in recent years. This holds for the Fed as well as the ECB. These findings suggest that the markets' understanding and anticipation of monetary policy decisions by the Fed and the ECB have increased over time, which is indicated by the lower uncertainty and volatility in markets around policy decisions.

Berger et al. (2006) provide a different view on this story: according to their research, forecasting and understanding ECB monetary policy is still a matter of geography. Using a worldwide sample of professional financial analysts' forecasts, they find that differences in forecast accuracy are substantial, and that the forecast error increases with the distance from informational hubs such as Frankfurt or London. Additionally, they find that national macroeconomic conditions tend to influence forecast accuracy. This means that predictions of ECB policies become less reliable when the forecaster operates from a country with inflation or unemployment relative to the euro area average. As the US and the euro area have become more integrated and interdependent, forecasts of ECB policies by US analysts may be more precise. Also, analysts operating in countries with a history of high central bank independence are more likely to make good forecasts of ECB actions, which is a finding in favour of the US. Furthermore, the observed heterogeneity in forecasts is systematic. Therefore, the abovementioned findings can be persistent although some of them have declined due to a learning process. Policy implications of these findings are that this heterogeneity may be problematic, since agents have yet to converge on a common expectation-formation process for monetary policy. This holds for agents within the euro area, as well as for US forecasters.

4. Testing for US-euro area interdependence with interest rate data

The existing literature in Section 2 shows us that there is an increasing interdependence between the US and the euro area. This still appears to be *asymmetric*, as the US mostly affects the euro area and not the other way around. However, recent studies use quite outdated data, containing only a few years of the euro being in existence. With the 10th anniversary of the euro nearing on the 1st of January 2009, we have a lot more short-term and long-term interest rate data at our disposal to perform an analysis of the interdependence between the euro area and the US. This will allow us to more thoroughly gauge the effect of the US in the euro area, and the other way around. Let us take a first look at Figures 1 and 2 displaying the *nominal* short-term and long-term interest rates from January 1st 1999 until July 31st 2008 in the US and the euro area.

Figure 2: Long term interest rates



Note: Daily data, in percentages. Source: Datastream

Both the short-term and long-term nominal interest rates move closely together until the midst of 2007. The moving together of the long-term interest rates still applies also after the midst of 2007. According the expectations theory of the term structure, long-term interest rates are reflecting the *expected* short-term interest rates during the terms to maturity. If we assume that the expected *real* interest rates are rather sticky in the short run (from month to month), long-term interest rates are reflecting the inflationary expectations during the terms to maturity. It is interesting to see, for instance, that during the course of 2007 the European short-term interest rate stayed at approximately the same level, while the US short-term interest rate dropped tremendously with the advent of the credit crisis. The US *real* short-term interest rate is now strongly negative and the European *real* interest rate is becoming close to zero by the increasing expected inflation.

Comparison of the European and US nominal interest rates poses the question whether the ECB follows the Fed or the other way around. To address this question, we will perform two tests. We will first apply the test for *Granger causality* on both interest rate series and maturities, as in Belke and Gros (2005). Then, we will impose a *long run cointegrating relationship* upon the interest rates as done by Chinn and Frankel (2005).

Granger causality tests

As in Belke and Gros (2005), we try to capture the responsiveness of the euro area and the US to each other's monetary policies by estimating Granger Causality (GC) equations. We will do this for different lags, to see if the effect is lasting. The result of this empirical exercise is shown below in Table 1, where each cell reports the p-value of the GC test. The heading of each column states the null hypothesis of the test.

Table 1: Results of the Granger Causality Test

Short-term interest rates			Long-term interest rates		
Lag in days	US does not GC EMU	EMU does not GC US	Lag in days	EMU does not GC US	US does not GC EMU
1	0.0000	0.0000	1	0.0966	0.0002
2	0.0000	0.0000	2	0.2690	0.0002
3	0.0000	0.0000	3	0.0661	0.0000
4	0.0000	0.0000	4	0.0123	0.0000
5	0.0000	0.0000	5	0.0048	0.0000
10	0.0000	0.0000	10	0.0603	0.0000
15	0.0001	0.0000	15	0.0422	0.0000
20	0.0008	0.0000	20	0.0966	0.0000
30	0.0014	0.0000	30	0.0229	0.0000
60	0.0394	0.0015	60	0.2325	0.0000

Note: the Granger Causality relationship is considered significant if the p-value is smaller than 0.05.

From this table it follows that the causal relationship between the short-term interest rates in the euro area and in the US is very strong. Even when we consider a three-month period (60 trading days), both short-term interest rates Granger cause each other. The relationship goes both ways, so we cannot say that one currency area follows the other. For the long-term interest rate, this relationship is more one-sided. When considering lags of a few days, we see that the US long-term interest rate Granger causes the European long-term interest rate, but not the other way around. Also for longer lags we see that the p-values are often larger than 0.05. Therefore, the US long-term interest rate Granger causes the European long-term interest rate when looking at the 10-years maturities.

Cointegration tests

Following Chinn and Frankel (2005) we impose a long run cointegrating relationship upon both the short-term and long-term interest rates. This is done by using the following *vector error correction specification*, where *i* refers to the short-term nominal interest rate and the long-term nominal interest rate respectively:

$$\Delta i_t^{US} = \alpha_1 + \varphi_1(i_{t-1}^{US} - i_{t-1}^{EU}) + \sum_{k=1}^{j} \beta_{1k} \Delta i_{t-k-1}^{US} + \sum_{k=1}^{j} \theta_{1k} \Delta i_{t-k-1}^{EU} + \varepsilon_{1t}$$

$$\Delta i_t^{EU} = \alpha_2 + \varphi_2(i_{t-1}^{US} - i_{t-1}^{EU}) + \sum_{k=1}^{j} \beta_{2k} \Delta i_{t-k-1}^{US} + \sum_{k=1}^{j} \theta_{2k} \Delta i_{t-k-1}^{EU} + \varepsilon_{2t}$$

The number of lags for this specification is determined by use of the Schwarz Information Criterion, a lag exclusion test and a test for autocorrelation. We arrive at three lags for both the short-term and long-term interest rates. This already tells us that the reaction of the European and US interest rates to their transatlantic counterpart, if there is any, will be very quick. The results of the estimation are reported below in Table 2, where φ denotes the *error correction coefficient* in the equations mentioned above.

Table 2: Cointegration relation estimates

	Euribor	US T-bill	Euro 10 yr bond	US 10 yr bond
Φ	-0.00021	-0.00608***	0.0001	-0.00043**
Lags	3	3	3	3
N	2496	2496	2496	2496
Adj. R	0.074	0.04	0.17	0.006

****,*** denote significance at the 5%,10% level respectively**

As we can see, for both the short-term as well as the long-term interest rate, the cointegrating relationship runs from the US to the euro area. This means that the United States interest rates react negatively to a positive interest rate gap between the US and euro area, which means that US interest rates move to close this gap and equalize interest rates. This reaction is small, since we use daily data, but it is nicely significant. It is interesting to see that, during the EMU period, the US seems to react to an interest rate differential between the two currency areas, while the European interest rates do not react to this interest rate gap. When separating the analysis for short- and long-term interest rates, we can draw two conclusions. First, the negative reaction of US rates to a positive interest rate gap is larger for short- than for long-term interest rates. This indicates that the interest rate relation between the United States and the euro area mainly runs through the money market, as would be expected when the interdependence concerns monetary policy. Second, the US reaction is also statistically more significant for short- than for long-term interest rates, which confirms the above conjecture.

From both this analysis and the Granger causality analysis, we may conclude that there is a significant interdependence between the US and euro area, which runs through both the short-term money market and the long-term bond market.

5. Conclusion

The literature on the evidence of US-euro area interdependence and its direction and our own empirical analysis seems to support the conclusion that there is interdependence between the US and the euro area in the long run and the direction is rather from the US to the euro area than the other way around. Of course, the ECB and the Fed have distinct mandates for monetary policymaking, which explains the transatlantic interest rate differential in the short run. Nevertheless, empirical evidence shows that it is hard to state that the euro area and the US remain ‘two totally different policy areas’ in the long run. Given the increasing globalization of inflation and monetary policy, it will become even harder for the ECB not to be influenced in its decision-making by the Fed or vice-versa.

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How much inevitable US-euro interdependence is there in monetary policy?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

Gustav A. Horn

Executive Summary

As during the financial turmoil in 2000 and 2001 the two most powerful central banks on the globe, the Fed and the ECB, act differently on the very same major economic challenges. While the Fed takes a pre-emptive and aggressive counter cyclical stance, the ECB preserves its attitude of mainly wait and see. At the first glance one could argue that the objective functions of both central banks are different. In the following it will be argued that at a closer look, this is not the case. Even if one takes the different targets into account both monetary policies have interdependencies not to be neglected. So in the end the ECB has to consider what the Fed does and vice versa. This may not lead to a completely identical monetary policy even if the economic situation is similar in both areas. But some aspects of co-ordination should be taken into account. The basic policy recommendation to the ECB is to be more flexible when reacting to changes of the economic situation. The extent may not be the same as in the US but the direction should.

1. Introduction

There we are again. As during the financial turmoil in 2000 and 2001 the two most powerful central banks on the globe, the Fed and the ECB, act differently on the very same major economic challenges. While the Fed takes a pre-emptive and aggressive counter cyclical stance, the ECB preserves its attitude of mainly wait and see. The Fed lowered interest rates very swiftly in the light of the financial turmoil and an ailing economy. The ECB recently even moved into the opposite direction by raising interest rates slightly to fight high inflation rates.

At the first glance one could argue that the objective functions of both central banks are different. The Fed has to consider a whole set of economic data among them inflation and the stance of the business cycle. The ECB on the other hand predominantly has to fight inflation. In the present situation, one might argue, there is a conflict between price stability and economic growth. The Fed has to find a compromise between stimulating growth and keeping inflation low. That may well lead to the presently applied strategy of the Fed to fight economic slack first and then deal with inflation rates that may anyway get subdued when the economy is weak. Instead, the ECB has to focus on high inflation rates that are well above the target. Therefore it has to raise interest rates notwithstanding its adverse impact on economic growth.

The conclusion from these considerations is that monetary policy in the US and in the Euro area could be completely independent of each other given the different objectives. In the following it will be argued that at a closer look, this not the case. Even if one takes the different targets into account both monetary policies have interdependencies not to be neglected. So in the end the ECB has to consider what the Fed does and vice versa. This may not lead to a completely identical monetary policy even if the economic situation is similar in both areas. But some aspects of co-ordination should be taken into account.

In the first section different economic channels that constitute the interdependencies, will be outlined. In the second section this will be deepened by analysing the course of monetary policies in the US and the Euro area since 2000/2001 as well as the present situation. The final section contains policy recommendations.

2. The Channels of Interdependence

There are several channels that could induce interdependence between both central banks despite different objectives. The first and obvious is an interdependent economic situation. In this case the Fed has to look anyway to the Euro area not the most important but nevertheless one of major trading partners of the US. A recession in the Euro area could via direct and indirect effects through other trading partners threaten the Feds growth target in the US. Hence the Fed must be interested in what the ECB does against the danger of a slack and react appropriately. The other way also applies. If there is a recession in the US the Euro area will be affected. The direct trade links are also not the most important but indirectly via trade links with Asia that is very much affected by US developments, US developments become very important. Those consequently affect the stance of the business cycle in the Euro area and thus inflation. The ECB has to consider it when forecasting inflation and therefore has to observe what the Fed does in this situation and react appropriately. The reactions of the two central banks will have to go into the same direction if the business cycles movements are the same, too.

Recently there has been a debate on a possible decoupling of the business cycle in particular between the Euro area and the US (IMF 2008, Chapter 4). The reason was that in 2007 there was the general expectation of a significant slow down of the US economy. Many policy makers and forecasters expected on the other hand that the Euro area would not be affected by this. As reasons were mentioned strong domestic demand and diminishing trade links with the US (IMF 2008). Then there would be a decoupling of the US and the European business cycle. In the light of recent data this debate is to some extent spilt milk. It has become obvious in the meantime that the Euro area also is heading for a slow down. This corroborates the findings of the IMF (2008) and others (BNP Paribas 2008) that in fact the global cycles are more and more synchronised, because many causes of economic developments are of global nature. But as Kose/Otrok /Prasad (2008) point out synchronisation mainly applies to different groups of countries. Synchronisation has increased among industrialised countries and emerging markets, but not between them. Nevertheless this entails an even increasing interdependence of the Fed and the ECB. If business cycles converge there is an unavoidable interdependence even if objective functions are different. When an economy heads for a slack, inflation rates will sooner or later go down as well. Then even a central bank with a strict inflation target like the ECB will have to fight a too low inflation rate violating the lower bound of the inflation target. This can only be done by stimulating the economy. The longer the ECB waits to fight the economic slow down the more drastically the change of course has to be later on. Because the slow down will be harder to fight then.

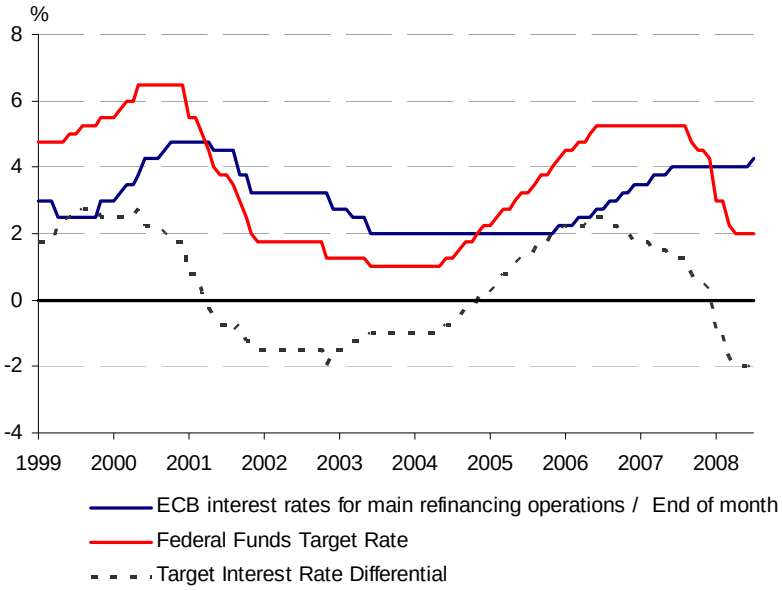
In fact globalisation is a key issue when dealing with central bank interdependence. A major part of globalisation is financial markets. They deal with global transactions of assets owned by globally acting investors and the global financial centres are closely linked together. If these markets move significantly into one direction, a global impact is unavoidable. This has been shown at times of boom as well as at times of bust. The internet boom at the end of nineties positively affected all major industrial countries. On the other hand, the end of the internet bubble as well as the present sub prime crisis shows an adverse impact on a global scale. Already any worsening of forward looking business climate indicators regularly spread on a global scale. If business expectations change in a synchronised way, so will the cycle. This again speaks in favour of an increasing interdependence of monetary policy.

The third element of interdependence is exchange rates. Any change of interest rates for the US- Dollar or the Euro affects financial investments into the respective currency areas. As soon as investors expect interest rates to rise in one area stronger than in the other, they will shift their assets accordingly and fast. The expectation immediately feeds into the actual course. Therefore if there is already any speculation on a change of interest rates ahead of a central bank decision, currency markets will move. If there is the expectation that the Fed will lower interest rates, while the ECB may do nothing or even move into the opposite direction, people will expect the US dollar to fall against the Euro. Exactly this has happened throughout spring and early summer. The reasons for these movements are that financial assets in the Euro area carry higher interest and assets therefore move to the Euro area. Given these expectation an appreciation of the Euro swiftly occurs and has indeed occurred until recently. Given that European exports were adversely affected, the risk of a down turn of the Euro area has increased, too. At the same time imported goods become cheaper diminishing the risk of inflation. All this has to be considered by a central bank even it if just focuses on inflation. With an appreciated domestic currency the fight against inflation is much easier. Therefore the need to raise interest rates becomes less urgent. In other words, given the exchange rate link, any decision of one central bank influences the decision of the other. There exists interdependence.

3. A brief review on the past and a look at the present situation

There are many similarities between the present situation and the past global downturn in 2000/2001. One should keep this in mind when assessing the present situation. While the root of the crisis is different its propagation around the globe is not and that is decisive. Then the internet bubble burst. The roots of disaster were exaggerated profitability expectations for these firms, especially in the US. Before the crisis started, the Fed had increased the Federal funds interest rates to over 6 % making borrowing very expensive.

Fig. 1:Target Rates Fed and ECB



Since then quite a few financial investments were based on borrowed money to leverage profits and many had to withdraw their investments because of rising costs of money. Then stocks started to tumble. In the first place only financial investors in the US were affected. Some were led to suppose that this downturn on financial markets would be confined on the US and European stocks were not going to be affected. But soon the impact was felt an all major stock exchanges. If profitability of these firms was overestimated for the US, so it was or Europe. Then again many people supposed that only stock exchanges would be affected but not the real economy. They forgot that banks had to become increasingly risk averse in the light of so many broken investments. They had to restrict their lending for real investments too. Soon the US economy headed for a recession. Already then a decoupling debate between the US and the Euro area started. This proved wrong too, for reasons described in the previous section and indeed, recessions became global in turn.

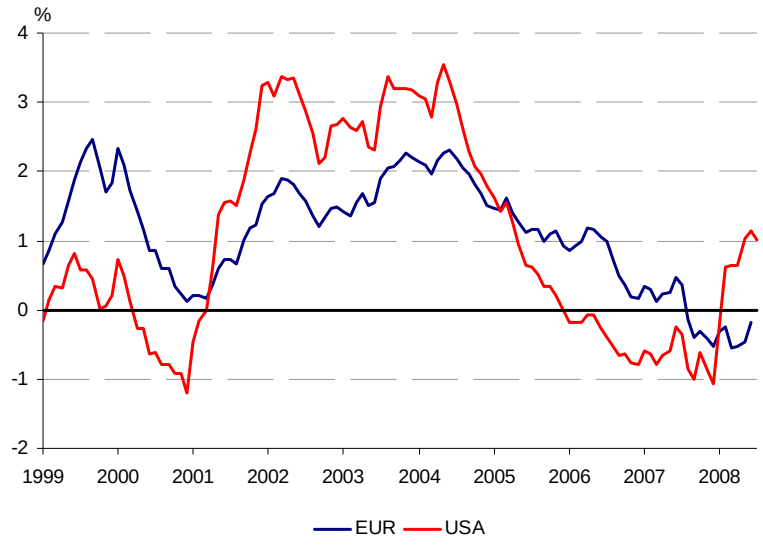
All this reminds very much of the present situation. In the beginning there was only a sub prime crisis in the US real estate sector also triggered by higher interest rates in the US. With the global trade of structured financial products these financial failures did not stay there. On the contrary against initial expectations of many they spread all over the globe. Again banks have to write off a lot of investments and in addition to that many people have lost confidence into the investment behaviour of financial institutions. These even do not trust each other any more, what brought markets for inter- bank lending almost to a complete halt and central banks were forced to provide huge amounts of liquidity to keep banks alive. Such a situation requires banks to become more restrictive in their lending behaviour that will affect investments into structures, equipment and housing in due turn. Again all indications point to a global downturn.

While all the crises mainly originated in the US, they spread all over the globe and the Euro area was – albeit always a bit later - also affected. It is interesting to see how monetary policy in the US and the Euro area acted against this similar backdrop in a different way. As Fig .1 shows the Fed was always the front runner, what is not surprising, since effects were being felt in the US earlier. In the past crisis the Fed lowered interest rates for the first time in January 2001. The Fed decreased the Federal funds rate by a drastic 100 basis points in one step. The ECB did not act before May 2001 when already all indicators for the Euro area pointed downwards. Then the ECB reduced its repurchasing rate by a mere 25 basis points. The Fed lowered interest rates down until 1pc. The ECB stopped at 2 pc. There a pattern emerged that is basically still valid. The ECB acts later and weaker than the Fed, but in the end they move into the same direction. This also applies to the latest turning point when the economies picked up again. The Fed started to raise interest rates in spring 2004 whereas the ECB followed only at the end of 2005. At that time US interest rates were again much higher than in the Euro area.

Presently there seems to be a break in the pattern. While the Fed aggressively lowered interest rates during the summer of last year to fight the adverse impact of the financial turmoil, the ECB still raised rates, albeit slowly. But it remains to be seen whether this is sustainable given the fact that interdependences of the financial markets and the business cycle already show their deteriorating effects on European economies.

As a result of this monetary policy pattern the stance of monetary policy was quite different in both currency areas. As Fig. 2 shows the US monetary policy reacted much more pronounced on cyclical developments than the ECB that followed a steadier course.

Fig. 2 Yield Difference US and Euro Area



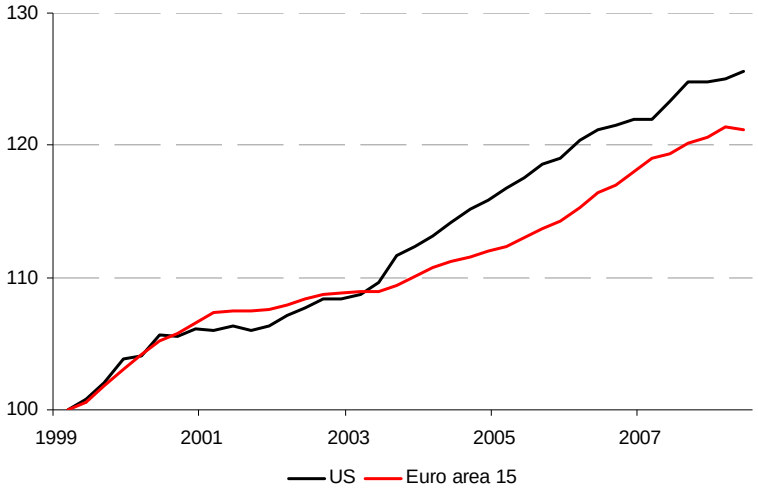
The Yield difference for the US is calculated as the difference between 10-Year Treasury Constant Maturity Rate US and 3-MONTH EURO-DOLLAR DEPOSIT RATE. The Yield difference for the Euro Area is calculated as the difference between 10-Year Treasury Constant Maturity Rate Euro Area and EURIBOR three-month funds rate.

The yield differential, the difference between long term and short term interest rates, is good indicator for the stance of monetary policy and a good predictor for future economic development. Short term rates reflect monetary policy and long term rates the expectations of financial market investors on future inflation and future economic situation.

If the difference is small or even negative monetary policy is rather restrictive since it set rates close to future expectations. In other words profit expectations should be low in such a situation and the economy is heading for a downturn. If the yield is highly positive monetary policy is rather expansionary since costs of credit are low compared to yield expectation on financial markets the economy should be heading for an upturn.

It can be seen from Fig. 2 that the amplitude of the Euro yield differential is much smaller than that of the US. Overall monetary policy in the Euro area took a much steadier stance than the Fed. With a synchronised business cycle this means, the ECB followed a much less pronounced anti cyclical course than the Fed. During a slack the fed had stimulated the US economy in a much stronger way and in turn had to pull the brakes harder in order to prevent an overheating. Growth rates for the US have been nevertheless higher since 1999 than in the Euro area, although the crisis in 2001 was much deeper in the US. Obviously the Euro area latter lacked some stimulus, the US economy had.

Fig 3 Gross Domestic Product
quarterly data, real, Q1 1999 = 100



Source: Eurostat and BEA, calculations by IMK.

A closer look on the yield developments reveals interesting sequences at turning points that explain why the stimulus for the Euro area is lacking. Interestingly these turning points basically happen at the same point of time for the US as for the Euro area as Fig. 2 shows. At these turning points the Fed acted while the ECB did nothing for some time and then reacted. Nevertheless the stance of monetary policy of the ECB was also affected by the Fed. Two examples will show that.

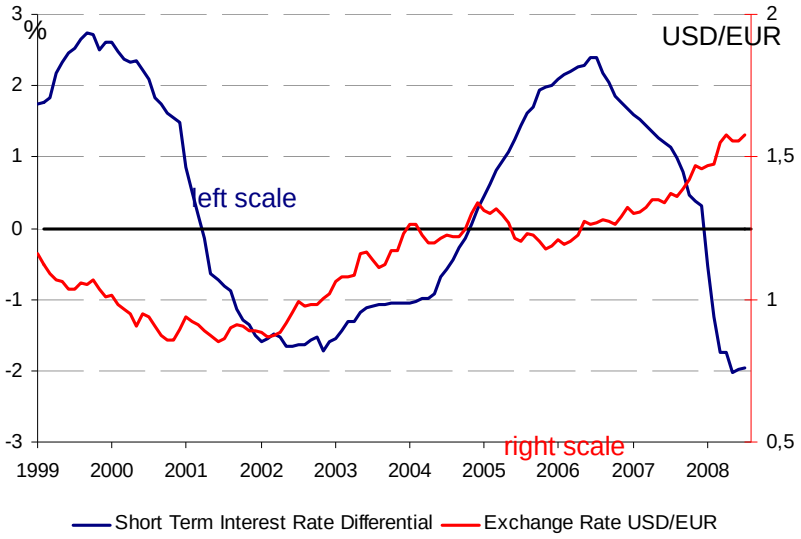
The first is the turning point at the beginning of the year 2001. Until then both central banks had been on a restrictive course. However the economic outlook started to get worse and worse. Therefore the Fed in January 2001 lowered interest rates by 100 basis points. Short rates dived even more in the following months, whereas long term rates reduced more resiliently. In other words cost of borrowing decreased more than economic expectations raising the outlook on profits and thus making monetary policy more expansionary. While this was exactly the intention of the Fed the ECB did nothing and nevertheless its stance also got more expansionary but in a passive way. The lowering of interest rates in the US created the expectation that the in due course the ECB would follow. Therefore short term rates in the Euro area also went down significantly. Even long term rates reduced to some extent. Only five months later the ECB also reduced interest rates for the first time during that cycle.

The same happened in the other direction in 2004 when the worst of the crisis was over and both economies started to pick up. The Fed actively raised its rates inducing a steep increase of short term rates fuelled by the expectation of further rate hikes. At the same time long term rates decreased since with a central bank changing to a more restrictive stance expectations became downbeat. The ECB again did nothing. But short term rates were going up in the Euro area too, since more pessimistic expectations spilled over from the US.

The only counterexample to this pattern is the recent development. While at the beginning of the present downturn things looked pretty similar to past cycles, the Fed acting and the ECB waiting, the .ECB has now moved into the opposite direction and raised interest rates. Therefore monetary policy in the Euro has got much restrictive than that US. But it is highly likely that with the economic outlook worsening in the Euro area due to the described interdependencies the ECB will be forced to change its course towards the fed one sooner or later.

The different patterns of monetary policy have influence on their effectiveness as the GDP graph has shown. It is not only the difference between an active and a passive monetary policy that is important. A major impact is also triggered by the exchange rate channel.

Fig. 4 Exchange Rate and Interest Rate Differential



Short term Interest rate for the US is the 3-MONTH EURO/ DOLLAR DEPOSIT RATE

Short term Interest rate for the Euro Area is the EURIBOR three-month funds rate

Each time the Fed markedly changed its course ahead of the ECB. The exchange rate showed the expected repercussions. When the Fed got more restrictive the Euro depreciated against the Dollar and when the Fed relaxed its stance the Euro appreciated. Hence the Euro monetary policy was always subject to two opposing influences. On the one hand its stance moved along with the Fed albeit passively. On the other hand the exchange rate triggered opposing effects. At times of more restrictive course in the US depreciation stimulates Euro area exports and spurs inflation. That alone may force the ECB to become restrictive after some time. If the Fed moves on a more expansionary course the Euro appreciates dampening exports and inflation. Therefore the ECB may be forced to actively change its course after some time too. In any case the exchange channel puts a passively acting ECB into a following position. The direction of monetary policy in fact is determined outside the Euro area.

4. Policy Recommendation

The present situation of European monetary policy is not satisfactory. Even if one has to concede that the objective function of the ECB is different from that of the Fed it is unsatisfactory the ECB de facto always followed the Fed. This means that a least the direction of the Feds course was considered appropriate for the Euro area after some time too. So the question rises, why not earlier? At the age of globalisation it seems odd that the central banks of the major currency areas could lead a monetary policy strategy of mutual isolation. Both central banks have to assess the same global developments and even if there are domestic differences, financial market and exchange rate links trigger spill over effects that have to be considered. Hence the basic recommendation to the ECB is to be more flexible when reacting to changes of the economic situation. The extent may not be the same as in the US but the direction should.

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How much inevitable US-Euro area interdependence is there in monetary policy?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

Jean Pierre Patat

Executive summary

It is obvious that the economic, financial and social context of the euro area and its specific assessment of what must be its action has provided a framework for an independent monetary policy of the Eurosystem.

A more generous social protection in the euro area than in US and the fact that European households are net creditors while US households are massively net debtors lead the two regions to somewhat different assessments in terms of the challenges of unemployment and inflation. Even if it were inaccurate to say that unemployment was a main priority of the FED whereas inflation the main priority of the ECB, both have little consideration for the others problems. In addition, the two central banks have clearly two different strategies. The differences in the respective statutes, but also, the degree of accountability of the two institutions, lead the ECB to adopt a simple medium term price stability oriented strategy, while the strategy of the FED is less linear based on a permanent process of assessment of balance of risks. Finally, the fact that the two areas issue two worldwide currencies freely floating on the markets and have no effective exchange rate policy would be another factor of non- interdependence of the two monetary policies.

However there is broadly a common economic and financial context in the two areas and one must observe that this situation comes often in the form of a contagion effect of the US economy toward the Euro area, mainly through the channel of financial and banking evolutions. For example, the growth and bursting of the US financial bubbles have deeply affected, with some lags, the European economic cycle. Therefore, the ECB monetary policy can of course not ignore the FED monetary policy stances. Looking at a chart shows immediately that the US and Euro area interest rates are broadly moving in the same directions. But, thanks to its the strategy, the ECB has succeeded in preserving a substantial room for manoeuvre, with its lowest interest rates always higher than those of the FED, but in compensation its highest interest rates always decidedly lower than those of the FED.

The period following the financial crisis from the second half of 2007 is the more illustrative experience of this “independence in interdependence” of ECB monetary policy. The two central banks face the same problems and trade-off, but the fundamentally different approach of the two institutions has clearly shown an obvious disconnection of the two policies. Can this divergence last a long time? The more than expected contamination of the Euro area by the US financial crisis and its spill-over into the real economy led the ECB President to let the market anticipate an unlikely other increase in interest rates, while the FED President gave an opposite message two weeks before: this double communication contributed to inversing the trend in the euro/dollar rate and to reinforce the decline of the oil price. If these movements are solid, the initiated convergence between the two monetary policies could be limited with simultaneous easing in inflationary pressures and rekindled output growth. If not, interdependence could be strengthened.

During the last thirty years, the role of monetary policy in macroeconomic management has become predominant. The great inflation of the seventies, the increasing limits that globalization, economic opening and competition of emerging countries has imposed on the effectiveness of traditional instruments of economic policy, especially the fiscal and social actions, can explain this evolution. The spreading of the independence of central banks during the nineties has reinforced this situation, as observers, economic agents and markets put the emphasis on the contrast between free institutions and democratic, social and electoral constraints on governments. This contrast has seemed particularly evident, and often criticised, with the introduction of the euro and the creation of the European System of Central Banks.

Speaking of interdependence of the European monetary policy with the US policy can appear rather paradoxical. The use of the term “interdependence” could rather be an elegant way for describing euro area dependence vis-á-vis the US policy.

Interdependence can appear paradoxocal since the aim of Monetary Union and of single currency and monetary policy is specifically not to fight the dollar, but to give to Europe its own monetary identity, as a crowning of an evolution started with the so called “snake” and pursued with the EMS. It can also be a paradox as the ECB monetary policy is regularly the object of criticisms while the action of the Fed action is considered to be much more clever, which strives to prove that the European institution is not influenced by the US one.

But the realities are of course more complex.

It is evident that the financial, economic and social context of the Euro area and its specific assessment of what must be its action, with the medium term price stability objective, has created a framework for an independent monetary policy in the Eurosystem .But the ECB cannot neglect other factors like the exchange rate or stock markets contagion. in a world which has become in itself strongly interdependent. Its originality has been to succeed in giving one-self a substantial room for manoeuvre, which even increased further during the previous twelve months. But, as it is obvious that the two central banks are presently facing the same difficulties with different strategies, the circumstances could lead to strengthen interdependence between the two monetary policies.

1. The Fed and the Eurosystem have different priorities in monetary policy objectives

It would be excessive to say that unemployment is the main priority in US and inflation the main priority in the Euro area without any consideration for the other problems. But, in fact, it is true that some structural specificities lead the respective authorities to have somewhat different assessments of these questions.

As social protection of unemployment is rather partial and sometimes downright insufficient in the US, a surge in unemployment is rapidly considered a very serious problem calling for rapid ad hoc vigorous responses. In the euro area, unemployment is not, of course, considered a negligible issue, but the generous protective system leads to have a sort of more pragmatic endurance of the phenomenon. Indeed, one can observe that American policy makers and citizens are strongly concerned when the unemployment rate is exceeding, let’s say 5%, while higher levels are tolerated in Europe. It is sure that the present 7,1% rate in the euro area, which is considered as a significant improvement, would be intolerable in the US. Concerning the question of inflation, one must firstly note that high inflation periods were relatively scarce in US, while a lot of European countries suffered on many occasions very huge, damaging and memorable inflation crises.

But it is perhaps more important to refer to the present financial situation of economic agents in the two economic areas. As we mentioned in a previous paper, the fact that US economic agents, and especially the households are massively net debtors, and that European households are net savers does not justify indifference to inflation in the first area, but can lead to admit an inflation rate which would be considered as excessive in the second. In other words, the fact that the ECB is very anxious about a 3,7% inflation rate, while the US monetary authorities seem to accept a nearly 5% rate is probably not the sign of a psycho-rigid attitude but the consequence of being aware of a sort of duty and the conscience that a more benign attitude could cause a risk of destabilisation for the society, with serious economic consequences. It must be added that a moderate price increase is the core of the ECB strategy since it allows to accommodate the purchasing power preservation and the strengthening of competiveness.

We must add that there is an other important factor which can, to some extent, affect the orientation of US monetary policy, which is the willingness of preserving the attractiveness of the financial market in order to guarantee the flow of foreign investments and the financing of the quasi permanent US current account deficit. The ECB has not at all such a preoccupation as its current account is broadly balanced and it has not the ambition to contribute to reinforce the international role of the euro.

2. Two monetary policy strategies: credibility versus balance of risks diagnostic

The differences in the respective statutes are generally held to be the determining reasons for the different strategies of the Fed and of the Eurosystem. The Fed's statutes gives to the institution a sort of multidirectional mandate with goals of “maximum employment, stable prices, and moderate long term interest rates”. The ECB statutes give a clear prioritization to the objective of price stability, supporting the economic policy of the European Union being also recommended, but insofar as the first objective is not endangered.

We consider that these legal documents are not the only reasons for the respective behaviours of the two central banks and of the strong divergences that observers consider to exist. Statutes are of course important, but experience shows that circumstances can lead to respect their spirit while being pragmatic with their letter. (In 1999, the ECB surprised all observers by cutting its interest rates for dealing with a supposed recession risk, which, in fact was not effective.)

For the purpose of the present argument, the cornerstone of the two central banks strategies is their different degree of “accountability”. Accountability is the duty of combined transparency and responsibility of an institution vis á vis the Government, the Parliament and the public regarding its actions and specially the realisation of its objectives. It is clear that the accountability of the ECB is not of the same nature than that of the Fed, a difference which results from the fact that the second is the central bank of a unified country while the first is a federal institution in a non-federal area.

The two central banks have the same duty of information vis á vis the executive and legislative authorities: main annual reports and additive quarterly statements; periodic hearings to the Parliament (or the Congress). But there is a fundamental difference in the degree of responsibility. The American congress can “sanction” the central bank as it has the power to change the structure of the Fed, remove a governor, alter the composition of the FOMC, and, last but not the least, change central bank law and mandate.

The ECB is not at all in this situation, and one can say that its accountability toward the European Parliament is rather theoretical since the latter cannot remove any manager of the institution (only the European Court of Justice could dismiss a member of the Executive Board) and cannot change central bank law or mandate (a new Treaty would be necessary for doing this).

In fact, the Eurosystem is responsible directly to the public, more than to elected representatives. This absence of effective accountability has lead the ECB, after a hesitating management during the first months of its existence[4], to adopt a simple medium term stability oriented strategy, and to show maximum transparency in its communication process, abandoning the secrecy practices and giving to the market and the economic agents relevant information about a strategy it considers to be strictly in accordance with the spirit of its mandate and the specific financial, economic and social context of the area. The implicit message of this communication strategy could be: "I say what I do and I do what I say".

The strategy of the Fed is by far less linear. Its effective accountability leads the institution to interpret the priorities of its mandate, and consequently to be less transparent (if not more opaque) than the ECB, according to a permanent process of so called "balance of risks", dialogue with the markets, the ultimate and optimum result of this approach being a look for a "common diagnostic" of the situation. To sum up, the US central bank considers that it has some degree of freedom in its strategy since it can be ultimately sanctioned if it did not advisedly use it.

So, there is an original factor which can be considered to be as a rule in contradiction with a supposed interdependence, at least in the short term, between the two monetary policies, as the one institution has a medium term strategy and the other tries to be very reactive to the shocks and their supposed consequences.

3. No coordination of exchange rates, but in some circumstances, an effective factor of interdependence

The USA and the euro area are issuing two world–wide currencies freely floating on international markets. They have no effective exchange rate policy. Even the USA that some European economists and politicians presently accuse of a Machiavellian action of depreciation of their currency, remains in fact relatively passive. Concerning the ECB, it clearly has no organized or even informal exchange rate policy.

Such a situation can on its own be a factor of very divergent respective monetary policies, insofar as the two currencies are the two world-wide monetary poles and generally move in opposite directions, the dollar exchange rate rising when the euro exchange rate is dropping and inversely. Saying this can seem to express a tautology. But one can imagine, in a not so distant future, the emergence of a third world wide currency with an important role on the markets, the Chinese Yuan for example, and the two other currencies moving in some occasions in the same direction vis á vis this third currency. That is not presently the case and when the euro exchange rate is rising, it is doing so not only against the dollar but also globally, that is to say in effective terms according to the weight of the dollar in the trade and market operations. Inversely, one observes, for the same reasons, an effective depreciation of the dollar, even if it is less pronounced that the effective appreciation of the euro.

[4] Members of the executive board implicitly recognised that their first decision was an error, not only in the economic diagnostic, but in terms of credibility.

Hence, as a strong currency has an opposite effect on inflationary pressures than a weak currency, the respective situations of the dollar and of the euro might in theory be factors of total independence of monetary policies, or more concretely, of quasi permanent inverse stances of these monetary policies which could be considered in a paradox approach as a particular form of interdependence.

But the reality is not so abrupt.

In some circumstances when exchange rates seem to reach an excessive misalignment, monetary authorities can intervene orally or on the markets and the two countries can cooperate to inverse a trend which is considered to be negative for everybody, like in October 2000 with coordinated interventions on the exchange markets. But exchange rates situations can also contribute to some convergence in monetary policy and strengthen interdependence. In the recent period, it was clear that the FED had given priority to loose monetary policy to offset the drag on demand of the financial crisis, and consequently cut the target federal fund rate in several steps from 5,25% in September 2007 to 2% in April 2008. On the opposite, the Eurosystem had continued to enhance its medium term strategy of fighting inflation pressures that stemmed from rising commodities prices but could be reinforced by "second round" effects. Therefore it held its policy rates constant at 4% and, on top of that, recently modestly increased them to 4,25%. But these divergent, clearly non "interdependent" policies have had indirect effects on the exchange rates and on the oil price as speculators were convinced of the indifference of the Fed towards inflation and left the dollar for investing in commodities and specially the Brent, which dramatically soared. So the Fed President, without changing formally the stance of monetary policy, expressed some worries about inflation, clearly announcing the end of the interest rates decreases. The ECB President, without changing formally the stance of its monetary policy, brought up very modestly concretisations of risks for the economic growth in the euro area, clearly announcing that there will be no other rise in interest rates. These obvious manifestations of converging priorities and of interdependence of the two central banks had strong effects (but we don't known if they will be durable) on exchange rates and on the oil price (cf infra).

4. A broadly common economic and financial context

This community of destiny can be the result of external factors. The 11th of September terrorist attack on the USA led to a quasi universal (at least in industrial countries) risk of financial panic and economic recession. Considering such a situation, the two central banks quickly and simultaneously reacted by dramatically lowering their interest rates. Similarly, the present surge in oil, food and raw commodities prices is affecting the two economies and is facing central banks to the stagflation risk problematic. But one must observe that this common economic and financial context comes more often from a contagion effect of the US situation toward the euro area.

This dependence of the European economy of the US evolutions can be, at first sight, considered as surprising since the two areas are only modestly open to external trade (about 15% of their GDP) and since the share of their reciprocal commercial transaction does not exceed 3 or 4 % of their GDP. In fact, the USA are exporting their situation through the channel of financial evolutions: during the last ten years, US financial bubbles (internet bubble, real estate bubble etc.) growths and burstings have deeply affected, with some lags, the European economic cycles.

This context can be, of course, considered a consequence of the financial globalization which concerns banks and markets. But this does not explain why the movement is systematically occurring from USA to Europe, even when fundamental situations are different.

As an example, regarding the subprime crisis and its consequences, it is obvious that euro area banks are by far less affected than American banks; it is obvious that households in Europe are by far less indebted than in the US (except in some countries such as Spain and Ireland); finally, also the real estate cycle has been less brutal in Europe and a soft lending was observed in most countries. Admittedly, rising inflation reduces the households' purchasing power and their consumption and is a factor of economic slowdown. But there are no objective reasons for the euro area economy to be strongly affected by the subprime crisis and for its real estate sector to suffer brutal correction. And yet, recent statistics tend to show that there is a serious risk in that direction.

The main transmission channels of the US economy evolutions to the European situation are the stock market and the morale of economic agents. The American market, which is permanently reacting to the avalanche of statistics and information on the US economy has a leading role in the world and especially on the European markets which fluctuate in the same way as American statistics and information dictate. Although the oil price has played a role in the recent drop of the European stock markets, obviously the markets were also strongly directed by the US banking and economic situation, or rather the perception of this economic situation trough provisional statistics and successive predictions of a probable recession. As the stances of the stock market have a great influence on the firms anticipations, a quasi crash, as observed recently, affects the morale and the investment projects of the business sector.

The euro area is in fact suffering from an incomplete financial identity. Although the euro has become a great world wide money, the euro area financial markets remain dependent on the US financial markets evolution. That is visible for the stock market but also for the bond market which cannot be considered as disconnected from the US bond market. This circumstance is especially worrying since long term interest rates level and evolutions are an important transmission channel of the ECB monetary policy.

5. ECB monetary policy and Fed monetary policy: independence in interdependence

Due to the specific dependence of the euro area on the American cycle, the ECB monetary policy cannot ignore the Fed monetary policy stances. But, in spite of this dependence, and thanks to the medium term strategy of a simple objective, as well as thanks to some inertia in the transmission mechanisms (in any case much less rapid than the Fed policy transmission channels), it succeeded in keeping a substantial room for manoeuvre.

Looking at a chart shows immediately that the US and Euro area monetary policy rates are broadly moving in the same directions. The rate differential between the two institutions was relatively small during the two first years of the Eurosystem existence, insofar as the institution was still in a stance of starting up and had not completely achieved its strategic position. But right after the Fed/ECB common rates cut began after 11 September 2001, the ECB has distanced oneself from the Fed action. While Fed fund rates were dropping from 6,5% to 1,75% in a few weeks, and then to 1% during the following months, the ECB policy interest rates were cut from 4,75% to 2%. Some observers interpreted this action as proof that the institution was insufficiently reactive. In fact, the ECB was implementing its simple medium term price stability oriented strategy which implies a permanent vigilance toward inflationary pressures risks, a vigilance which admittedly does not authorize too low interest rates, but in compensation, can protect against too high interest rates. Indeed, during the following period, while the Fed started raising rates in mid 2004, the ECB let its policy rate unchanged until the end of 2005. In addition, as the US rates increased from 1% to 5,25% (by mid 2006), with strong incidences on the financial situation of indebted households and the real estate sector, the European interest rates rise was only of two hundred basis points (from 2% to 4%), which seemed sufficient for moderating real estate credit growth.

The period following the financial crisis from the second half of 2007, is in our view, the more illustrative experience of the "independence in interdependence" of the ECB monetary policy.

Monetary policymaking became increasingly more complicated, with substantial worsening in financial markets, risk of collapse of interbank markets, and larger than anticipated rises in commodity and oil price. The two central banks faced the same problems and a difficult trade off: cutting rates for supporting confidence with the risk of lowering confidence in the institution in a context of rising inflation; or, holding rates steady to offset the impact of inflation with the risk of allowing an important slowing down of the economy.

The similar difficulties in the Euro area and in the US interbank market called for similar responses of the two central banks in order to keep reference rates close and to provide financing were liquidity had evaporated. But these similar, and even coordinated, massive actions did not modify the stances of the respective monetary policies and the fundamental differences in the two institutions approaches became very obvious.

Following its dual mandate and its real accountability, the Fed decreased policy rates sharply by more than predicted based on its precedent responses to changes in output gap and inflation, and surprised the market and most observers and analysts with its strategy of risk management. Conversely, the ECB's policy of holding interest rates steady was in line with its medium term price stability strategy. Aiming to preserve its credibility, and presuming the euro area economy to be logically less affected than the US one, the central bank said what it would do and did what it said, as illustrated by a rise of 25 basis points of the euro area policy rate clearly predicted by the markets.

Can this evident disconnection of monetary policies of two central banks diverging in priorities last a long time? As mentioned previously, the more than expected pronounced contamination of the European situation by the effects of the US financial crisis and its spill-over into the real economy lead the ECB President to let the market anticipate that another increase in interest rate was improbable, while the Fed President gave an opposite message. This double action helped to inverse the trend in the euro/dollar rate and in oil price. If these movements are solid, the initiated convergence between the two monetary policies could be limited with simultaneous easing on the inflation front and rekindled output growth. If not, interdependence could strengthen.

It must be noted that after the publication of the disappointing economic statistics in the euro area nobody (not even French economists or policy makers!!) asked the ECB to inverse its monetary policy. That could be the illustration of the fact that if it is admitted that the area is not an isolated island, nevertheless it is not unreasonable for the central bank to have its own strategy in line with its mandate and with the European structural context.

How much inevitable US-euro area interdependence is there in monetary policy?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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Executive Summary

The monetary policy of the United States is an external shock for the euro area. In the absence of a euro-area monetary response, an expansionary US monetary policy has a long-run negative impact on the euro- area price level and, because of nominal rigidities, it has a short-run contractionary effect on the real euro-area economy as well. This is a nuisance, however, it is not a major problem for euro-area policy makers.

The central banks of the United States and the euro area rarely coordinate their policies and they do not share as much information as they might. They do not play a cooperative game; there is no leader-follower relationship. Each policy maker takes the current and future contingent actions of the other as given.

During the financial crisis that arose on 9 August 2007, the actions of the Eurosystem have appeared to have had significant consequences for the rest of the world. The Eurosystem has acted as lender of last resort for subsidiaries of US, UK and Nordic banks.

In this note I argue that there is considerable *structural* interdependence between US and euro area monetary policy. US monetary policy affects the euro-area economy and thus the constraints faced by the ECB in its pursuit of monetary policy. There is, however, little *strategic* interdependence between the ECB and the Fed. In their pursuit of macroeconomic stability, the ECB and the Fed have separate and possibly distinct objectives. When it comes to financial stability, there is also significant interdependence: as seen in the past 12 months, there is considerable 'leakage' of liquidity between the United States and the euro area and between the United States and the euro area and other monetary jurisdictions, such as the United Kingdom, Switzerland and the Scandinavian countries.

Structural Independence of Monetary Policy

The United States and the euro area have a floating exchange rate and a degree of financial integration that approximates the textbook model of perfect capital mobility. In addition, there are significant nominal rigidities in both economic areas.[5] Monetary policy in a world with floating exchange rates, perfect capital mobility and nominal stickiness affects global aggregate demand and external aggregate demand through two channels: an interest rate channel and an exchange rate channel. In the short run, an expansionary monetary policy in a large open economy lowers global nominal interest rates and weakens the currency of the economy running the expansionary policy.

With sticky nominal wages and prices, short-term real interest rates move in the same way as short-term nominal interest rates and the real exchange rate moves in the same way as the nominal exchange rate. For the country that follows an expansionary monetary policy (that is, the country that cuts its short-term policy rate), short-term nominal and real interest rates decline and its nominal and real exchange rates depreciate. Thus, demand in that country rises and output, employment and inflation all rise. In the rest of the world, however, if there is no monetary policy response, the domestic currency appreciates against the currency that followed the expansionary policy. This dampens demand in the rest of the world. This can be beneficial if inflation in the rest of the world is threatening to rise above target but is not welcome when inflation is close to target and there is already unused capacity and unemployment.

As an illustration, the Fed aggressively cut its official policy rate by 325 basis points between August 2007 and August 2008. At the time, inflation in the euro area was above target and rising. The strengthening of the euro in response to US policy – it peaked at over 1.60 $/euro – was beneficial from an inflation-fighting point of view. The loss of external competitiveness caused by the appreciation of the euro did, however, squeeze the profitability of the euro area's exporting and importing industries.

Nominal rigidities vary widely across euro-area member countries and are generally believed to be greater in the United States than the euro area (see, for example Dickens et al (2006)). Thus, monetary policy spillovers from the United States will have a smaller average impact on the real economy of the euro area than spillovers from the euro area have on the US real economy, but the size of the effects of US spillovers on the real euro economy will vary significantly from country to country.

The strength of the cross-border effects of one economic area's monetary policy on another area depends upon the size of the area implementing the policy and the strength of the economic links between the two areas.

[5] There is a long and vast literature documenting the significance of nominal wage and price rigidities. Recent examples include Dessy (2005), Dickens et al (2006) and Druant et al (2008).

Both the euro area and the United States are large, continental-size entities. They have similar populations: the euro area had a population of 320 million in 2007 and the United States had a population of 302. They have roughly similar GDPs, although the US GDP is slightly larger than the euro area's. At market exchange rates, in 2007 the US GDP was 25.4 percent of the world GDP and the euro area GDP was 22 percent.[6] While together accounting for nearly a half of world GDP, both areas – and especially the United States -- are relatively closed to trade. The sum of exports and imports of goods and services amounted to 43.6 percent of euro-area GDP in 2007 and 28.9 percent of US GDP.

The United States is a significant, but not overwhelmingly important, trading partner of the euro area. In 2007, both the United States and the euro area each accounted for only a bit less than 14 percent of each other's trade.[7] This does not imply that trade linkages between the United States and the euro area are weak, however. Direct trade links are reinforced by indirect trade links. The United States accounts for about a quarter of world GDP. When US imports grow, for example, the half of the world economy that is outside the United States and the euro area is stimulated along with the euro area and this rest of the world increases its demand for euro area goods and services.

Strategic Interdependence

The Fed and the ECB have different objectives and face different constraints. The Fed has a dual mandate that puts equal weight on price stability and sustainable growth and employment. The ECB has one primary objective: to maintain price stability. All other goals are subordinate: they can be pursued only if they do not prejudice the primary mandate. The Fed is much less independent of the US Congress than the ECB is of the European Parliament. The Fed supervises and regulates the US banking sector; the ECB currently has no such supervisory and regulatory role.

In game theory terms, there is no systematic cooperative behaviour between the two monetary authorities, although there have been examples of cooperative actions, such as the swap arrangements made between the Fed and the ECB after 9/11 and since November 2007. No binding commitments are made as to contingent future actions. There is also no leader-follower relationship between the Fed and the ECB. Each authority takes the other authority's action and the rule that governs this other authority's future actions, depending on the state of the world, as given. It then chooses its own best policy and the outcome is a Nash equilibrium.

The central banks do share information, although not as much as they should. For example, the governor of the Banque de France failed to inform the Fed that the Société Générale's liquidation of the "Kerviel portfolio" was one of reasons for the collapse of the European stock markets at the end of the third week of January 2008. The Fed's 75 basis points rate cut, announced out of hours after an unscheduled meeting on January 21/22, might not have happened in the same manner if there had been more transatlantic communication.

Since US and euro-area monetary policies are not coordinated and are unlikely to be coordinated – except possibly for short periods after exceptional shocks – US monetary policy is an external shock for the euro area. The same is true about euro-area monetary policy for the United States.

[6] *World Development Indicators* database, World Bank, 1 July 2008. Using estimated PPP exchange rates, the US GDP was 22.8 percent of the world's total in 2007; the euro area GDP was 17.1 percent .

[7] For comparison, trade with the United Kingdom amounted to over 16 percent of euro area trade.

Without a domestic monetary policy response, an expansionary monetary shock originating from the other monetary policy maker will have a negative long-run real effect on the price level and, because of nominal rigidities, short-run contractionary real consequences as well. However, given the size of these shocks they amount to more of a nuisa ajor problem. There are other external shocks, such as the global increase in the relative price of non-core goods and services, that are much more significant to the nce than a m inflation levels and the well-being of economic areas on both sides of the Atlantic.

Interdependence of financial-stability-oriented policies

The financial crises that emerged on 9 August 2007 was not characterised by conventional bank runs. A classical depositors' run, of the type that characterised early 20th-century financial panics, did bring down the UK mortgage-lending bank, Northern Rock, but such runs were absent in the United States, having been largely killed off by a sensible system of deposit insurance. More modern runs of wholesale creditors were instrumental in bringing down the US investment bank and primary dealer, Bear Stearns, and IndyMac, a large US mortgage lending bank. But these runs were also exceptional.

Instead, the notable feature of this new-style crisis was the sudden vanishing of a whole range of financial wholesale markets, including the asset-backed commercial paper markets, the auction-rate securities market, other asset-backed securities markets, including the markets for mortgage-backed securities, and many other collateralised-debt-obligations and collateralised-loan-obligations markets. The unsecured interbank market became illiquid to the point that Libor is now sometimes referred to as the rate at which banks *won't* engage in unsecured lending to each other! The sudden increase in Libor rates at the beginning of August 2007 and the continuation of spreads over the overnight indexed swap (OIS) rate is shown for 3-month Libor, a historically important benchmark, in Chart 1, at the end.[8]

A striking feature of Chart 1 is that the Libor-OIS spreads for the dollar, the euro and sterling look similar for most of the period. This does not mean that the Fed, the ECB and the Bank of England implemented the same policies or all did equally well in addressing the liquidity crunch. Indeed, the ECB appears to have tackled the collapse of liquidity more aggressively and effectively than either the Fed or the Bank of England. The Fed took liquidity-enhancing measures that were similar to the ECB's, but that were smaller in scale and in scope. The Bank of England did little until the very end of 2007. No other central bank came close to injecting 95 billion euros of liquidity into the money markets in one day, as the ECB did on 9 August 2007.

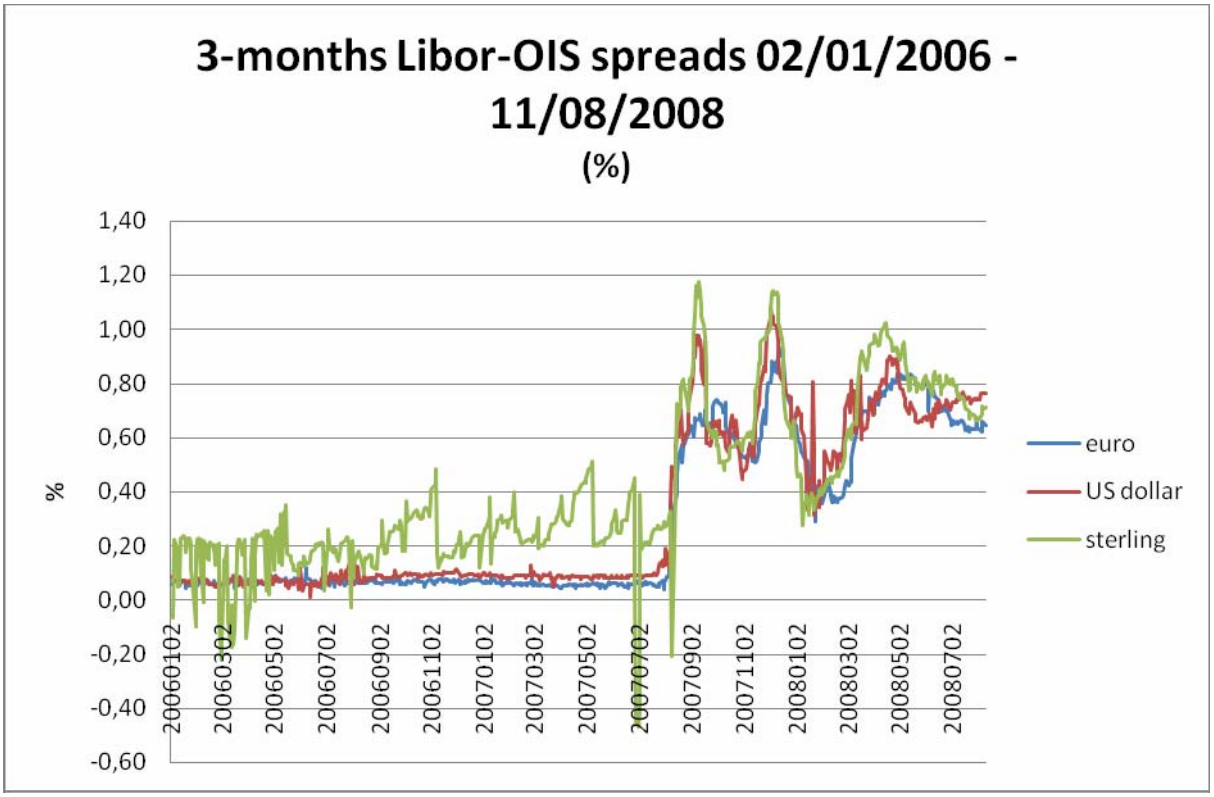
Given the differences in policy reactions, why do the spreads move together in Chart 1? There are three possible explanations. First, the scale of the crisis might have been larger in the euro area than in the dollar or sterling area. Second, perhaps it is not the spread that is the important variable, but the volume of borrowing and lending that took place. A 90-basis point spread in an active market may be less of a problem than a lower spread in a market where no transactions take place. Unfortunately, public data on turnover in interbank markets does not exist. Third, the actions of the ECB may have affected the dollar and sterling areas, as well as the euro area. In effect, the Eurosystem has been acting as lender of last resort, not just for the euro area, but also for UK banks, Nordic banks and US banks.

[8] The 3-month OIS rate is the fixed leg of a 3-month swap whose variable leg is the overnight secured lending rate. Ignoring inflation risk premia, this can be interpreted as the market's expectation of the official policy rate over a 3-month horizon.

International financial integration ensures that liquidity can 'leak' between the jurisdictions of the different national central banks, as long as foreign exchange markets remain liquid, as they did for the major currencies. Foreign subsidiaries of internationally active banks tend to have full access to the discount windows of their host central banks and they are often eligible counterparties in the repos and other open-market operations of their host central banks.

Subsidiaries of UK banks made use of the liquidity facilities of the Fed and the Eurosystem. UK and Icelandic parent banks used their euro-area subsidiaries to obtain liquidity for themselves. At least one subsidiary of a Swiss bank accessed the Fed's discount window. In August 2008, Nationwide, a UK mortgage lender, announced that it was setting up an Irish subsidiary. Gaining access to Eurosystem liquidity, both at the discount window and as a counterparty in repos, was a key motivating factor. The phenomenon of using subsidiaries to obtain liquidity from the Eurosystem is occurring on such a scale that the ECB is considering measures to restrict it. This will not be possible, however, without undermining the principles of free capital mobility and of the EU's competition policy.

Chart 1



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US-euro area interdependence in monetary policy

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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The sub-prime crisis since August 2007 has shown how interdependent the US and the euro area economies and financial markets are. This has consequences for monetary decision makers. Although the monetary policy of the ECB should be evaluated principally on the basis of domestic requirements, the euro area is de facto not independent of developments in the US and elsewhere.

Interdependence feeds through via the real economies and financial markets. The aim of this paper is to analyse key channels of transmission: business cycle, central bank rates, market interest rates, commodity prices, asset prices and the exchange rate.

Differences in monetary policy, e.g. regarding objectives, need not cause undesirable interdependence between the ECB and the Fed. Since August 2007, the Fed has focussed on growth and financial market stabilisation by massively easing the key rate, while the ECB even raised its own key rate in July 2008. However, this potentially could lead to unwelcome exchange rate effects for Europe (euro appreciation due to emerging interest rate differential).

The European business cycle has often lagged its US counterpart by between two quarters and two years. Given this lag it should not be surprising that ECB action often comes later than Fed action. However, this should not be interpreted as the ECB being dependent on the Fed.

Exchange rate movements reallocate economic activity between countries. Thus they are an important ingredient in monetary decision making. As US activity started to weaken in 2005, the dollar depreciated significantly and in turn boosted US net exports. In contrast, the strong euro has dented economic activity in the euro area, i.e. for the period of above-trend growth in Europe the exchange rate has done part of the ECB's job.

US and euro-area asset prices are closely linked. This holds for the equity markets, with high correlations existing between the DAX and S&P 500.

A very high correlation can also be observed in bond markets. While short-term interest rates matter for bond yields both in the US and the euro area, yields are largely driven by expectations about the future of the global economy. In this respect, the US economy seems to be a better indicator than the euro area.

There are two explanations for the differences in Fed and ECB policy:

(1) The different mandates of the two central banks may help explain why the ECB has at times chosen different timing than the Fed.

(2) The ECB may be more averse than the Fed to the risk that medium-term inflation expectations move higher on the back of current high inflation.

1. The global setting

The starting point for analysing the interdependence of the Federal Reserve Bank (Fed) and the European Central Bank (ECB)9 is the fact that the US and the euro area are the two largest global economies in terms of GDP and financial markets. This is also reflected in the dollar's leading role as international trade, investment and reserve currency over the past decades, while the "newcomer", the euro, has considerably caught up since 1999 and become the undisputed global currency

No. 2.The two largest economies are closely interlinked in many ways. The sub-prime crisis since August 2007 has shown how interdependent the US and the euro-area economies and financial markets are. A (local) US sub-prime crisis can easily spread over the globe and affect the euro money market.The interdependence of the economies and markets has consequences for monetary decision makers on both sides of the Atlantic. In principle, the monetary policy of the ECB should be evaluated only in the light of developments and requirements in the euro area. However, in times of globalisation the euro area is de facto not independent of developments and policies in the US and elsewhere in the world, even though the monetary policy of the ECB is formally independent of the Fed policy and vice versa.

Interdependence feeds through via the real economies and financial markets. One issue is the different inflation and growth performance in the US and the euro area; a second issue is the transatlantic central bank cooperation. Key channels for the transatlantic transmission of economic, monetary and financial stimuli are the business cycle, central bank rates, market interest rates, commodity prices, asset prices and the exchange rate. Therefore, these channels of interdependence have to be analysed in this paper. Furthermore, the issue is raised whether knowledge about the ECB and the use of the euro in financial markets has increased in the US since 1999.

2. Current monetary policies are different

There are several differences in the conduct of monetary policy between the ECB and the Fed as regards objectives, independence, strategy, decision making and information policy (see annex). However, there is hardly any evidence that these differences are responsible for any interdependence between the ECB and the Fed. The ECB as well as the Fed are independent. Their operations are legally independent of each other. They focus on domestic goals and requirements especially regarding inflation rates, growth rates and financial market stability. Since their moves have extraterritorial consequences, the effects may be welcome or unwelcome, depending on whether the two regions are hit by common or diverse shocks or are in different stages of (cyclical) development.

The different Fed and ECB objectives have been particularly manifest since the outbreak of the sub-prime crisis in August 2007 coupled with a global oil and food-price-induced surge in inflation2007/08. The Fed has pursued a policy of economic stimulation and financial market stabilisation through massive rate cuts, hoping that the inflation risks will be held in check by the weak economy. This strategy has been associated with a negative real interest rate for months.10 The ECB has acted independently and, by contrast, did not ease but raised its key rate in July 2008.

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[9] Richard W. Fisher, governor of the Fed Reserve Bank of Dallas, characterised the transatlantic interdependence of central banks in his remarks "The Extended Importance of the Euro" at the Frankfurt European Banking Congress in 2006 by saying: "The institutional framework of monetary union — the European System of Central Banks — is modelled after the Bundesbank, which was, in turn, modelled after the Federal Reserve System, so in a sense the ESCB is a grandchild of the Fed!" Just stating the ECB depends on the Fed does not tell the full truth, however.

[10] US CPI was 5.5% (yoy) in July 2008 and the Fed funds rate 2%, i.e. there was a negative real interest rate of 3.5%. In contrast, the inflation rate in the euro area came to 4% in July. Given a key ECB rate of 4.25% there was a slightly positive real interest rate in the euro area.

The slowdown of the euro area economy this spring and summer is partially a reflection of a distorted seasonal pattern. Nevertheless, it has raised questions on whether the ECB's July rate hike was necessary. There is also a fierce debate under way on whether the ongoing slowdown will be strong enough to cool down the high inflation rate (4% in July) in an environment of a falling oil price. If this – likely – scenario materialises, the current inflation rate in the euro area will fall below 2% by mid-2009 and the ECB could even gain room for lowering key interest rates. This assumes no or only minor second-round effects through wage increases to compensate for high price increases. A reduction in the key interest rate is only probable in 2009 as this would allow the ECB to "save face". In this case the ECB would follow the Fed's monetary easing with a considerable time lag as the Fed started lowering the key rate from 5.25% in September 2007 and ended with a rate of 2% in April 2008. It is, therefore, fair to say that such a scenario for the ECB's key interest rate does not indicate any interdependence with the Fed.

Does the different inflation and growth performance constitute interdependence?

As a matter of fact, the US inflation and growth rates have been, on average, about one percentage point higher than in the euro area since the launch of EMU in 1999. This constellation is, of course, not only the result of monetary policies on both sides of the Atlantic but also the product of many other factors. In particular, the better US growth performance is mainly due to the higher flexibility of American economic structures and policies as well as the higher growth of the population and labour force than in the euro area.

It is far from clear whether the Fed uses the current inflation rate, the forecast for the year ahead or any future rate as the yardstick for setting the level of key interest rates. This is not apparent in the case of the ECB either. The ECB's staff publishes inflation and growth forecasts each quarter11, but it is not entirely certain how these are used in rate-setting decisions. The ECB aims at anchoring inflation expectations over the medium term (based on the monetary pillar of its two-pillar strategy).

Speculations about the inflation rate yardsticks of the ECB and the Fed will not help. There are, however, some clues. For instance, the Fed's current moderate policy stance regarding interest rates indicates that the Fed is likely to give greater weight to – hopefully lower – future inflation rates. Obviously, the Fed allows for time lags when implementing monetary policy and relies on the experience that an economic slump will bring down a high inflation rate. Its reliance on such time lags implies that the Fed need not raise interest rates in the current situation but attach priority to growth and financial stability and wait until inflation subsides endogenously. The fact that the ECB aims at stabilising inflation expectations over the medium term indicates that its policy is also based on a forecast for the inflation rate. If so, the ECB is likely to be in a similar situation as the Fed insofar as pursuing a wait-and-see approach is an appropriate policy option. They, however, obviously assessed the risks of "unanchoring" inflation differently. I sympathise with the assessment of the ECB.

Does transatlantic central bank cooperation cause interdependence?

The Fed and the ECB have closely cooperated at different occasions and in different areas in the past 10 years in order to contain turbulence in international financial markets. Let us look at three cases in point. The first two events were short-lived in nature; all three implied no Fed interference in how the ECB set its key rate. It is, however, not taken into account whether these cases had an impact on the ECB by means of the exchange rate.

[11] Eurosystem staff macroeconomic projections of the euro area, ECB Monthly Bulletin, June 2008. Projections are published in the 3rd month of each quarter.

In our first case, immediately after the terror attacks of 9/11 the Fed and the ECB (and the Bank of England) agreed to establish a temporary swap arrangement. The aim was to enable the ECB to lend dollars to local financial institutions to facilitate the settlement of their dollar obligations. The ECB drew USD 23.5 bn of its swap line and the balance was repaid after three days.12

Second, the central banks have an instrument at their disposal that has rarely been used since 1995, i.e. joint foreign exchange interventions in the dollar market. There was one prominent event in autumn 2000 when the Fed and the ECB were the main players in coordinated foreign currency interventions designed to correct the extremely weak exchange rate of the euro. The aim of the G7 is to intervene only in order to counter "disorderly market conditions".

The third case concerns the joint management of the sub-prime crisis. There has been close cooperation between the Fed and the ECB – and other central banks such as the Bank of England – in repeatedly injecting market liquidity to smooth out money market problems ever since the sub-prime crisis broke out in August 2007. In this context there was also a reciprocal currency arrangement between the Fed and the ECB. It enabled the ECB to provide dollar liquidity to banks in Europe in case of need. The close transatlantic central bank cooperation served the purpose to keep the money market working and to contain the impact of the sub-prime crisis on the financial institutions and the real economy. Joint action was in their mutual interest. In none of these cases did this cause monetary policy on the other side of the Atlantic to be derailed from the nationally defined concept.

Implications for the ECB

Nevertheless, two aspects of the sub-prime crisis deserve attention:

First, the ECB has injected large amounts of liquidity on a temporary basis with the aim of keeping euro money market rates close to the official interest rate. As dislocation in the money market has continued into 2008 the ECB – along with other central banks – continues to provide liquidity to the system. The longer the exceptional money market operations last, the more pressing is the question what the ECB can do to return the money market to the way it functioned before August 2007. The best way would be to fully restore confidence between big financial institutions, which would result in an orderly exchange of liquidity among market participants. This will be not easy given the experience since August 2007.

Nevertheless, the ECB has some instruments at hand to foster a return to normality. It can intensify moral suasion by verbal interventions, although this has not really improved the money market situation so far. The ECB has the possibility to limit the allocation of liquidity within the framework of the main refinancing operations (e.g. by using fixed-rate tenders with limited volume) in order to send a signal to the markets that the generous access to the ECB cannot be taken for granted. Moreover, the ECB could change its conditions for the acceptance of banks' collateral. At present there is no debate about a reduction of the eligible collateral – on the contrary, look at Spain.

Moreover, the ECB, the Fed and other central banks are discussing an extension of collateral by mutual recognition of their collateral in order to widen the banks' access to liquidity in other currencies in case of emergency. Although there are no details known so far this is likely to lead to closer mutual dependence between the ECB and the Fed. The availability of an increased regular volume of securities eligible as collateral might be helpful as it can boost flexibility in the event of emergency.

[12] The Federal Reserve System (2005), Purposes and Functions.

However, there is a risk of moral hazard as market participants could easily be inclined to engage in more risky business knowing that they will be bailed out if necessary. Yet, one option could be to increase the haircut for some types of eligible securities, implying an overall reduction of the collateral available for refinancing operations with the ECB and giving banks an incentive to tap the money market directly.

One matter being discussed is to increase the spread between the rate of the deposit facility and the marginal lending facility, which has been two percentage points since the start of EMU in 1999. A widening of this spread would make it less attractive to park excess liquidity at the ECB and to borrow short-term liquidity from the ECB. I support this idea because it provides an incentive for banks to return to the money market at least between the weekly executions of the main refinancing instrument.

The second aspect concerns the conflict between repeated liquidity additions and the aim of securing price stability. The repeated injection of liquidity has led to the ECB arguing that it tries to differentiate between the normal conduct of monetary policy and the aim of securing financial market stability. Some observers deny that the management of the sub-prime crisis has an impact on the ECB's policy of price stabilisation as liquidity provision only has a different time profile but there is no permanent massive injection. Critics, however, argue that it should not be overlooked that the sub-prime crisis has already had an impact since there was no key rate hike from August 2007 to early July 2008.

Regarding the management of the sub-prime crisis there has recently been some influence on the ECB. The Fed seized measures to prevent further implosions in the US financial system following the rescue operation for Bear Stearns in March 2008. The Fed has provided many investment banks and the government-sponsored agencies Fannie Mae and Freddie Mac access to its discount window as a refinancing facility. The Fed has expanded the scope of securities eligible as collateral for the discount window. Borrowers in the US can also use investment-grade corporate securities, municipal securities, mortgage-backed securities, and asset-backed securities for which a price is available. The Fed followed the ECB concept which established a broad definition for its counterparties in the financial industry (called monetary financial institutions, MFIs) before the launch of EMU in 1999.

Opening the discount window to financial institutions outside the commercial bank membership of the Federal Reserve System, i.e. outside federally insured depository institutions, implies a dramatic departure from long-standing Fed policy. It is a change of the rules of the game during the game. This also requires examination and adjustment of the (less restrictive) regulations for investment banks.

Euro area cycle lags US cycle

Since the start of EMU, linkages between the two economies have become even closer than before, especially through deeper integration of asset markets on top of the already close trade links. Huge portfolio and foreign direct investments by euro area residents in the US imply that shocks affecting US asset prices will be transmitted to euro area portfolios.

The analysis of business cycles on both sides of the Atlantic shows that the European cycle lags its US counterpart by between two quarters and two years.13 Given this lagged cycle it should be no surprise that ECB action often trails Fed action. However, this should not be interpreted as the ECB being dependent on the Fed. Fed action cannot be said to directly cause ECB action.

[13] Favero, Carlo and Francesco Giavazzi (2008). Should the Euro Area be Run as a Closed Economy? American Economic Journal, May 2008.

The laggard cycle in the euro area

The first cyclical indicator to look at is business confidence. Chart 1 shows the US ISM index and euro area industrial confidence. In the late 1990s and early 2000s the US index leads the euro area index by about six months. For example, the ISM peaked in November 1999, while the euro area index rose until May 2000. In 2003/04, the euro area also followed the US upwards, but not as strongly as in the past because of domestic structural problems and the strengthening euro. There was an unusual line-up over the past few years not because confidence in the euro area fell so much this spring but because it had remained so strong for so long in 2006/07.

Output gap in the euro area follows US gap

The same diagnosis of a lagging euro area cycle can be made with capacity utilisation in industry and unemployment. These are highly relevant indicators for monetary policy because they measure aspects of the output gap and therefore are helpful in assessing future inflation.

Capacity utilisation in industry – as measured by surveys of companies – shows a similar pattern as business confidence (Chart 2). The 1999/2000 episode is most striking. US utilisation peaked in Q4 1999 and euro area utilisation one year later. As the trough in US capacity utilisation was far lower than in the euro area, the recovery in 2003-05 was also more pronounced. Again, the unusual line-up of the past few years was because euro area utilisation remained so far above average for so long in 2006/07 despite stagnating US utilisation. Since late 2007, euro area data have been trending down as well, re-establishing the earlier link.

A similar pattern can also be observed in unemployment numbers. US unemployment began to rise in the spring of 2000; the euro area followed a year later. The 2003/04 peaks were even more than a year apart. More recently, US unemployment stopped falling in late 2006, while euro area unemployment continued its unexpectedly rapid decline until late 2007. Given the rapid deterioration of the US economy it should not have come as a surprise that euro area unemployment also began to increase in mid-2008.

The reason behind the observed lags could be that companies in the US are more flexible in adjusting to unexpected developments in their environment – both on the upside and on the downside – partly because they have a younger workforce. A truly forward-looking monetary policy would take these lags into account and rely heavily on US developments when assessing the future path of the euro area economy. Again, this is not equivalent to saying that the ECB depends on the Fed or reacts to its moves.

Linkages to monetary policy

The linkage between the economies of the US and the euro area also has a close relation with the linkages in asset markets. Furthermore, both economies are at times affected by common global shocks such as increases in commodity prices.

Inflation rates in both the US and the euro area have shot up in 2008 because of surging commodity prices. Headline inflation in the US rose by 3.2 percentage points between July 2007 and July 2008 to 5.5%. During the same period, euro area headline inflation rose by 2.3 percentage points to 4.0%. A common global shock is the main factor driving these increases.

Exchange rate movements reallocate economic activity between countries and therefore are an important ingredient in monetary decision making. During the period of weakening economic activity in the US since the cyclical peak in 2004, the dollar depreciated significantly on a trade-weighted basis. This contributed to the swing of the net export contribution to US GDP growth from -0.7 percentage points in 2004 to probably +1.2 percentage points this year.

The euro area is one of the economies on the other side of this development with the strong euro denting economic activity. For the ECB this implies that the exchange rate was – at times of an overheated economy – doing part of its job.

Asset prices are also closely linked between the US and the euro area. This holds true for the equity markets, where the economic success of many listed companies these days depends more on the fate of the global economy than of the country where the company is listed. This is reflected in high correlations of equity markets. Some equity indices such as the German DAX have a higher share of volatile technology stocks, so they move up and down more aggressively than the S&P 500.

A very high correlation can also be observed in bond markets.14 While short-term interest rates matter for bond yields both in the US and the euro area, yields are largely driven by respect, the US economy seems to be a better indicator than the euro area.

Why have interest rate policies nevertheless differed?

Given these strong interdependencies between the economies and financial markets of the US and the euro area, the question is why interest rate policies have at times – also in 2008 – differed markedly. Two possible explanations warrant attention:

(1) If many economic and financial variables are so closely linked between the two economies, monetary policy may need to differ significantly if it wants to really affect these economic and financial variables. The different mandates of the two central banks may help explain why the ECB has at times had different timing than the Fed.

(2) The ECB may be more averse than the Fed to the risk that medium-term inflation expectations move higher on the back of current high inflation. The July rate increase has to be seen as a boost to the ECB's inflation-fighting credibility as it is determined to keep inflation expectations at just below 2% in an economy that may be prone to second-round effects of high commodity prices.

What do Americans think about the euro and ECB?

Usually, Americans have hardly any direct point of contact with the euro unless they visit continental Europe and pay conveniently in one currency like in the US. Unfortunately, there are no opinion polls in the US regarding the assessment of the euro and the ECB. Thus, it is uncertain whether the success story of the euro ten years on has already reached the US. Therefore, some clues must be identified regarding the attitude of different institutions and opinion leaders in the US such as the US government, the Fed, academic economists, the media and financial market analysts.

The official attitude of the US administration to the monetary and political integration in Europe is supportive according to the slogan "if Europe benefits, this will greatly benefit the United States".15 In general, however, the US administration's interest in European monetary affairs seems to be quite limited. One exception is the rising international role of the euro as a trade, investment and reserve currency. This has a political dimension as it challenges and threatens the international dominance of the dollar and the associated US privileges.16

[14] Domenico Giannone and Lucrezia Reichlin (2006). Trends and Cycles in the Euro Area. How Much Heterogeneity and Should we Worry about it? ECB Working Paper Series, No. 595.

[15] Laurence H. Summers (1998), Transatlantic implications of the euro and global financial stability, remarks to the transatlantic business dialogue, Charlotte, North Carolina.

[16] The benefits of the international role of the dollar comprise not only high degree of freedom in economic policy but also income from seigniorage (e.g. due to the international use of notes and coins), lower transaction costs in financial markets and the "liquidity premium effect" in bond markets ensuring cheaper financing costs for the government and corporate sector. See Walter, Norbert and Werner Becker (2008). The euro hits the big time. International role of the Euro. Deutsche Bank Research. EU Monitor 58. Frankfurt am Main.

For instance, thanks to the dominant international role of the dollar the US has the ability to avoid a policy-driven adjustment of a large current account deficit by financing it in its own currency. However, the dollar will remain global currency No.1 in the longer run and the euro the well established No. 2 because the US economy is more flexible than that of the euro area and the US will remain a political superpower. Therefore, US economic policy privileges will – with some hiccups in the next few years – also continue in the foreseeable future. Thus, the interest of the US government in the euro and the ECB will remain limited.

As regards the attitude of the Fed, former chairman Alan Greenspan made no secret of his initial euro scepticism by stating: "The euro will happen but it will not be sustainable."17 But last year he confessed: "It is absolutely conceivable that the euro will replace the dollar as reserve currency, or will be traded as an equally important reserve currency."18 Several other members of the FOMC including Chairman Ben S. Bernanke, Frederic S. Mishkin and Richard W. Fisher have paid more attention to the euro in their publications and speeches. For instance, Ben S. Bernanke gave a positive assessment of the "euro at five."19 The Fed has shown increasing respect for the ECB since 1999. This is also due to the efficient and co-operative role the ECB has played in containing the impact of the sub-prime crisis on financial markets.

There was a long period of paucity of interest in the euro in US academic circles in the 1990s and early this decade as only a relatively small number of academic economists have done research on the euro, concentrating on a few topics such as the optimum currency area, the EUR/USD exchange rate and its international role. The most important contributions have come from Martin Feldstein, Barry Eichengreen and Fred Bergsten. For instance, the latter published an optimistic piece on the international role of the euro as investment and reserve currency well before the euro's launch in 1999. In the past few years interest in research on the euro and the ECB has been stimulated by the rise in the euro exchange rate and the ECB's monetary policy which, although successful, has been criticised by many Anglo-American economists, for instance, for not being transparent as the ECB does not publish the minutes of the Governing Council meetings.

American media give little coverage to the European Union in general and its monetary and political integration in particular. For instance, Foreign Affairs, the pre-eminent American magazine on international relations, has devoted just 16% of its articles to European topics over the past five years. Only a small fraction of these dealt with EMU. Neither of the two leading American newspapers, The New York Times and The Washington Post (both of liberal orientation), has a correspondent in Brussels. At least the New York Times has one correspondent in Frankfurt. The conservative Wall Street Journal occasionally publishes reports on EU and EMU issues but mostly in its European edition.

There is hardly any evidence on how US financial markets have been touched by the euro and the ECB. There are, however, several US financial institutions with sophisticated operations in Europe and excellent knowledge about euro financial markets and the ECB. For instance, they employ euro area financial analysts and ECB watchers to support their business in investment banking and asset management. In contrast, the euro only plays a minor role in asset allocation in the US. This implies that the dollar still clearly dominates asset allocations of US institutional and private investors, i.e. there is still a substantial home bias. An interesting feature is, however, that two out of three foreign-currency-denominated bonds issued by US residents in the past year were dominated in the euro. This underpins that the euro is an attractive currency for US resident issuers – albeit only those who are knowledgeable and curious.

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[17] Quotation reported by The Washington Post, May 1, 1997.

[18] Der Stern, No. 39, September 20, 2007.

[19] Ben S. Bernanke (2005). The Euro At Five: An Assessment. Published in The Euro at Five: Ready for a Global Role? Peterson Institute for International Economics. Special Report 18, edited by Adam S. Posen.

Annex

Differences in monetary policy design: The ECB and the Fed

1. Objective: The Fed should seek "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." This implies that the Fed simultaneously has to pursue the objectives of growth and price stability, while the ECB has to attach priority to price stability and should only support the EU's general economic policy if it is compatible with price stability. Thus, the Fed is given greater flexibility but it must get its priorities right when interests clash between growth and price stability. Although price stability will sustain growth in the longer run, tensions can exist between the two goals in the short run.

2. Independence: Both central banks can act independently but are accountable to parliament. However, the ECB is independent of instructions from political authorities at both the national and the EU level. Its independence is anchored in the EU Treaty, which can only be changed unanimously. Thus, its legal status is more strongly protected than that of the Fed, which can be altered by simple legislation.

3. Strategy: Former Fed chairman Alan Greenspan and his ability to communicate with financial markets were synonymous with the US monetary policy concept from 1987 to end-January 2006. Successor Ben Bernanke has pursued a pragmatic approach in which the statements of the Federal Open Market Committee (FOMC) have continued to play a key role for the smooth guidance of financial markets. Statements are published immediately after the meetings which take place every six weeks.

In contrast, the ECB in actual fact pursues a two-pillar strategy, consisting of economic and monetary analysis. The role of money is much more prominent at the ECB than at the Fed. Although the ECB modified the strategy in 2003 it is still subject to criticism. On the positive side the revised definition of price stability – implying an inflation rate of below but close to 2% – has helped to stabilise medium-term inflation expectations. It should not be overlooked, however, that the ECB's two-pillar strategy is not transparent and not easy to communicate. In addition, the two pillars can produce contradictory signals at times. In actual fact, the ECB pursues an inflation target policy.

4. Decision making: The Fed's FOMC20 and the ECB's Governing Council21 have similar structures consisting of representatives from the "head office" and the "regions". Nevertheless, there are two differences. First, there is a majority of "regional" representatives in the Governing Council, i.e. the "regions" have a relatively strong say. Second, the Executive Board of the ECB is a collegial body which decides on the basis of consensus while the FOMC is an individualistic body in which decisions are made by majority vote.

5. Information policy: The Fed publishes the minutes of FOMC meetings three weeks after they take place while the ECB rejects this practice. The rationale is that the disclosure of the voting could easily lead to political pressure on individual members of the Governing Council and jeopardise the ECB's independence and its euro area orientation, possibly allowing the reinstatement of national biases.

[20] The FOMC (Federal Open Market Committee) comprises the seven members of the Board of Governors, the president of the Federal Reserve Bank of New York and four of the remaining eleven Reserve Bank presidents, who serve one-year terms on a rotating basis.

[21] The Governing Council consists of the six members of the Executive Board, plus the governors of the national central banks of the 15 euro area countries. There will be 16 governors as of 2009 when Slovakia introduces the euro.

Charts

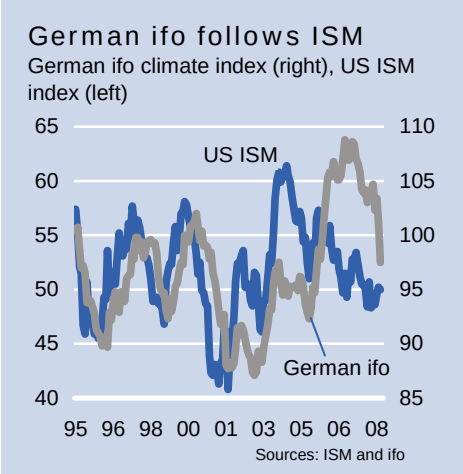

Chart 1

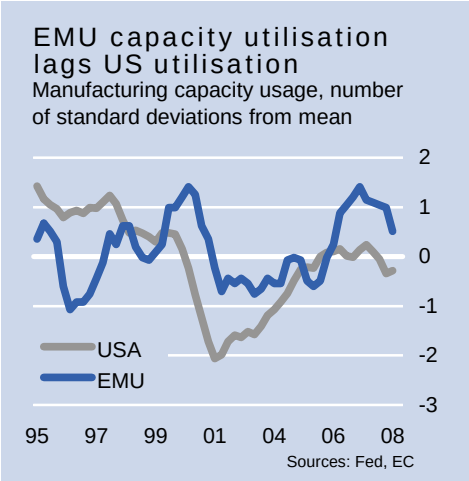

Chart 2

Chart 3

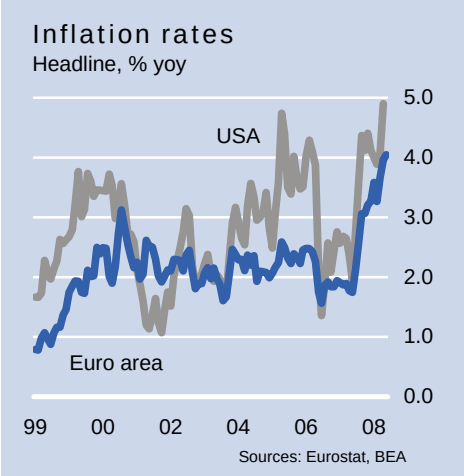

Chart 4

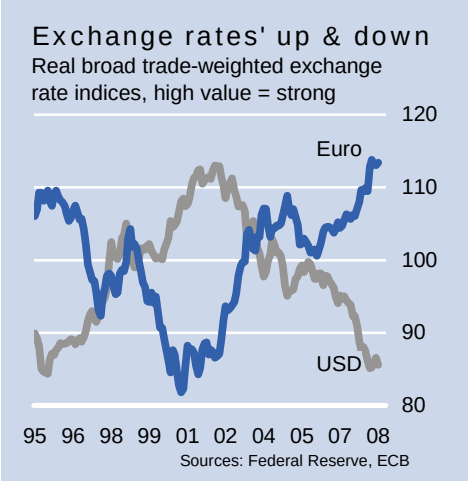

Chart 5

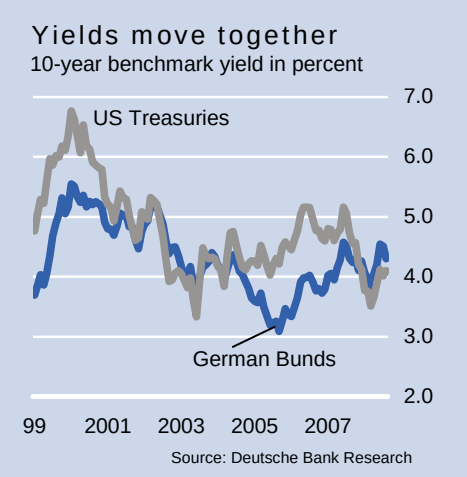

Chart 6

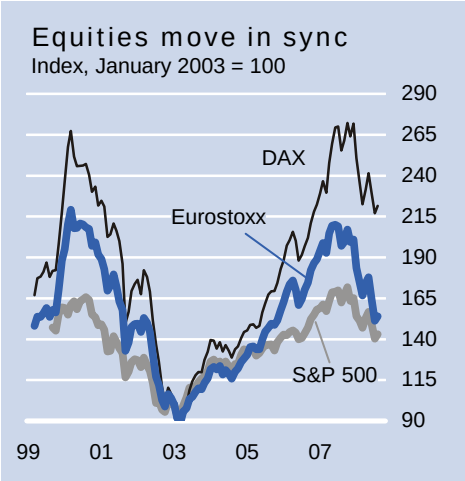

Chart 7

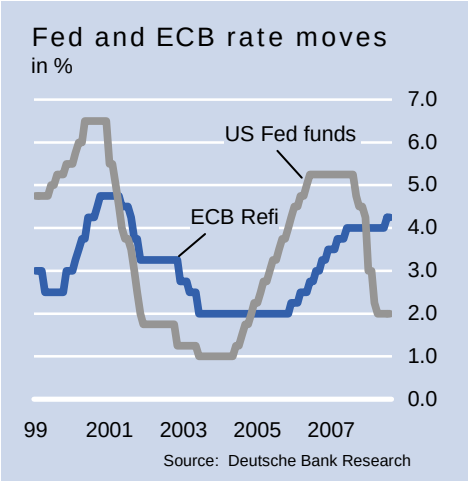

Chart 8

Topic II

Are we experiencing a new (and lasting) upward shift in inflation?

Is the present upward inflation shift going to last?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

Guillermo de la Dehesa

Chairman of the Centre for Economic Policy Research CEPR
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The recent inflation surge

After some years experiencing the so-called "Great Moderation", global inflation has accelerated in the last few months, mainly due to a surge in food and commodity prices. Oil prices went up from an average of $30 a barrel, between 2000 and 2004, to $140 in 2008, that is, above in real terms of its peak in 1979some metals suffered even higher increases and finally, food prices did also increased substantially in 2008.

The main cause of these prices surge has laid on the demand side, given the high growth rate of world GDP during 2004 and 2007 and mainly that of emerging countries, but the supply side has also been to blame, mainly in oil because of its sluggish response to price hikes adding production and distribution capacity, given its soaring investment costs in drilling, refining and distributing, as well as its technological, geological and political constraints, as well as the existence of a partial supply cartel (OPEC) has added to the surge by not increasing its production in the last few years.

In the case of food prices, production of the four major food crops has not kept up with rising demand growth and inventory levels have declined to levels last seen in the early 1970s. Unfavourable weather conditions in a number of countries led to bad wheat harvest in 2007 for the second consecutive year and to a sharp bidding up of wheat prices, with spillovers to other crops through substitution effects. The rise in oil prices, through its effects on fertilizers has also boost food production costs. The use of bio-fuels, as substitutes of oil has plaid a role, given that they have become heavily subsidized by many countries and that have diverted up to 25 per cent of its production away from food end products. Moreover, tax increases on exports or even bans to exports by several of their main producing countries, with the aim of lower national prices have also reduced supply for the rest of the world. Finally, demand of food has kept very rigid in some low income countries because food price subsidies are very high.

Financial conditions, such as the drop in interest rates and the dollar depreciation have also temporarily added to the upward price. In contrast, there is no evidence that the financial futures markets have had much to do about the recent upward pressure of commodities, given that are only bets on future prices that are settled at the spot price of each commodity.

Predicting future commodity prices

Looking forward, oil and food prices are expected to ease moderately from recent highs as more resources need to move into supply and as lower world's growth is going to restrain demand, in part due to their negative effect on disposable income and in part due to an increase by central banks in the interest rates to fight inflation. Oil futures are trading today at below $120 a barrel up to 2010. Something similar happens to wheat futures but with a much lower fall. A recent report by the IMF (2008)

Nevertheless, the oil futures prices may not be a good predictor of future oil prices. First, oil futures prices, as in any other risky assets, include risk premiums to reflect the possibility that spot prices at the time of delivery maybe higher or lower than the contracted price. These risk premiums tend to be quite large and volatile over time although not on average. Second, oil futures tend to be good predictors to forecast near-term oil price movements because near-term oil futures markets are much more liquid, the daily trading volume of contracts for a month tends to be up to 3.5 times larger than the volume for two months, up to 15 times larger than for four months and up to 70 times larger than the volume of contracts for a year. This is the reason why some analysts use models that look at spreads between the current futures prices and the spot price to predict movements in the future price of oil. There are also some private companies that make consensus forecasts about future oil and other commodity prices.

The main difference with oil and food inflation is that their macroeconomic effects are negative, not only by producing higher overall inflation but also by reducing income, increasing balance of payments deficits and reducing GDP growth. For instance, a surge in oil prices produces an increase in the overall prices and costs of any economy, due to its use as an intermediate input in most end products and services, mainly transport. As its demand tend to be quite rigid due to the absence of a true medium term alternative, consumers cannot avoid using it at any price, thus, their real disposable income for the rest of their consumption basket needs to be curtailed, affecting overall consumption as well as savings and investment. It is the same effect as a high tax on overall consumption but which proceeds are channelled from net importers consuming countries to net exporters producing countries, instead of being invested by the government which collects it in its own country.

Therefore an oil price surge produces lower growth and higher balance of payments deficits on net importers and the contrary effect on net exporters. This is the reason why high real oil prices will give net importers, by having a slower internal demand growth, a larger incentive to import less, to look for other oil substitutes and to try to make their production more efficient and less oil intensive. At the same time, oil net oil producers and exporters will have an incentive to invest more in oil exploration, production, refining and distribution, thus increasing their production capacity. In the end, demand will tend to go down, supply will tend to increase and, eventually, the oil price will fall. What is very difficult is to predict when it will happen, because so many unexpected geopolitical factors may be related to its price.

The same can be said about food prices, although their impact is felt more by the poor in developing countries than in developed countries, but mainly by the urban poor. The reason is that total food consumption represents less than 20 per cent of the average consumption basket in more developed countries and up to 80 per cent of the average basket in low income countries.

In any case, it is interesting to note the following factors: First, today, real prices of food are four times lower than in their peak in 1974-1976, real prices of metals are 70 per cent lower than their peak in mid 1974 and only the real oil price peak in 2008 has been 39 per cent higher than that of 1979 but now it is back to a similar level than its previous peak. Second, historical evidence shows that real prices peaks of commodities tend to be very negative, but fortunately, they tend to be also short lived. Real oil prices peaked in 1974 by increasing by 50 per cent, then, immediately after started to fall slowly and at the end of 1978 started to rise faster and by the middle of 1979 reach a level double than in 1974, but a few month later started to fall until 1987, then they suffered a real hick up of 20 per cent in 1991 and continue to fall a couple of months after until 2001, when they went up again until their peak in mid 2008.

Is this time different given that oil prices have been growing steadily for 7 years and have accelerated since 2004? All these oils peaks have consistently had a geopolitical trigger which has reduced supply and this time is no different, but it is true that this time the growth of world's GDP has been more sustained and more widespread than in previous periods of peaks and therefore has added to increase oil demand. Just at a time in which low oil real prices had been very low for a large period of time, so that incentives to explore, produce, refine and distribute were slower. Nevertheless, oil real prices have been accelerating up now for almost four years and the added production capacity is not yet there, but it has a probability of being there sooner that later. The same can be said about real food prices, where unexpected weather conditions have affected supply and there are also some government subsidy policies that tend to maintain demand (developing countries food subsidies) and reduce supply (bio-fuel production and taxes or bans on exports) that could or should be reversed or reconsidered.

Finally, it should not be forgotten that today's macroeconomic conditions, both in terms of fiscal and monetary policy management are much better than in the mid 1970s and that the prices of manufactures are much lower. Al combination of all these factors should avoid the present oil and food peak inflation to be long lasting.

Inflation expectations

Since the rational expectations revolution led by Robert Lucas, Thomas Sargent and Neil Wallace, among others, in the 1970s, with all its caveats as most theories have, there is a wide consensus among economists about that the main issue for a central bank is not only actual inflation but also inflation expectations, because rising inflation expectations are conducive to higher inflation.

First, expectations play an important role in the transmission of monetary policy. While central banks have only a direct influence on short term interest rates, typically the overnight call rate, however consumption and investment decisions and medium term price developments are largely influence by longer-term interest rates, which, in turn are depend on private sector expectations regarding future central bank decisions and future inflation.

Second, there is ample evidence about the need for central banks to monitor private sector expectations regarding future economic developments and mainly inflation expectations and they should react to them not only or not necessarily, through policy rate changes, but also through communicating adequately with the private agents that build up these expectations in order to make sure that the central banks commitments to price stability are credible. Economic agents need to be confident that their central bank will react to the various shocks that affect their economy in a way that assures price stability.

Third, the central bank, in order to be effective in its conduct of monetary policy, needs also to be credible and somehow predictable regarding market expectations on future monetary policy rates. Nevertheless, in order to be more effective, sometimes, the central bank should not refrain from surprising the market in order to achieve its goal if price stability is at risk. Expectations are an essential source of information for assessing the degree of understanding, of a central bank monetary policy strategy and conduct, by market participants and analysts. But an excessive reliance on market interest rate expectations can result in drawbacks, given that after having gained independence from politics it may surrender to financial markets. In the end the central bank should lead rather than follow the markets.

Today, inflation is high both in the US and the EA, but interest rates are low in the US and high in the EA. Are then two different views about inflation expectations on both sides of the ocean? There are two answers for this policy divergence:

One is that the present surge in inflation reflects a jump in the cost of oil and food rather than a broad acceleration in prices. When commodity prices shoot higher, the standard policy response is to treat the resulting rise as a once for all shift in relative prices, so that an interest rate increase big enough to squeeze inflation back down inflation may cause a large rise in unemployment.

Another is that, sometimes commodity price inflation can generate not only higher headline inflation and lower growth, but also an increase of inflation expectations of future prices by consumers and markets. If that is the case, in the end there will be a response by workers and firms increasing wages and profits. In that case, central banks need to send a message that they are not going to accept these so-called "second round effects" in order to anchor them. This is what has been happening in the EA and in the US. The ECB has reacted promptly by increasing slightly its intervention rate, while the FED under a greater stress, derived from its problems with financial stability, has not. One of the reasons why the FED seems to be more comfortable about inflation expectations and second round effects is that its labour market in much more flexible than in the EA, while the ECB knows that in the EA the wage setting process is predetermined by inflation expectations.

Should the ECB review its definition of price stability?

Many economists have been criticising since the beginning the ECB low inflation medium term objective: "below but close to 2 per cent", for several reasons: It is too ambitious; it is asymmetric (in the sense that it focuses on the upper bound but not on the lower bound) and it leaves insufficient room for relative price movements among countries with different economic structures.

Most economists understand that it was chosen at a moment (1998-1999) in which inflation was particularly low during the second half of the 1900s. This was an exceptional period of very weak oil real prices (the lowest since 1974), strong dis-inflationary pressures given to the opening and integration in the world markets of large emerging economies with lower labour costs which tended to reduce the price of manufactures and the widespread use of new telecommunication and information technologies which tended to reduce the price of many services. In such a low inflation environment, officials felt that they could no choose a higher objective because they will send a wrong initial signal to the markets and start with a loss of credibility.

But, ten years later, most economists think that this low inflation target is too ambitious. The previous low inflationary environment has obviously changed because of the jump in real commodity prices, which in principle should not be very long lasting, but, at the same time, most Euro Area (EA) members continue to suffer both from a structural lack of internal competition in their service markets and from a high structural level of rigidity in their labour markets which both are in the need of urgent deregulation. Under these two circumstances the ECB's monetary policy cannot do much: First, in the case of the surge in commodity prices because it is not produced by the EA internal demand, which grows at a low pace, but by that of the large emerging economies and because the supply response by producers has been too slow. Second, in the case of the labour and service rigidities it cannot do much either because it can only be changed by structural policies and not by monetary policy.

Under this new situation, the ECB has a major dilemma and only has a few obvious choices left:

First, it could stick to its present low inflation objective and raise interest rates until inflation expectations are subdued, with the risk of provoking an EA recession, which would be very damaging for its present popular support.

Second, it could increase its present low inflation objective from below 2 per cent to around 2 per cent, which is what other central banks typically use (with the only two exceptions of the ECB and the Swiss National bank). This change may damage its credibility, but not so much if it does it in the context of the new Member states joining the euro. The ECB is very credible as an inflation fighter even if it has not been able to meet its objective. This is why it may have now a great opportunity to acknowledge that its target is too ambitious and move to around 2 per cent.

There are other less ambitious ways for the ECB to deal with this difficult dilemma. One is to continue to miss its low inflation target for several more years, which can also damage its reputation, but it may be understandable, given that it has consistently missed it before for years and given that most analysts believe is too ambitious. As a matter of fact the ECB has been missing its objective not because it has conducted a bad monetary policy, but because its objective is too strict.

Another is to change the definition of "medium term" in the definition of price stability, which is quite arbitrary, by deciding that the inflation objective will be met in 3 years instead than in two years, waiting for the commodity prices to fall further, and signal that as long as inflation expectations remain well anchored, in order to avoid inflation expectations growing higher.

Another one is to copy the Bank of England and to write letters to the Euro-group Finance Ministers explaining the reasons of the inflation overshoot, the difficult actions that the ECB may be need to take to meet its inflation objective and the urgent need from them to finally introduce the structural measures needed to bring inflation down.

Finally, it could use this opportunity to address the issue of asymmetry by setting also a lower bound to the definition of price stability. As a matter of fact a speech by Otmar Issing, at a conference of ECB Watchers in Milan in June 10th 2002, could be interpreted as a modification of the present definition and an introduction of asymmetry when he said that "price stability should mean neither prolonged inflation nor prolonged deflation"… that "a small positive inflation rate, say between 1 and 2 percent, substantially reduces the potential risks of getting trapped in a deflationary spiral"… that "most of the problems associated with the lower bound on nominal interest rates could be avoided for rates of inflation as low as 1 per cent"… and that "in view of these uncertainties, the ECB should be vigilant when inflation falls towards an excessively low level, say below 1 per cent".

To introduce a lower bound of 1 percent, according to Lars Svensson (2002), who quickly reacted to that Issing speech, would be a significant improvement over the current definition for two reasons: First, it becomes unambiguous and symmetric. Second, a 1 to 2 per cent range is such a narrow interval that it is clear that inflation, because of imperfect control and unavoidable shocks, will sometimes be above 2 per cent and sometimes below 1 per cent. Third, it is indeed equivalent to a point inflation target of 1.5 per cent, with the understanding that this is a target to aim ex-ante, but that inflation ex-post will normally deviate from the target. Fourth, 1.5 per cent was what the Euro-system seemed to have used when calculating its reference value for the unfortunate first pillar. Fifth, having an explicit point target is more important than the precise level of the target of 2 per cent.

Headline inflation versus core inflation

For a typical household, overall or headline inflation is what it matters. It is headline inflation that measures the rate at which the cost of living is rising. It is headline inflation relative to income growth that determines whether a household's standard of living is rising or falling.

However, for calibrating monetary policy, many economists focus more on the core rate of inflation. The reasons are mainly two: First, that it tends to be less volatile and a better reflection of the interplay of supply and demand in domestic product markets, given that energy and food prices tend to be more volatile and subject to geopolitical and unexpected shocks. Second, core inflation tends to be a better to gauge the underlying rate of inflation that will tend to emerge in the absence of supply shocks, while the headline rate of inflation tends to be less representative of such underlying rate of inflation.

This is the reason why, when discussing long-run inflation trends, members of the FOMC of the US FED have tended to emphasize the "core" measure of inflation, which exclude energy and food prices, over the corresponding headline measure which does not. The present Chairman of the FED, Ben Bernanke, in his July 2007 monetary report to Congress noted that the emphasis on core inflation is motivated by a desire to track and predict persistent inflation. He said "Food and energy prices tend to be quite volatile, so that, by looking forward, core inflation may be a better gauge than overall inflation or headline inflation of underlying inflation trends".

The historical record in the US shows that headline inflation and core inflation have averaged about the same over the long-run. For example, over the past twenty years (1986-2006) annual inflation as measure by the overall personal consumption deflator expenditure (PCE) averaged 2.6 per cent while price increases as measured by the core PCE deflator averaged 2.5 per cent. Nevertheless, both measures tend to diverge quite substantially over short term intervals. For example, in the same period, when measured over 12 month spans, headline inflation has been as much as 1.8 percent higher and as much as 1.7 lower than core inflation.

These short term divergences create major political problems given that consumers experience a fall in their purchasing power based of headline inflation that it is not covered by core inflation. So, if core inflation is a misleading indicator of changes in purchasing power, can it be still useful? The core measure of inflation may indeed be useful to both consumers and monetary policy makers if it does a better job of predicting future headline inflation than the corresponding headline inflation itself.

There is a lot of discussion and diverging views about that. Some recent research done in the US, using the PCE inflation measure, shows that PCE present headline inflation tends to predict better future headline inflation that using its core measure. By contrast, using the other alternative inflation measure, the CPI one, it shows that CPI core inflation is a better predictor of CPI headline inflation than its headline CPI measure is of itself.

In Europe, both the ECB and the Bank of England use headline inflation as a target and put greater emphasis, when deliberating, on headline inflation. For instance, Charles Bean, present Deputy Governor of the Bank of England, when he was its chief economist said, at the Jackson Hole symposium in 2006, that "central banks were mistaken to focus on core inflation rather that in headline inflation in their policy deliberations, because energy prices were rising for the same reasons that many manufactured goods were falling: the rise of China and other emerging market economies. Since both price trends had a common cause, it makes little sense to focus on measures of core inflation that strip out energy prices, while not stripping out falling good prices as well"

In the end, as in every economic debate, it is difficult to get a clear conclusion about this issue. Maybe the approach should be more practical, that is: central banks should focus both on core inflation and on headline inflation.

Core inflation should be given a greater emphasis in present times where economies are facing a very large food and oil shock, but without leaving aside headline inflation because, if headline inflation increases becomes more persistent, central bankers must be very vigilant to ensure that they do not become embedded into expectations and thereby can generate substantial second round effects on inflation. In the end, price stability involves control of overall or headline inflation, which after all is the inflation measure that households really care about. A core inflation measure should not been as a substitute of headline inflation even if it is able to predict better its long run trends.

How suitable is the HICP to measuring inflation?

Several pieces of research have dealt with the issue of measurement biases in the HICP. Most of them arrive to the conclusion that there is not any relevant bias, that changes in the weightings are made often to avoid them and that, when found, contrary to the widely held belief they are biasing the HICP downwards instead of upwards. Therefore, errors in measurement do not tend to cause inflation statistics to overstate the true rate of inflation but rather to understate it.

Some economists have insisted that the HICP should include, as in the US and in some Member states of the EA before the introduction of the HICP, the owners-occupied housing: The US consumer price index (CPI) mirrors the national income accounts treatment of the owner-occupier housing. Owners are assumed to rent their homes from themselves, creating a category called "owner-equivalent-rent" (OER). As more than two thirds of US households own the house they live in, OER weight in the US CPI is substantial (23.8 per cent of headline CPI and 30.8 per cent of core CPI, which excludes food produce and energy).

The problem with OER is that when house prices go up fast, as it has happened in the US since 2000, then rents languish in comparison and now the contrary is happening when prices go down. Thus, there is alternative view that advises to include in the CPI the existing rice of the houses according to the following argument: a home owner's foregone income, or opportunity cost, is based on the current sale price of his house. This means that the implicit rent, which is essentially a measure of the opportunity cost of owning rather than renting, should be based not on the rental market but on the price of the house.

Some research has computed this change and finds that the difference is very high: since 2000, headline CPI would have risen by 4.0 per cent annually instead of 2.75 per cent and core CPI by 3.8 per cent instead of 2.0 per cent. Therefore, it distorts excessively the CPI and thus it seems better to stick to the rent based on the rental market or OER than to change to the rent based on the price of the house.

The issue is that the ECB does not include the OER measure in its HICP, which forms the basis for its definition of price stability. As a consequence, some EA member countries, as well as the UK, were forced to change their previous retail price indexes, which included OER, to the new ECB system, which excludes it, to be able to achieve a common harmonized HICP.

The main arguments for this change are dubious: the first is that housing is an investment, but being so, its dividend is only the housing service and its long-term capital gain is miniscule, given that, in the case of the US, it averages roughly 20 basis points per year for the last 100 years. The second argument is that owners are hedged against other price increases, what it is true, but then, why single out housing as the one and only way to hedge and not using other financial assets to hedge consumption risks?

Are We Experiencing a New (and Lasting) Upward Shift in Inflation?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

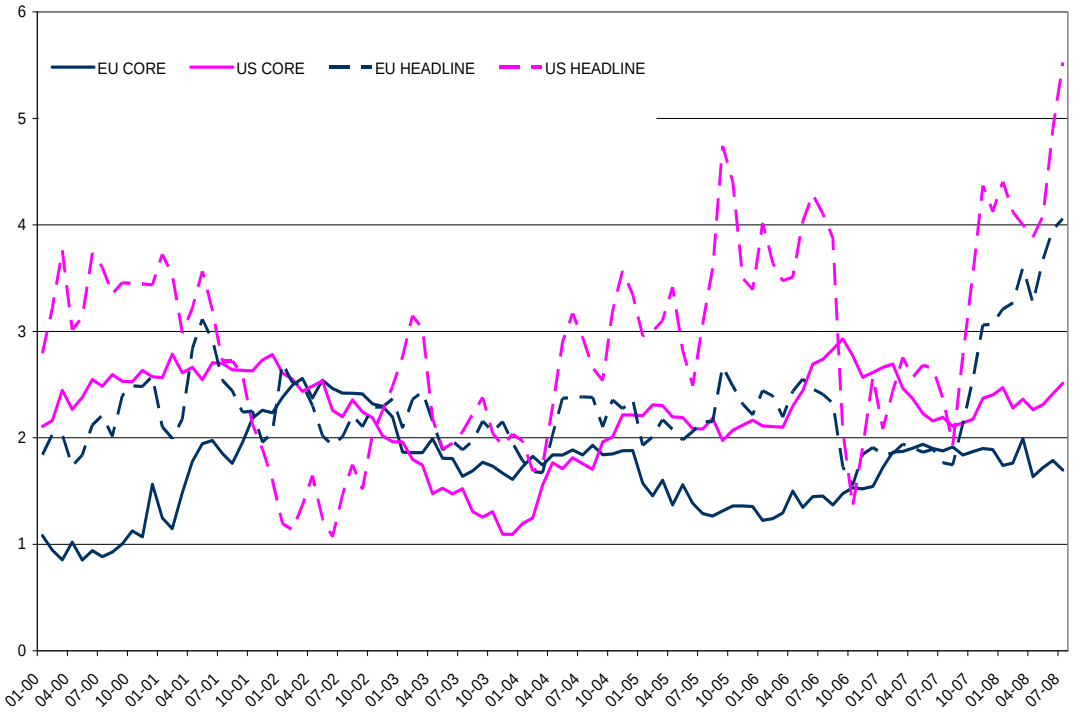
Jean-Paul Fitoussi

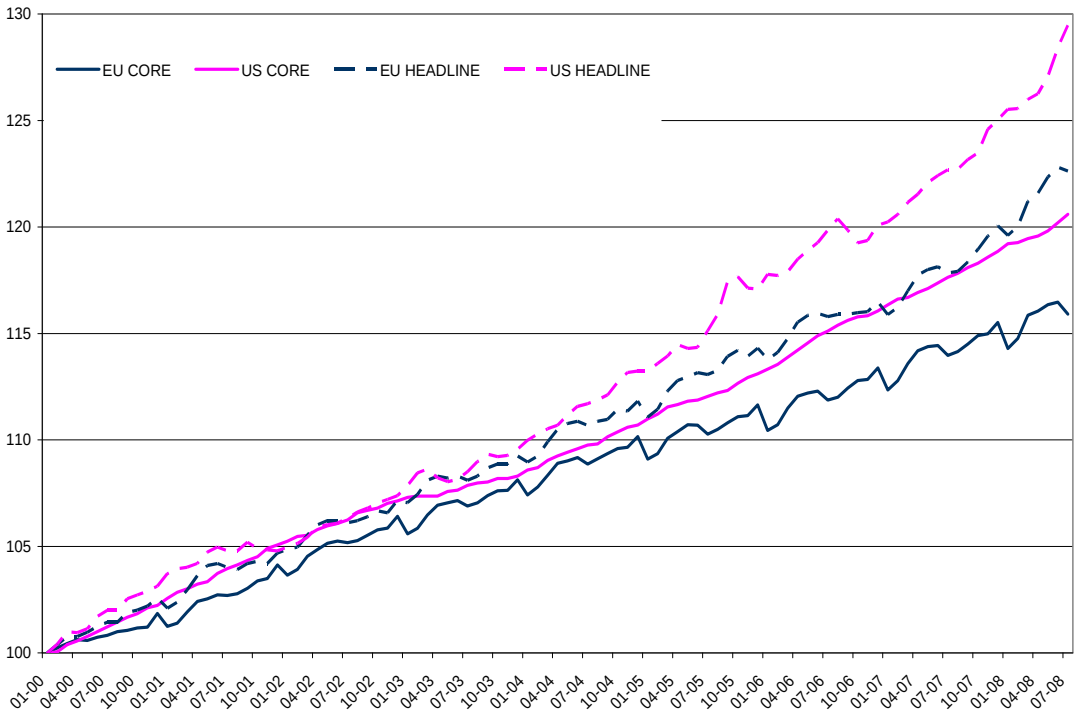
Executive Summary

The long wave of globalization will most probably lose part of its strength in the next few years. As a consequence inflation will not remain as low as it has been for the past three decades, where the growth strategy of emerging countries, especially China, has mainly relied on exports to the global market. The very success of this strategy implies that the western world would not still for long be able to pursue a growth strategy based on (excessively) cheap imports. A look at price indexes shows that inflation has been in the recent past on an upward trend and that it varies considerably across sectors. At the very least, the rate of inflation may become much more volatile in the decades to come. Besides the obvious consequence of actualizing its inflation target, the ECB should also rethink its policy (and its relationship with the other actors of economic policy in Europe) to put in place strategies aimed at accompanying the structural adjustment of the economy (that may be a cause of a slightly higher inflation). The increasing income inequality may also prove to be a problem for monetary policy, because it tends to generate stagflationary outcomes if it is not being taken care of. If the short term prospect is for the rate of inflation to decrease, the longer term prospect is that it may well decrease towards a new equilibrium rate higher that the preceding one which is reflected in the present objective of the ECB.

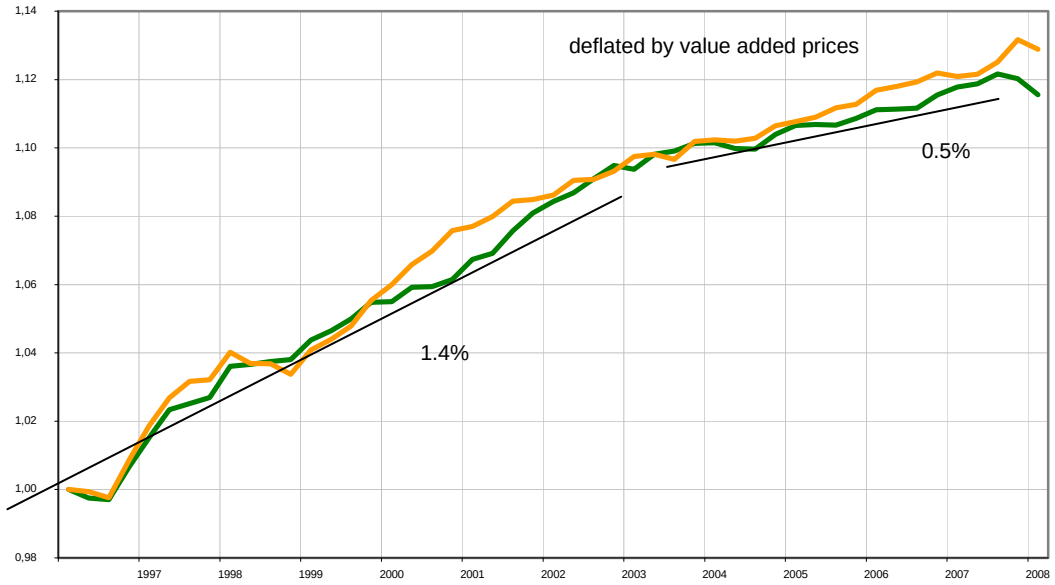
The recent evolution of commodity prices has raised a number of questions that are relevant for policy making in general, and for monetary policy in particular. The public debate has focused on the decreasing purchasing power of household – especially the poorest ones – and on the action economic policy makers should take in order to contrast this trend. This briefing paper will try to give elements to answer two questions. The first is whether we are heading towards the end of the era of (abnormally) low inflation that we experienced since the middle of the 1980s. The answer to this first question will be yes, as the structural factors that kept inflation lower in the past are fading, and hence it is realistic to expect an increase of say one point in the equilibrium inflation rate. The second and related question is whether this should imply a different attitude of central banks, notably the ECB. I will argue that, besides the obvious implication that the target inflation rate should be raised for credibility reasons, the structural factors behind the increase of inflation, and the consequences in terms of aggregate welfare and income distribution should be addressed by monetary policy and fiscal policy alike.

The surge in oil prices, accompanied by a surge in food prices, has had the expected effect of increasing headline inflation all over the world. But since already some decades, the message of the analysis of Michael Bruno and Jeffrey Sachs has well been understood: an oil shock would lead to an episode of stagflation in a context where wage indexation is pervasive. So almost everywhere in advanced countries wage indexation has disappeared from the economic scene, as both the stability of core inflation and the stagnation of real wages seems to indicate.

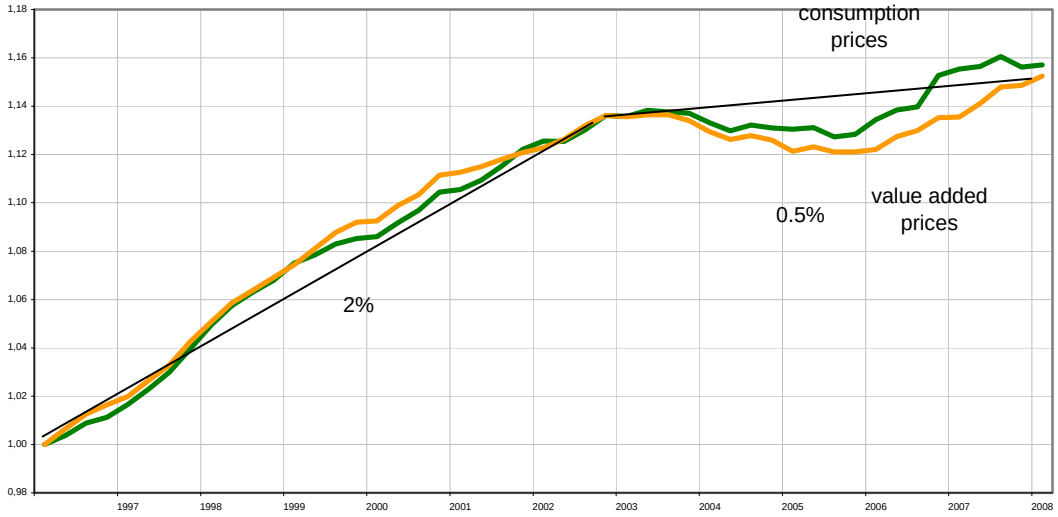




Real wage per capita: Euro area



Real wage per capita: US



Hence this time the oil tax has mainly fallen on the shoulders of the wage earners. In the language of the ECB it seems, at least until now, not to have had second rank effects. But this type of adaptation to a supply shock has necessarily a growth effect: the slowing down of consumption and its subsequent effect on investment is reducing the rate of growth almost everywhere. This is a first "disinflation" factor characterizing the present situation. A second factor has to be found in the reversal of oil prices (at least their levelling off) and the reversal of food prices whose surge was in part due to specific factors not likely to replicate in the future.

According to this appraisal, the causes behind inflation have had their maximum effect in 2008. It has to be recalled that from July 2007 and July 2008, oil prices have more than doubled and since the July peak, they are decreasing (with some fluctuations). The same is true for the bulk of commodity prices. Inflation is thus expected to recede in the year to come in advanced economies. Some economists are also arguing that there is another factor behind the increase in commodity prices, namely the financial crisis: when financial assets prices would have decreased enough, the expectation of their return to normal will add a further deflationary effect on commodity prices.

For all these reasons the fear of stagflation – the synchronous increase of the rates of inflation and unemployment – seems to be grossly exaggerated.

But this does not amount to saying that monetary policy is not confronted with a problem. It is certainly in emerging and developing economies where oil, food and other commodities account for a much larger fraction of the Consumer price index. But it is also in advanced economies because the global context is exhibiting a noticeable and foreseeable change. Globalization has had and continues to have the expected beneficial effect in favouring growth in the developing countries which have chosen a growth strategy based on openness to trade. As a consequence, the world is becoming more balanced, and the period of abnormally cheap exports which has helped to lower the equilibrium rate of inflation in the western world is progressively coming to an end .That process will take still some more decades to be accomplished, but already the discrepancy between the terms of trade of the advanced economies and the emerging countries is slowly reducing. Moreover, the process is already sufficiently advanced, that absent radical technological progress, the pressure on the price of exhaustible resources will continue to increase.

1. Are We Experiencing an Increase in the Equilibrium Inflation Rate?

Figures 1 and 2 report the evolution of global commodity indexes from the Dow Jones and the Economist respectively, together with selected subcategories.

Fig 1 - Dow Jones Price Index (2007=100)

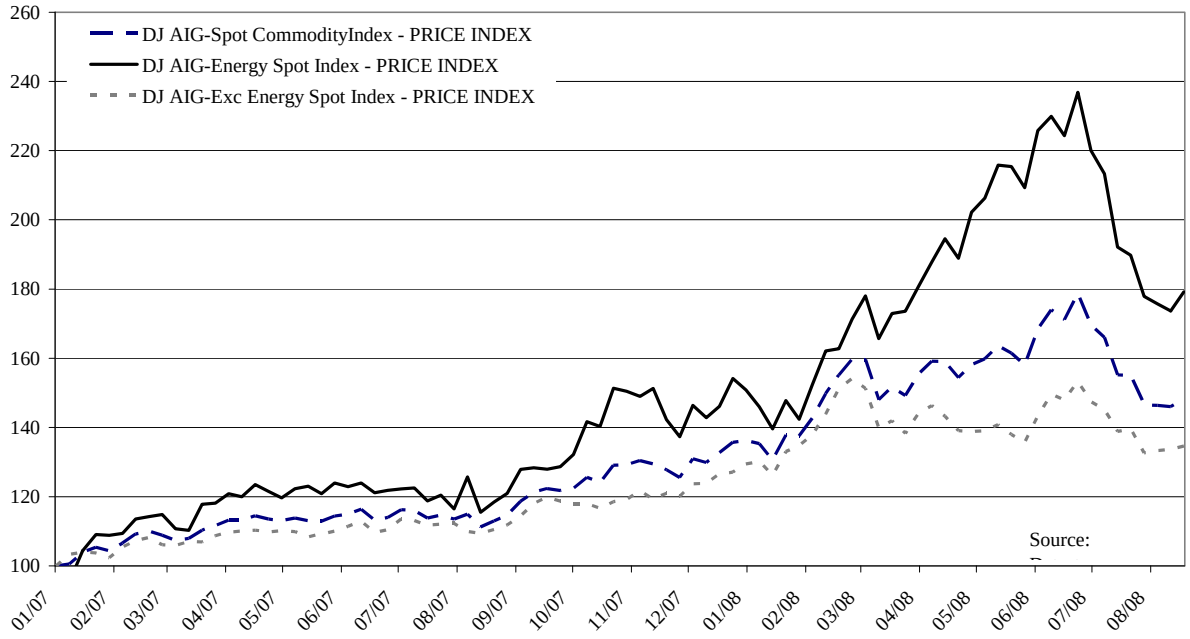
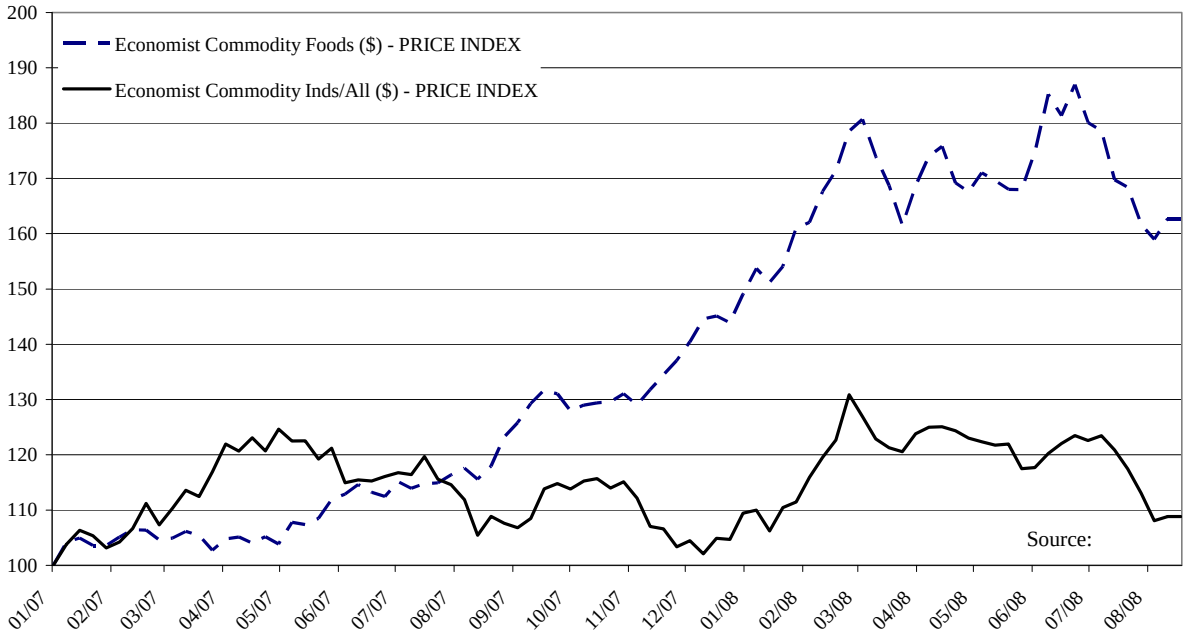


Figure 1 shows an impressive increase of energy prices since the beginning of 2008 to the peak of July (more than 70%), but also an equally impressive decrease (almost 30%) during the month of August. These fluctuations drove the average index as well.

Similarly, figure 2 shows that without food, the price index increase was not dramatic, while food prices almost doubled from January 2007 to the peak of last July.

Fig 2 - Economist Price Index (2007=100)



Thus, we can observe three major stylized facts. The first is an upward trend of the price level. The second is an increasing variability, with fluctuations easily above 10% from one month to the other. And the third is a very unequal distribution across commodities and sectors, with commonly used commodities (food, energy) increasing significantly more than the average.

In Fitoussi and Gergescu-Roegen (1980), we linked the equilibrium level of inflation to the structure of the economy. That paper noticed how asymmetric price behaviour may be a natural consequence of uncertainty, that pushes prudent entrepreneurs to prefer price adjustments to quantity adjustments (i.e., new capacity building) when observing increases in demand. The degree of asymmetry increase with uncertainty, and there is little doubt that in a period of financial crisis uncertainty becomes pervasive. In sectors experiencing excess supply, price adjustments are much more difficult to achieve as they are constrained by institutions in general, and social ones in particular. This asymmetry on the price dimension is mirrored by a converse asymmetry in the quantity dimension, i.e., quantity adjustments are stronger in sectors characterized by excess supplies. Price behaviour asymmetry determines a positive inflation rate in equilibrium (i.e. when aggregate demand and supply are equal) because prices increase in sectors with excess demands more than they decrease in sectors with excess supply. An important consequence of this definition of equilibrium inflation is that for a given average excess demand (say zero), increased variance at the sector level implies an increase in the equilibrium inflation rate. The data below show clearly than something of this kind (increased dispersion) is a characteristic of the present period. Another mechanism by which sector heterogeneity brings about a positive equilibrium inflation rate is the tendency for wages to move together, while productivity growth is very different between sectors (lower for example in the services sector).

Whatever its origin, this link between average inflation and the structural differences across sectors becomes important in light of the stylized facts analyzed above.

For reasons already developed, we should not observe further increases in the rate of inflation, quite the contrary. The consensus for the Euro area is for example of an inflation rate that should stabilize around 3% by the end of 2008.

Nevertheless, a detailed analysis of the factors that determined the path of inflation in the past pushes to believe that the abnormally low inflation levels of the past will not be easily found again. At minimum the rate of inflation could exhibit in the future much more volatility.

At the basis of the era of low (and relatively stable) inflation that we experienced since at least two decades is the globalization process that had its more visible aspects in the fast integration of emerging economies (notably China and India) in the world economy. This led to what Freeman (2005) called the “great doubling” of the global labour force, that had strong deflationary effects. In the Briefing paper that I prepared for the EP in December 2007, I mentioned a number of factors that at different levels explained the tendency of global inflation to decrease. I report them here for the reader’s convenience:

The more straightforward is the direct effect of cheap imports, which reduces the overall price level. This effect is larger for countries that have a higher share of imports in domestic consumption.

Related to the former, there is the substitution effect of cheaper imports for domestic goods. According to the ECB monthly bulletin, of August 2006, China and new member states have seen their exports to old member countries of the EU double from 1995 to 2004.

Trade openness has also an effect on domestic prices, through the downward pressure that it exerts on wages of sectors more exposed to foreign competition. The threat of delocalization and of outsourcing has been used to moderate wage growth and to keep labour costs low.

A global economy also tends to reduce bottlenecks and capacity constraints, thus reducing the sensitivity of inflation to domestic supply problems. Supply and demand are increasingly determined at a global scale.

Increased competition implies a process of selection in the domestic market, with less efficient firms that will be driven out of business. This implies an increase in overall productivity and a decrease of prices.

Finally, even when the share of imports is low, and hence the direct effect plays a limited role in affecting inflation, the simple threat coming from potential competitors will force domestic producers to keep prices low. The notion of market contestability, introduced by Will Baumol in oligopoly theory, fully applies to international trade, and explains why the reduction of inflation also appeared in relatively closed economies (like the US for example).

The briefing paper of December 2007 considered also the two apparently opposed views of Lawrence Ball (2006) and Kenneth Rogoff (2004). The first argues that most of the effects of globalization on inflation are temporary, in the sense that they are linked to the current transition towards a more integrated world, which pushes prices downwards. Once the transition accomplished, concludes Ball, inflation will go back to more reasonable levels. Rogoff argues that Globalization has modified so deeply the economic environment that inflationary pressures are today permanently lower than in the past (notably through the increased competition that makes prices and wages more flexible). Both opinions seem to be correct but they are referring to two distinct mechanisms. Ball refers mainly to the effect of globalization on income – and the end of the terms of "trade's rent" – Rogoff to the effect of the dismantling of the barriers to trade on competition.

It is my opinion that we have already seen most of the second effect, and that the first (the Ball effect) will dominate in the future. The consequences of the huge structural shock represented by the big doubling are inevitably beginning to fade, as the generalized wage increases in China's urban areas witness. The balance between satisfying external and internal demand will certainly progressively change in china. In the next few years the deflationary effects of emerging economies' participation to the global trade system will be reduced. Furthermore, the delocalization of production to low wage countries in the past has created an excess capacity, that on one side helped to keep prices low, and on the other induced firms to close production units in rich countries. Now that emerging economies are growing richer and increase their demand, we are heading towards less excess capacity.

A second important factor is that the increasing wealth of emerging economies increases demand (both for consumption and for production) of scarce and exhaustible resources like energy and food. This effect is for the moment weak and there is some debate among economists about its responsibility in the increase in the prices of commodities.

Some for example would argue that the increase in the Chinese demand for oil between 2005 and 2008 represents 1% of total oil demand (and less than half of this amount for India) and can't thus explain the huge increase of oil prices. But in an oligopoly market where supply is controlled by producers, a marginal increase of demand may have huge effect on prices. And whatever the past this effect will certainly gain momentum in the future, and will contribute to a large increase of the rent of the owners of these goods.

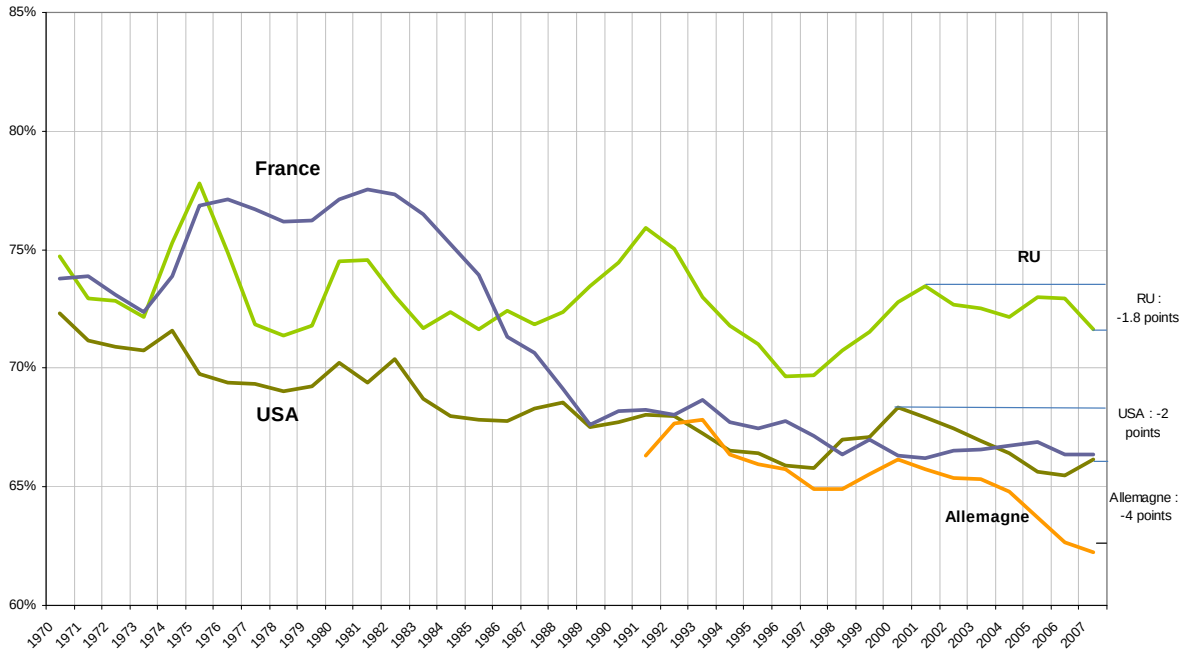
A distinct argument is that the attempts of advanced countries to weaken their dependency on exhaustible resources and to respond to the increased demand of clean environment by their population may contribute to increase inflation pressures: climate change policies may in effect impose higher prices in energy and energy-intensive goods and services. So what? Should we in order to avoid transitory increase in the equilibrium inflation rate, or in its volatility, renounce to invest in the future and especially in new technologies of environment and energy? If these investments prove profitable their effects on energy productivity will in the medium to long run decrease the pressure on prices. Moreover, there may be here a measurement problem: the increase in headline inflation consecutive to these policies may well reflect a quality effect because it affects positively the welfare of the people.

Finally, a sometimes ignored feature of globalization is the restructuring of the economy, which implies the reallocation across sectors of demand and productive capacity. During this process the variance of excess demands and supplies increases and the equilibrium inflation rate with it. This effect will of course become less important as the restructuring comes to an end, but it is likely to play an important role in the next years.

Thus, pressure for inflation to increase so as to reach a new equilibrium level (albeit still low) will come from rents, from price adjustment asymmetries, from climate change policies and from the reduction of excess capacity and excess supply of labour. This effect will be mitigated by a probable reduction in profit margins – which are at a very high level today as a consequence of the "great doubling"– as it is normal when the labour market is exhibiting a tendency towards a vanishing excess supply of labour. It has to be reminded as shown in the following graph that the share of wages in value added has decreased since the middle of the eighties, and has still decreased in the more recent period. That means it exists some room of manoeuvre for this share to rise in the future without creating inflationary pressures.

Part des salaires dans la valeur ajoutée (en %)

source OCDE, EO82, VA totale, coût facteurs, corrigée de la non salarisation



2. What Implications for Monetary Policy?

If the analysis above were correct, the most immediate and obvious consequence would be the necessity of an upwards revision of the ECB target. I already argued in the past (Fitoussi (2002)) that the 2% objective had been chosen in a period of abnormally low inflation, and that we risked experiencing excessively restrictive monetary policy because of that. This argument is even stronger today: last July the ECB raised its rates of a quarter of a point, while the Euro zone was experiencing the first period of negative (quarter to quarter) growth. A too low inflation target may lead to a backward looking monetary policy!

More generally, in a situation in which some goods exhibit important price increases due to structural factors, the only hope to avoid an increase in the general price level lies in the capacity for policy to be able to reduce the price level in other sectors, in order to compensate. I see two different ways to obtain this objective.

The first is a policy mix (low interest rates and targeted fiscal measures) able to facilitate investment and productivity growth in some sectors, thus lowering unit labour costs and prices.

The second is a policy mix aimed at reducing inflationary pressures through brakes on aggregate demand. The current policies carried out today in Europe are leading to a contractionary policy mix. The fear of second round effects, that I discussed at length in my briefing paper of December 2007, pushes the ECB to keep interest rates high in order to avoid wage increases, even when most of today's inflation is imported. This has the consequence of compressing real wages, a phenomenon that all European countries experienced, albeit with different intensities.

This strategy has undesirable contractionary consequences, and makes the burden of adjustment fall disproportionately on the shoulders of low and middle income households, as I will highlight below. But more importantly, it is not necessarily effective. The asymmetric behaviour of prices implies that, the generalized decrease in demand will call for an adjustment on quantities rather than on prices, and hence will be unable to compensate fully the increase of prices in the energy sector. This mechanism is the core of the increasing risk of entering a stagflation phase. But as said below the likely reversal of commodity prices increases make this risk more remote.

Thus, a policy of high rates and exclusive focus on inflation targeting do not seem to be the appropriate response to the current transition towards a slightly higher equilibrium rate of inflation, because they are likely to depress the economy while being ineffective to fight inflation.

If the above diagnosis is correct, what we need is a policy aimed at facilitating the restructuring of the economy, and at addressing the increasing variance of sector disequilibria. Monetary policy alone could not accomplish this task, and coordination with other policy tools (fiscal policy, competition policy, industrial policy) becomes necessary.

The situation is further complicated by the increasing income inequality that makes average inflation less and less significant. The dispute on perceived inflation may be partly explained along these lines. The unequal price increase impacts the different income brackets differently. More specifically, energy and food enter in a disproportionately large share in the consumption basket of lower income brackets, which as a consequence experience a larger loss of purchasing power. Nobody recognizes himself in an average figure in a context of growing inequalities. As a consequence the statistical apparatus that we currently use may become too abstract to correspond to perceptions.

Thus income inequality should also be targeted by policy, because for a given average rate of inflation, the negative effects are larger when income is more dispersed.

Furthermore; an important consequence of increasing inequality is the accumulation of large liquidities in the hands of a few households. This inevitably has an impact on speculative movements, asset price inflation etc., which may be a major cause of concern for monetary policy. Hence the argument according to which the excessively high growth of monetary aggregates may be finally translating into consumer prices may be misleading. As argued in a former briefing paper excess liquidity may well be the symptom of excess saving due to a set of reasons: increasing inequalities, increased rents (high commodities prices), huge current account surplus in emerging countries etc… Thus "excess liquidity" is likely to affect much more asset prices than consumer prices.

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Are we experiencing a new (and lasting) upward shift in inflation

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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Executive summary

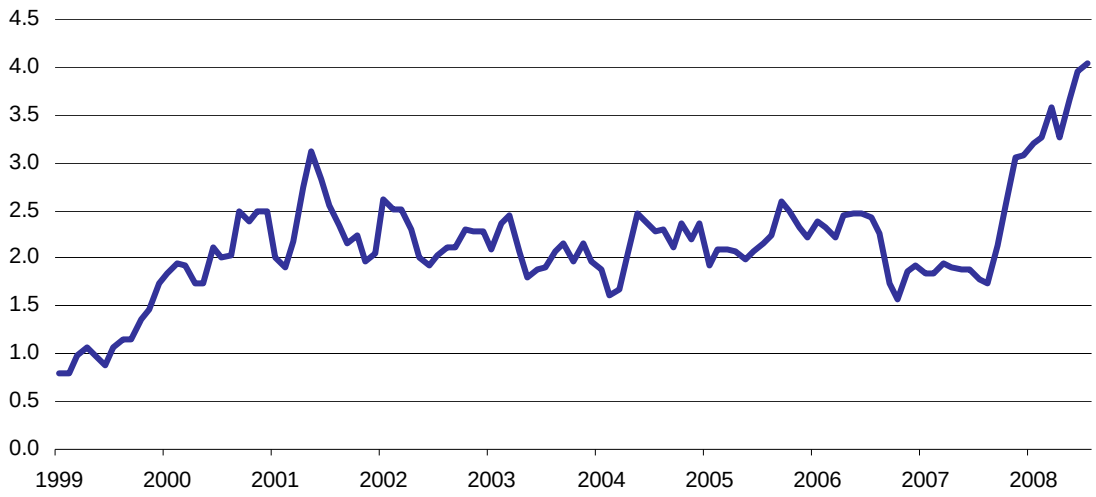
The euro-zone's harmonized index of consumer prices (HICP) is carefully calculated and a reliable measure of inflation. The ECB's HICP based definition of price stability ("close, but below 2%") is appropriate and offers enough buffer against deflation. This is also true when one takes future increases in energy prices into account. Any attempt to raise the numerical definition of price stability would be dangerous as this would raise long-term financing costs for firms and create general macroeconomic instability.

I. How suitable is the HICP?

Before we discuss the quantitative definition of "low inflation", we have to assess whether the harmonized index of consumer prices (HICP) correctly measures consumer prices (**Chart 1**).

Euro-zone inflation since the introduction of the euro

Harmonized index of consumer prices, % year-on-year



- Chart 1 -

There are millions of different prices in a modern economy. To measure general inflation, statisticians have to aggregate the changes in all these different prices into one index, the consumer price index. The consumer price index is thus a weighted average of the price changes of all these goods and services.

The weight with which the price change of a specific good enters the consumer price index corresponds to its share in consumers' total expenditures. Individual price movements are thus weighted according to the consumption preferences of the population.

Eurostat calculates a harmonized consumer price index for the euro-zone. This index is called "harmonized" because all the 15 countries which form the European Monetary Union (EMU) use similar methods to calculate their consumer price indices. These harmonized national price indices (in opposition to national price indices which are calculated according to national guidelines) are then aggregated to form the euro-zone harmonized index of consumer prices. With a weight of 40.9% services are the most important constituent of the HICP, followed by non-energy industrial goods (29.8%), food (19.5%) and energy (9.8%).

There are c. 700 groups of goods and services, with different qualities and thus prices for each of these groups. Even for identical goods (e.g. a 0.33 litre can of Coca Cola) prices differ between regions and retailers. The HICP is therefore based on a very large sample of individual prices (c. 1.7 million).

The HICP is calculated with great care, and is a quite reliable representation of inflation. It is also available without much time delay. For example, a first estimate of the HICP is available at the end of each month. This flash estimate differs from the final HICP, which is reported two to three weeks later, by only 0.1 pp on average.

Nevertheless, the HICP is often questioned for several reasons:

1. Perceived versus HICP inflation: HICP inflation (i.e. the percentage change of the HICP over 12 months) is a very reliable measure of inflation. Nevertheless, surveys show that consumers' perception of inflation is often meaningfully above HICP inflation. This difference between perceived and official inflation can be explained easily. Assume that the price of one particular group of goods rises strongly. If a consumer buys this good very often, e.g. daily, then he remembers the financial pain of the price increases very well and attaches a higher weight to this product when he forms his inflation perception. In recent months, food prices have risen very strongly. As most people buy food daily, it is no surprise that perceived inflation exceeds HICP inflation, which uses a weighting scheme according to expenditure share. However, this does not change the fact that official inflation is lower.

2. House prices ignored: Currently, expenditure for owner-occupied houses and apartments are not represented in the HICP. This is in contrast to rents, which have a weight of 6.2% in the HICP. Insofar, Eurostat is right to evaluate ways to integrate price movements for owner-occupied housing in the HICP.

II. What is "low inflation"?

The upper limit for acceptable inflation (currently 1.9%) should be as low as possible because low inflation generates stability and therefore higher economic growth. However, a number of arguments suggest that a moderate positive inflation rate is desirable.

Measurement problems: Price indices tend to slightly overestimate true inflation, as it is difficult to measure quality improvements and statisticians therefore tend to ignore them. For Germany the Bundesbank22 estimates that this effect overstates inflation by about 0.5 pp. This suggests the ECB should target 0.5% inflation and not 0% inflation.

Buffer against deflation: If the aggregate price level does not increase (inflation) but declines (deflation), then inflation adjusted wages, i.e. real wages, rise as wages tend to be rigid to the downside. Such a forced increase in real wages would raise the cost of labour and thus unemployment. Moreover, monetary policy would no longer be able to stimulate an economy with negative or low real interest rates.

[22] „Anmerkungen zur geldpolitischen Strategie der EZB im Lichte einer neuen Forschungsarbeit der Bundesbank", speech by Hermann Remsperger, member of the Executive Board of the Deutsche Bundesbank, 4. November 2004, p.8.

Interest rates cannot become negative. If there is deflation, then real rates are positive. For example, zero interest rates and 5% deflation leads to a positive real interest rate of 5% (0% - (-5%) = 0% + 5% = 5%). The more pronounced the deflation, the higher real interest rates are. But, to stimulate an economy and to fight deflation, a central bank needs the opposite, i.e. low or even negative real interest rates. Insofar, a low, but positive level of inflation serves as a buffer against such problems. Several studies suggest that the likelihood of a deflationary downswing spiral sharply declines when the central bank's long-term inflation target is above 1%.

Balassa-Samuelson effect: The EMU is made up of countries which differ in terms of economic development. If a country with a low per-capita income creates a favourable macroeconomic environment then this country should catch up economically. This process is typically driven by the tradable goods sector. This sector opens itself increasingly to the global market place and typically its productivity rises quickly. Strong productivity gains allow such a sector to significantly raise wages. However, workers from the non-tradable sector tend to push through higher wages too. As productivity in the non-tradable sector usually does not increase much, unit labour costs and thus inflationary pressure goes up in the non-tradable sector. This is the reason why economy-wide cost pressure and thus inflation is typically higher in catch-up countries. As a result, inflation rates differ within a monetary union. If a central bank sets a very low inflation rate for a monetary union as a whole, then the established countries with a high per capita income may need to have an inflation rate below zero to make sure that the union-wide average is in line with the central bank's inflation target.

Most empirical studies23, however, estimate that the average inflation rate of countries with high per capita income and low inflation is about 0.5pp below the union-wide inflation average.

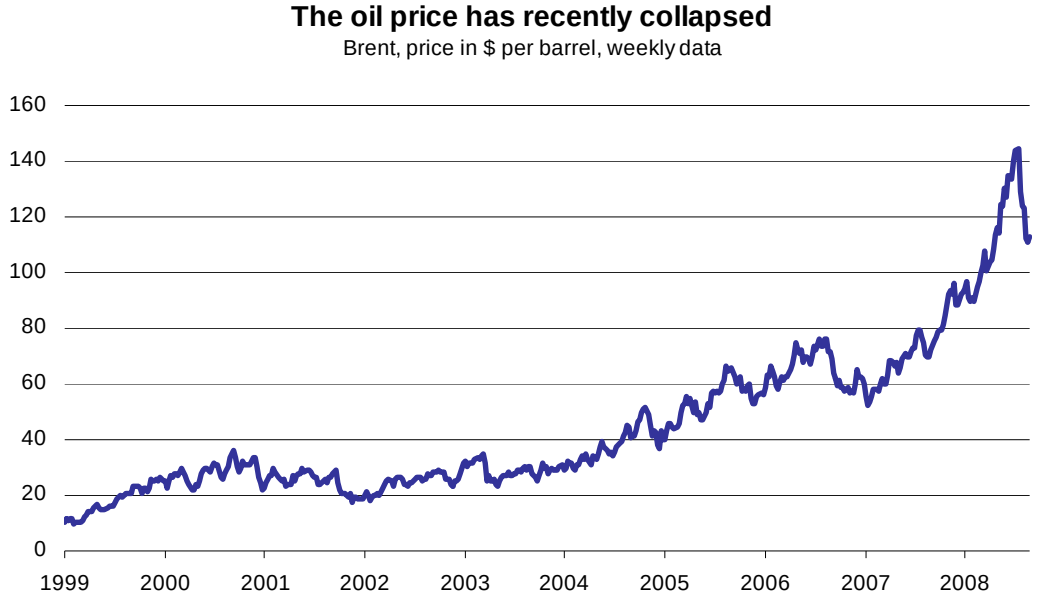
These three effects add up to nearly 2%, so the ECB is right not to target 0% inflation but to define price stability as close, but below 2%.

III. Can low inflation be achieved in the future?

Some observers question that the ECB's definition of price stability is suited for the future. They see structural reasons why energy prices should rise very strongly, so there would thus be the risk that the ECB needs to force non-energy prices to decline in order to meet its 2% mark in an environment of rapidly rising energy prices. However, one may question whether energy prices should rise dramatically in the long run.

Over the past couple of years oil prices have indeed risen significantly. They reached almost $150 per barrel in July 2008 (Chart 2), but since then the oil price has fallen dramatically. The obvious bursting of this bubble proves that market prices tend to follow fundamentals in the long run. Therefore, any long-term oil price forecast should be based on fundamentals.

[23] For an overview of studies see Gonzalo Camba-Mendez, Juan Ángel García and Diego Rodríguez Palenzuela, "Relevant economic issues concerning the optimal rate of inflation", pp. 110, in: ECB, "Background Studies for the ECB's Evaluation of its Monetary Policy Strategy", November 2003.



- Chart 2 -

In its 2007 World Energy Outlook the International Energy Agency forecasts oil price developments until 2030 based on two fundamental scenarios for global economic growth.[24] These forecasts imply annual growth rates of the oil price between 1.5% and 4.2% (**Table 1**). Even a 4.2% annual rise in crude oil prices would contribute only 0.2pp to overall HICP inflation. There would thus be no need to raise the 2% mark.

Projected oil price increases in % p.a.

Growth rate forecast	2006 until 2015	2015 until 2030
3.6% p. a.	1.5%	2.8%
4.3% p. a.	3.2%	4.2%

- Table 1 -

IV. Inflation expectations are too high anyway

Any attempt to raise the ECB's definition of price stability is dangerous as this would raise long-term inflation expectations, financing costs for firms and macroeconomic instability. Long-term inflation expectations are no longer firmly anchored anyway. Inflation expectation derived from inflation swaps for the years 2013 to 2018 have risen to 2.7%, well above the 2% mark (**Chart 3**).

[24] Derived from International Energy Agency, "World Energy Outlook 2007 – China and India Insights", tables on p.64 and p.152, respectively.

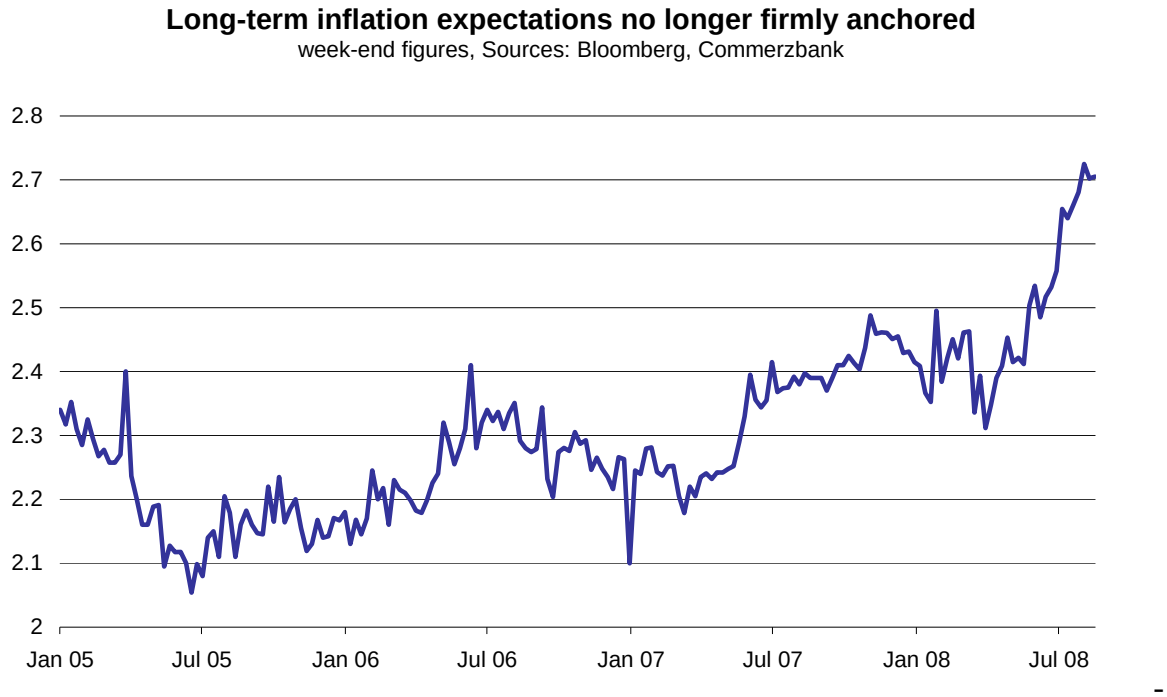


Chart 3

Economists also increasingly doubt whether the ECB will deliver price stability in the long run. According to a survey of the ECB, the average of professional forecasters now see a probability of 57% that the ECB does not deliver price stability in the long-run. It is the first time since the start of the survey that this risk has been significantly above 50%. The ECB has an inflation problem and any increase in the definition of price stability would be highly counterproductive.

A new (and lasting) upward shift in inflation? Not really.

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

Leon Podkaminer

Summary

Inflationary acceleration since Aug. 2007 can be fully attributed to rising world-market prices of energy and food/farm commodities. The role of fast-growing emerging markets in upsetting the global energy/food markets equilibriums is exaggerated. Supply setbacks (related to weather or policies) have been more important. The world-market prices of energy and food are likely to stabilise, or even drop. The supply-induced global price shocks seem transient. Also, the inflationary impacts of the rising wages in major export-oriented emerging markets are overrated. Unit labour costs in e.g. China are not rising all that much – and in the euro terms they even decline (and quite strongly too).

Regulatory interventions are unlikely to have significant inflationary impacts.

Oddly enough, the rising inflation in the euro area happens to be associated with decelerating growth in the M3 aggregate. This is yet another indication of the fallacy of the monetarist idea postulating causality running from quantity of money to the price level.

High inflation is still restricted to food and energy. Despite lapse of time since acceleration started, the "core" inflation (HICP excluding food & energy) runs at the same speed as before. There is no evidence of "second-round effects". Also, there is no evidence of wage-price spirals being set in motion. With toothless trade unions and (importantly) the ongoing labour productivity gains preventing any steep decline in real wages, stagflation does not seem likely.

The major conclusion is that we are not experiencing a new (and lasting) upward shift in inflation. This is not to say that that the return to the relative price stability (say at around 2%) will be automatic and undisturbed. Skilful management of the monetary policies will be essential for this process to be as fast – and costless – as possible.

HICP is not a bad inflation index. However, it may make sense for the ECB policy to be guided by the 12-month average (HICP) rates rather than by the year-on-year rates. Moreover, the current situation may be conducive to a modification of the ECB inflation target. It may be advantageous to orient the policy towards keeping inflation around 2% (e.g. in the 1.5-2.5% range) instead of chasing inflation "below but close to 2%".

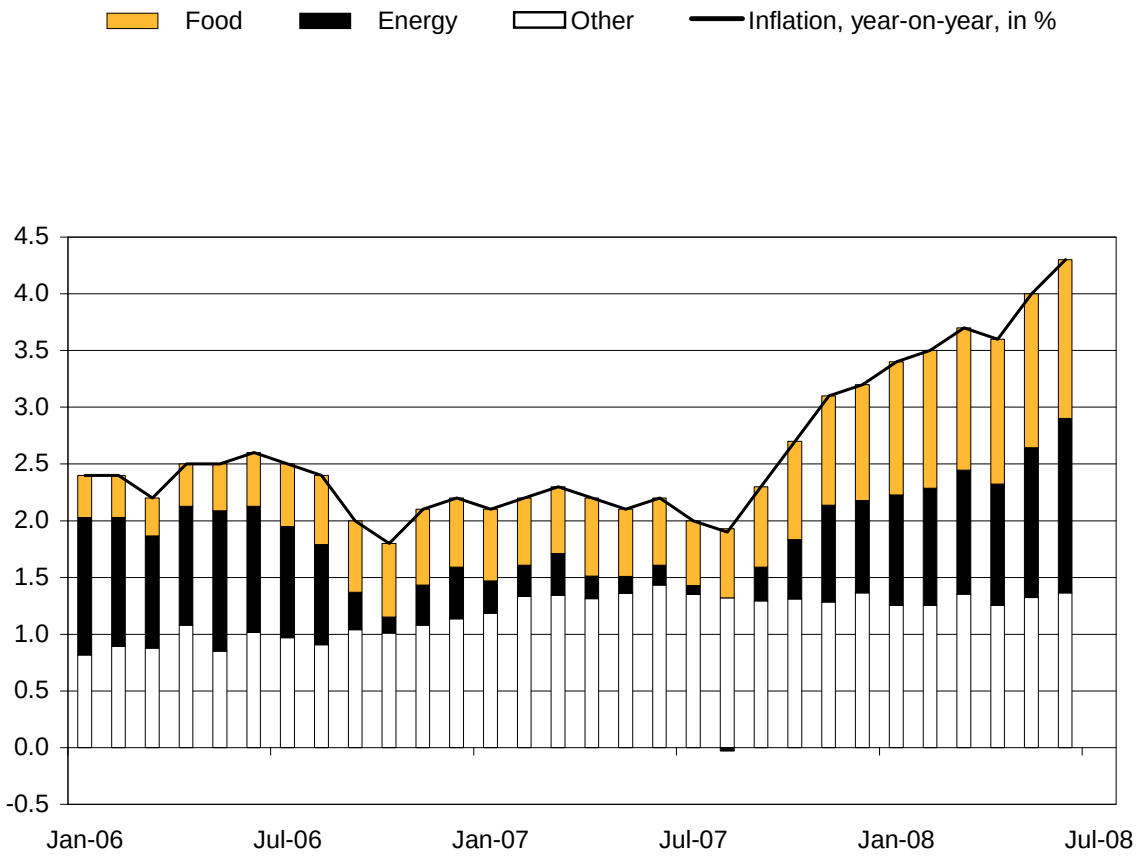
Inflationary acceleration since Aug. 2007: it's all dear food and energy

Let us first take a look at the facts. In mid-2007, consumer price inflation started to accelerate sharply around the globe. In the EU-27 inflation rose from less than 2% in Aug. 2007 to over 4% most recently (June 2008) – see the graph below. Inflation in the euro area is currently only a bit lower (4%). The acceleration has been due to the rapidly rising retail prices of foodstuffs and of household energy (including motor fuel).

The phenomenon of rising food and energy prices is commonly considered to be global in character not only on account of its geographical extent, but also because its root causes are often believed to have much to do with deepening economic globalisation (i.e. worldwide liberalisation of trade and cross-border capital movements).

Specifically, the continuing strong growth of major emerging markets (China and India among others) and their growing appetite for energy and other commodities is conventionally seen to be the primary factor responsible for upsetting the long-established and relatively stable global equilibrium between demand and supply of major globally traded energy carriers and farm/food commodities25.

Fig.1 monthly inflation (HICP) in EU-27 and major contributions (% points) to it



Higher global prices of energy carriers and agricultural commodities: it's mostly the supply-side shocks

The arguments for linking the current global inflationary acceleration to ongoing globalization via the demand effects sound quite convincing26. However, some facts fail to support those arguments fully. First, the role of the fast-growing emerging markets in upsetting the energy market equilibrium seems to have been exaggerated. For example, the share of China in world demand for crude oil rose from 8.5% in 2006 to 8.9% in 2007. The overall increase (2007 over 2006) in the combined demand for crude oil in China and other developing countries (1.3 million barrels per day) was partly matched by: (a) the non-OPEC supply of crude oil rising by 0.8 million barrels per day; and (b) demand in the OECD countries dropping by 0.2 million barrels per day.

[25] Fast rise in the production of biofuels, which is believed to have contributed to accelerating food prices, is linked to the perceived shortages/rising prices of oil-derived fuels.

[26] Such arguments are advanced in – among others – the ECB Monthly Bulletin 6/2008 (pp. 10-12), or in the recent issues of IMF World Economic Outlook.

If OPEC had not cut back its crude oil production in 2007 by some 0.5 million barrels per day, the rising global demand (including developing countries) for crude oil would have been met without forcing a reduction in the worldwide stocks of crude oil.27 In conclusion, while the demand for crude oil in the fast-growing emerging economies is still increasing (albeit rather moderately), the decisive factor behind the recent energy price explosion seems to be very much supply-side in character. More precisely, one must recognize the role of the OPEC strategy or policy in triggering the recent upward trend in energy prices worldwide. Of course, the price impulse brought about by the temporary supply-demand imbalance could well have set off purely speculative tendencies, thus inflating energy prices to unreasonable levels. A final remark would seem pertinent. Even if the recent developments have been brought about by shortfalls in oil supplies, in the long term the rapidly rising demand in China and other fast-growth regions could well push energy prices upwards.

The demand for major agricultural and food commodities in the fast-growing emerging markets and the role it played in upsetting equilibriums in the global markets seems even more problematic than in the case of crude oil. This is clearly reflected in the data on demand for, and supply/ use of, wheat and coarse grains in 2007 and 2005, for example28. The average nominal wheat and maize prices in USD rose (2007 over 2005) by 89% and 71%, respectively29. Global direct human consumption of (i.e. demand for) wheat and coarse grains rose by 3%, while human consumption in the non-OECD countries rose less: 2%. Consumption in China and Brazil actually declined over that period. The emerging markets' demand for wheat and coarse grains for use as feed in animal production rose more significantly than in the OECD countries (3% and 0% respectively). All in all, the facts do not support the thesis about an extraordinary rise in demand for wheat and coarse grains in the rapidly growing emerging markets. That same conclusion is borne out by facts about global developments relating to other farm/food products, such as soybeans and sugar. It is also difficult to attribute the rapid rise in world market prices of other commodities (e.g. metals) to a rise in demand in emerging markets.

The ever growing use of agricultural commodities for biofuel production may well be a different matter. For example, the share of wheat and coarse grains used for biofuel production (primarily in the USA) accounted for 5.4% of the total global use in 2007 – up from 2.8% in 2005. (As a result total demand (all uses combined) for wheat and coarse grains rose faster in the OECD countries than in the emerging markets: 7% as against 3%, respectively). It is debatable, however, whether the growing use of crops for biofuel production has reduced the amounts available for human or animal consumption and so contributed to rising prices. Without the biofuel producers' demand for grains, the total grain output (supply) could have been correspondingly less, ultimately resulting in a total supply-demand imbalance of the same magnitude. (It is unlikely that the industrial producers of biofuels would rely on uncertain supplies of wheat or other agricultural raw materials. Instead, they may well have been developing their own supply or production networks, often taking advantage of various subsidy schemes).

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27 The data on the crude oil demand/supply quoted above come from the OPEC Bulletin No. 6/2008.

28 The data on supply/use of wheat and coarse grains come from OECD-FAO Outlook 2008-2017, June 2008.

29 The external price shocks to the euro area have been much less pronounced than to the US: the euro has strengthened vs. the USD. External price shocks have been even less painful to the NMS (particularly Slovakia, Poland and the Czech Republic) whose currencies have strengthened considerably even against the euro.

The debate on the issue can be rounded off with some summary information on the nature of the imbalance between total demand for, and supply of, wheat and coarse grains in 2007. Over the period 2005-2007 demand in the emerging markets for wheat and coarse grains rose by 27 million tons, while demand in the OECD countries rose much more: 53 million tons (with inputs into biofuel production accounting for at least 45 million tons). The problem that ultimately led to the explosive prices for wheat and maize is that total global production only increased by 46 million tons. The demand-production imbalance of -41 million tons (reflected in reduced stocks) was precisely matched by production shortfalls in three major wheat growing regions: the EU, Australia and Canada. Insofar as these shortfalls were related to weather (a 20%-plus decline in average yield per hectare in the case of Australia) or to policies designed to discourage production (for example, in the European Union where the area harvested contracted by 6% between 2005 and 2007, thus reducing EU wheat production by 21 million tons) the global wheat market imbalance – and associated price hikes – was also clearly supply-side in character. It may be worth adding that – with some qualification – a similar finding applies to other major crops traded internationally.

The world market prices of energy and food likely to stabilize or even drop

Our ability to read the minds of the strategic energy market players (e.g. at OPEC) is somewhat limited. However, it is important that we hazard reasonable guesses as to trends in energy prices. Our guess is that the trend towards higher energy prices on world markets is coming to an end: at least for the time being. One could perhaps even go so far and anticipate some measure of decline in those prices. A number of factors are likely to contribute to that trend.

1) Although energy prices started to rise as far back as the beginning of 2004, they only began to accelerate frantically at the beginning of 2007. Given that the turbulence on global financial markets which broke out in mid-2007 (extending into 2008) unleashed a flight from 'virtual' (including 'sub-prime') investments into more solid commodity investments (such as gold), the rise in the energy prices might be interpreted as a reflection of prevailing 'investment sentiments' (with OPEC producers holding back on production). A gradual return to normalcy on the global financial markets might reduce the attractiveness of such solid investments. This, in turn, ought to redirect the energy price trends[30].
2) Since the third quarter of 2007, OPEC crude oil production has reverted to high levels. In the first quarter of 2008, production was 5.2% higher than the year previous. Having made huge gains in 2007, OPEC might now want to avoid recessionary developments in the OECD countries that would probably come to the fore, were crude oil to remain in short supply globally. At the same time, total world demand for crude oil is expected to rise only moderately (even stabilizing in the OECD countries). Thus, in all probability the current cycle of diminishing stocks/exploding prices of crude oil (which started in 2004) may be coming to an end[31]. The starting date of the next such cycle is open to question.

Prices of major internationally traded agricultural commodities are also likely to stabilize – or even decline – in the near future. That the tendency for these prices to rise (which became clearly visible by the summer of 2007) has already come to an end can be deduced from the trading reports of futures markets. Those reports show a gradual, but consistent decline in many futures prices starting in early 2008. Overcoming the effects of the temporary weather- (or policy-) induced shocks to the supply of major crops is likely to suppress those prices still further.

[30] Of course, there is no shortage of 'bullish' oil price prophesies. One can sense disingenuous bubble engineering behind some of them, not serious research.

[31] See the OPEC Bulletin 6/2008.

This is very much the conclusion drawn by leading experts in the field. In particular, the most recent issue of the joint OECD-FAO Agricultural Outlook 2008-2017 envisages a relatively imminent plummeting of world market prices in the case of some agricultural commodities (including wheat and milk powder). Prices of most other commodities (excluding rice) are expected to remain largely stable over more or less prolonged periods of time (with some of them starting to decline in two to three years). These expectations are based on more specific assumptions pertaining to such factors as a rise in incomes and demand for food in the fast-growing emerging markets, as well as a rise in levels of biofuel production. On the whole, the pattern of future food price developments emerging from the recent OECD-FAO studies appears to be consistent with historical trends pointing to a secular weakening of food prices in the course of economic development. It is particularly interesting that the world prices of meat are expected to remain depressed. This defies the idea that the rising affluence of the emerging economies' consumers must translate into strengthening demand for meat (and its relatively stronger prices). Such effects may prevail domestically, without necessarily surfacing in international trade.

The inflationary impacts of the supply/cost developments in emerging economies are also overrated

As argued above, the demand-pull originating in the fast-growing emerging economies is of fairly limited importance as far as the world-market prices of major energy and food products are concerned. *Prices of raw materials* do NOT *surge due to higher demand in the emerging economies*.
But, could these countries contribute to a higher inflation in the developed countries if they start charging higher prices for their exports (to the latter countries)? The intuition behind this query is reflected in the statement that the "*emerging economies experience a boost in wage growth which indicates that the times of cheap imports are fading"*.

Factually, the emerging countries have experienced a boost in wage growth for quite a long time – without this having impaired the price-competitiveness of their exports to the developed world. For instance, the average real wage in China has been rising at a double-digit pace since 1999. (Only recently the real wage growth has slowed down: in the first quarter of 2008 it stood at 10.3%, down from 15.5% the year previous)32. That prolonged wage boom has been associated with explosive developments in China's exports of goods whose value rose from 180 billion euro in 1999 to 890 billion in 2007. (China's trade surplus rose from 27 to 190 billion euro respectively). No doubt these developments indicate that the times of cheap imports (from China) are far from over. The reason why the wage booms have not led to China's exports being more expensive is simple enough: the wage growth tends to be offset by rising productivity. The unit labour cost index (defined as the ratio of the index of nominal wage bill and the index of nominal GDP) is roughly constant (in terms of the Chinese domestic currency). In euro terms, China's unit labour costs have been declining - reflecting depreciation of the yuan vs. the euro. (In the first quarter of 2008 the average CNY/€ exchange rate stood at 10.75 – up from 10.17 in the same quarter of 2007. CNY depreciated vs. the euro by 5.4%).

Conceptually, linking domestic inflation to the rising (or falling) prices of the (competitive) imports is fraught with difficulties. Rising (or falling) prices of imports possibly change the price structure – but not necessarily affect the overall price level – i.e. inflation.

[32] See e.g. "The Big Boom is Over, but Growth Remains Strong and Inflation Calms Down. Economic Prospects for Central, East and Southeast Europe". The Vienna Institute for International Economic Studies, July 2008. Quite recently the real wage growth in China has slowed down.

Limited inflationary impacts of regulatory interventions

The costs of regulatory interventions motivated by environmental concerns (primarily over climatic changes attributed to the carbon emissions) have been assessed in a number of recent studies, including the Stern Report (2006) and the 2007 report by the Intergovernmental Panel on Climatic Change (IPCC). According to Professor Geoffrey Heal, it is reasonable to assume that the problem can be solved for 1-2% of the world national income (spent continually) These are not negligible costs – but it is hard to believe that they could perceptibly affect the overall inflation rates.

Growth in monetary aggregates is actually decelerating

It is of course possible to argue that *the excessively high growth of monetary aggregates may be finally translating into consumer prices*. However, there is no sure way to ascertain the correctness of this argument. There are no standards to measure the levels of *"excessiveness"* or of the time span necessary for the monetary growth to start finally translating into higher prices. In short, we do not dispose of a generally accepted theory linking growth rates in money aggregates to inflation.

Oddly enough, the *rising* inflation in the euro area (since Aug. 2007) happens to be associated with *decelerating* growth in the M3 aggregate (since Oct. 2007) - see e.g. ECB Monthly Bulletin 7/2008, p.14. It may be added that growth in total loans granted to households (possibly strengthening the demand-pull behind the consumer price inflation) has been *decelerating* continually since mid-2005.

No impacts on the "core" inflation

Continuing strong surge in the euro area inflation (HICP) rate for household energy (+16% in June 2008) and food (+5.8%) has not added to inflation for the remaining goods and services. The HICP for all items excluding energy, food, alcohol and tobacco stands at about 1.8%. The present "core" inflation has been roughly constant since Jan. 2007. Thus, the prolonged upward drift in energy and food prices has failed to induce any acceleration of the "core" inflation. No "second-round" inflationary effects have occurred up to now – though of course such effects may (but do not have to) perhaps materialise later on.

Stagflation rather unlikely: militant trade unions missing, labour productivity still rising

Since the third quarter of 2007 the wage rates in the euro area have been rising *modestly* faster than before. This is a natural - and not unwelcome development – as otherwise one would have to register a steeper decline in real wages (eroded under accelerating inflation) - possibly to be followed by falling consumption and stagnant (or falling) overall GDP. It ought to be stressed that the rate of growth in the unit labour costs has been trailing behind inflation. Wages seem to be pulled by prices – but not vice versa. This is due to (a) continuing growth of labour productivity; (b) sustained wage moderation (also because of the absence of militant trade unions). Passing the increased costs of imported energy onto labour does not now imply the necessity of cutting real wages because rising labour productivity allows some (admittedly moderate) gains in real wages all the same. Thus, the present conditions are radically different from the situation of the 1970s when there was little productivity growth, the militant trade unions engaged in a fierce war over who should pay the cost of quadrupling oil price (resulting in the wage-price spirals supporting high inflation) and when high levels of uncertainty over the course of fiscal and monetary policies proved conducive to the overall stagnation.

We are NOT experiencing a new (and lasting) upward shift in inflation

The recent supply-side shocks pushing up the headline inflation in the euro area (and elsewhere) are expected to have only transient impacts. This expectation is reflected in the forecasts produced at the central banks in OECD countries (including at the ECB), as well as at the major international financial institutions. These forecasts predict inflation to gradually calm down – towards much lower levels (comparable with the levels prevailing and earlier on). I am of the same opinion: we are NOT experiencing a new (and lasting) upward shift in inflation.

This is not to say that the return to the relative price stability (at around 2% inflation) will be automatic and undisturbed. Negative external supply shocks, which can of course occur in the future, may prolong the disinflation process. Skilful management of the monetary policies will be essential for this process to be as fast and – first of all costless - as possible. In particular, it is important that the policy does not seek to achieve unattainable goals (i.e. fast disinflation at a too short time horizon). Of course it should be taking into account the unit-labour-cost and "core-inflation" developments, as well as the trends in the capacity utilisation and unemployment. Given the stability of the "core inflation" and the unit labour costs trailing behind inflation, which characterises the euro area, one would expect the ECB policy to avoid unnecessary (and costly) restrictiveness.

HICP is not a bad inflation index, but…

The ideal inflation index exists only in theory - and that only under specific, quite restrictive conditions. To my mind the HICP is a suitable practical inflation index. Of course, it may not correspond to the "true" preferences of the representative consumer[33]. The fact that the HICP does not allow for the imputed rents is not – in my opinion – any drawback. HICP does not need to get substantially redefined. Anyway, it is being constantly reviewed and perfected at the Eurostat - and I believe things should stay that way.

There is one thing about the HICP which merits reconsideration. This pertains to the dominant use made of the HICP. Namely, the current practice concentrates on reporting/interpretation of the year-on-year (annual) HICP values (published monthly). This of course exaggerates the impacts of one-off, or recent, events. Moreover, this is likely to generate false impressions – and possibly prompt wrong decisions at the ECB. Suppose, for instance, that one month there is a high jump in the (previously stable) price level, followed by a complete stability of that level. The year-on-year inflation index paraded by the ECB throughout the next 12 months will, nonetheless, be as high as the initial jump in the price level.

An alternative inflation measure (still based on the HICP) exists – and is actually used in the ECB Convergence Reports (which monitor the developments in the EU member states retaining their own national currencies). This is the 12-month average inflation rate, comparing average HICP in the latest 12 months to the average for the previous 12 months.

[33] But, does a "representative consumer" really has to have any well defined preferences? Or, more fundamentally, does a "representative consumer" necessarily represent real, differentiated, consumers? The correct answers to these questions are likely to be No. (See e.g. A. Kirman: *"Whom or What does the Representative Individual Represent?"* Journal of Economic Perspectives, 6(1992), pp.117-36). It may be added that in real life the individuals' inflation perceptions may have nothing to do with any measure of inflation. To start with, real individuals need not understand the concept of inflation.

Of course this measure has its own drawbacks. But these seem less serious than those of the year-on-year HICP[34].

A good occasion to modify the ECB inflation target: *"2% with a tolerance band of 0.5%"* instead of *"below but close to 2%"*

Nowadays a 2% inflation seems to be generally considered "low". This of course is a matter of convention, and not the result of application of any objective criterion. The fact that the HICP (y-o-y) inflation will undoubtedly run at levels in excess of 2% for quite some time creates an opportunity to reconsider the ECB target. Instead of chasing inflation "below but close to 2%", the ECB policy should perhaps be oriented towards keeping inflation *around* 2% (e.g. in the 1.5%-2.5% range). Meeting such a target would not only be easier for the ECB – which may enhance its credibility. More importantly, allowing inflation to run at levels higher than 2% (but still not much higher ones) may perhaps produce real advantages (lower unemployment, faster GDP growth and its lower volatility) also in medium and long run[35].

[34] Under steady month-on-month inflation both indices (y-o-y and 12-month average) are identical. The most recent (June 2008) the y-o-y inflation in the euro area is 4%, but the 12-month average is 2.9%.

[35] As argued e.g. by the Nobel Prize Laureate George Akerlof, or quite recently, by P. Benigno and A. Ricci: *"The inflation-unemployment trade-off at low inflation"*, NBER Working Paper 13986 (April 2008).

Are we experiencing a new (and lasting) upward shift in inflation?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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Executive Summary

Inflation is a monetary phenomenon. Growth is not the result of cheaper money. In the long run, trying to use the interest rate as an anti-cyclical tool will lead to sustained losses of purchasing power of the euro through continuous increases in the general price level. The ECB should concentrate on using the official interest rate of the Euro area to control money supply and general liquidity in the medium and long run, even if monetary measures take time to pass through to general prices. Short injections of liquidity by the Bank as a lender of last resort will not spoil its anti-inflationary strategy if they are intended and seen as temporary and if expectations of price stability are well anchored.

The present upward shift in the HICP will in all probability not last, especially if the ECB convinces markets of its determination to increase interest rates to control liquidity, come what may in the real economy. The length and depth of a possible recession depends on the willingness of national governments to carry out much needed structural reforms and not on the monetary policy of the central bank.

The time horizon of the ECB strategy

According to the ECB statutes, the primary target of the Bank is to maintain price stability in the Euro area in the medium term. The ECB Governing Council has defined this target as limiting the annual increase of the Harmonised Index of Consumer Prices (HICP) to below, but close to, 2%, in the said medium term. In this definition two variables are crucial: the time horizon and the chosen price index. Since the Euro area has been showing consumer inflation significantly above target in the last two years, there is need for an analysis of both time period and index targeted.

Since inflation is a long term monetary phenomenon, central banks can hope to influence the trend of the general price level only with some not inconsiderable delay. There is therefore general agreement that monetary policy must not attempt instantly to correct all deviations of the general price level from target. The need to focus on the long term, and not to try discretionary micro-management of the economy, is reinforced by the existence of two kinds of lags. One is the **transmission lag**, whereby the open market operations of the central bank to change the short term interest rates in the money market, take time to have an effect on the liquidity of the monetary economy. The other is the **information lag**, the limited information, even about the situation of the economy at the time, at the disposal of monetary authorities when decisions have to be made. These transmission and information lags make it inevitable that central banks focus on the medium and the long term and implement a forward-looking oriented and gradual monetary policy.

However, while these policies work themselves out, the central bank will keep track of a number of monetary and economic indicators to evaluate the effectiveness and consistency of its policy decisions. This is what the ECB tries to do with its **first** and **second pillar** of information, the first one to track the monetary path, the second consisting of wide statistical information about the real economy. The reason for paying attention to the wide statistical data gathered under this second heading is as follows. In the short run, if the public harbours inflationary expectations, a suddenly restrictive monetary policy to reduce inflation will cause a recession because wages of labour, product prices and other contracts will have been agreed on the assumption of continuously increasing prices. That is why it is so important to be sure that inflationary expectations are anchored to the berth where the ECB wants them, or to bring them back to it. There will be a need to monitor real GDP and employment data to see if the general expectation of the market is at the wrong level and if a more transparent information policy can quicken the adaptation of those expectations to reality. If a strict monetary policy causes a recession in the real economy, there may be a case for giving the public more time to adapt, by temporarily softening or smoothing the monetary restriction. However, many orthodox economists favour a quick and sharp monetary contraction when inflation gets out of hand, of the kind applied in US by Paul Volker in the early eighties, instead of a painful long drawn correction.

The rationale of a forward looking monetary policy

Another, non-monetary, theory of inflation is making the rounds of sundry central banks, the neo-Keynesian view. This is an *ad hoc* construction that tries to integrate two different explanations of prolonged increases of the general price level: demand pull and cost push. For this school, inflation is either a symptom of an overheated economy where aggregate demand has outstripped productive capacity; or it is an effect of widespread factor and resource price increases being passed up the production chain because of wage and price rigidities.[36]

[36] Both explanations are integrated in the "theory of prices" model presented by Keynes in (1936, ch. 21, sect. vi).

According to this school of thought, demand pull inflation can be forecast by measuring the "output gap", the difference between the actual GDP growth rate and its potential rate of growth under ideal monetary conditions. If the output gap is positive (i.e., actual production outstrips the long term growth trend of the economy) we can then predict an inflation. If the output gap is negative (growth clearly below potential), inflation will abate – at the price of unemployment and general recession. When the output gap is wide, credit conditions can be eased without fear, for then price rises will be associated with increases in production and employment.[37] Cost push inflation, on the other hand, will happen according to the neo-Keynesian view when prices and especially wages are downward sticky. Increased oil or food price rises will have a recessionary effect but may nor bring about a reduction in real wages and other production costs, but an increase in unemployment *with* inflation.[38] The conclusion of all neo-Keynesian models is that there exists a trade off between inflation and unemployment, as reflected in a negatively inclined Philips curve. This belief in the potency of the Philips curve is what permanently hobbles the monetary policy of the Federal Reserve and under Greenspan led the central bank of the US to create liquidity in excess from 2000 onwards.

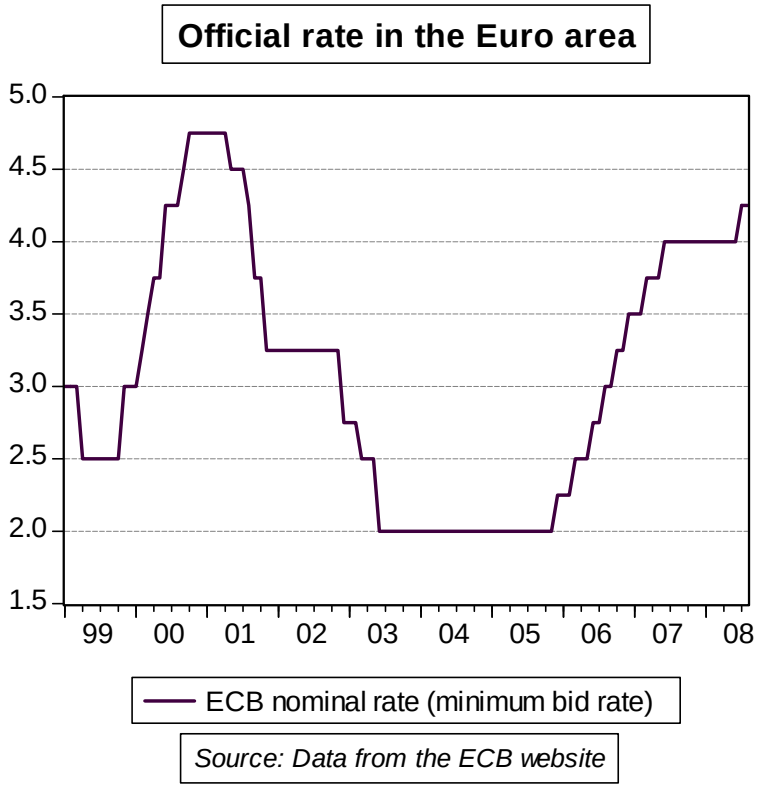
The ECB, quite rightly, has not fallen for this hurriedly cobbled up, non-monetary, theory of inflation and has based its actions on the centuries old, well tried conviction that excessive money creation leads to loss of purchasing power of the currency and that an inflationary money does not foster to real growth, quite the contrary. Hence, it applies monetary measures to fight inflation, viz., by making money more expensive through higher interest rates (See *Chart 1*); though it does so prudently and slowly, as befits a long term monetary policy. In the course of doing so, it keeps a close watch on the real economy to see whether in the short run those monetary measures are having excessively large unwanted repercussions on the real economy, or are mainly affecting the general price level. As the ECB has stressed in publications and its board members in their speeches, easy money does not foster economic growth but only brings about long term inflation. Also, if inflationary expectations are well anchored at 2% or thereabouts, the ECB can come to the assistance of the banks temporarily short of liquidity, without unduly impinging on nor affecting its long term inflation goal.[39]

[37] As Keynes put it, "when full employment is reached, any attempt to increase investment still further will set up a tendency of money-prices to rise without limit […]; i.e. we shall have reached a state of true inflation. Up to this point, however, rising prices will be associated with an increasing aggregate real income." (Keynes, 1936, ch. 10, sect. ii, pgs. 118-9)

[38] In Keynes's own words, there is an "asymmetry between inflation and deflation. For whilst a deflation of effective demand below the level required for full employment will diminish employment as well as prices, an inflation of it above this level will merely affect prices. (Keynes, 1936, ch. 20, sect. iv, pg. 291)

[39] As stated by several ECB board members (see González-Páramo, 2008), conducting an anti-inflationary monetary policy and acting as the lender of last resort are two separate functions, requiring different policy instruments. They can be kept separate for a time, before moral hazard kicks in. The ECB has been providing extraordinary credit in the very short run to the money markets from December 2007 onwards without easing its monetary policy nor cutting the marginal interest rate at which it regularly injects liquidity to the commercial banks of its club. On the contrary, and to help anchor price expectations, the ECB Governing Council increased (July 2008) the marginal short term interest rate in the Euro area 25 basic points (up to 4.25%). It has also warned banks in its club not to abuse the lender of last resort facility by drawing funds on the security of bad quality collateral.

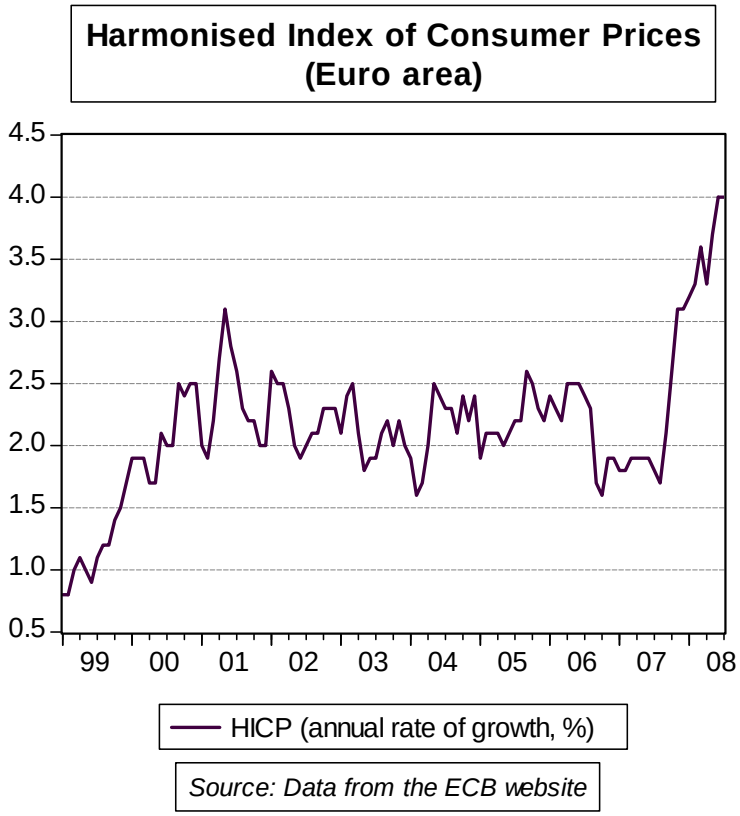
Chart 1



Worrying price developments

As can be seen in *Chart 2*, since the third quarter of 2007 consumer price inflation in the Eurozone has persistently remained well above the ECB measure of price stability and in July 2008 the HICP was showing increases of 4% year on year.

Chart 2



The question is whether the Eurozone is undergoing a long and lasting upward shift in inflation cannot be avoided. If the answer were in the affirmative, an urgent tightening of monetary policy would be needed – a tall order when a credit crisis has engulfed the world and a European recession is possible.

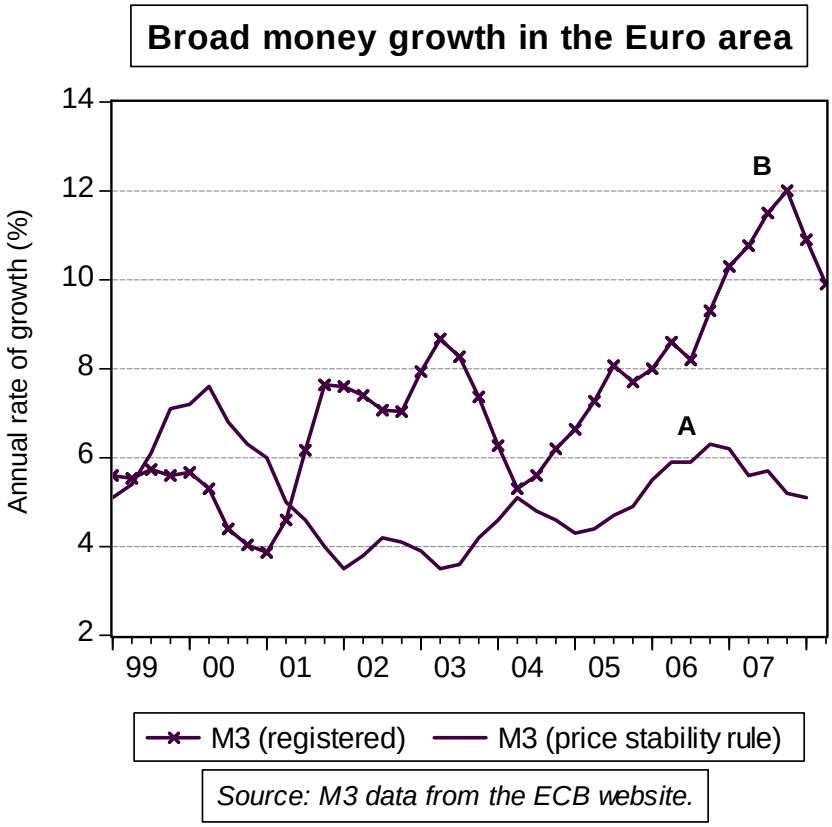
- Does this jump in the HICP indicate an excessively lenient monetary policy in the past?
- Is this systematic deviation from target a threat to the credibility of the ECB and thus an obstacle to the effectiveness of its monetary policy strategy? [40]

Monetary policy in the Euro area has been too lenient

Inflation is, in the medium and long term, the result of persistent money growth. In this regard, recent and current inflation in the Euro area can be explained as the expected outcome of excessive money growth in the past. As detailed in a previous report (see Schwartz and Castaneda, 2007), liquidity has grown at a much higher rate than the required to maintain price stability in the long run (see *Chart 3*).

[40] On the credibility of monetary policy, see Schwartz and Castaneda, 2007.

Chart 3



We will use the simplest monetarist equation (eqn.1) to explain what is meant by desired M3 'under the price stability rule', as follows:

$$M^S \times V = P \times Y \qquad \text{(eqn. 1)}$$

given the money velocity (V, or demand for cash balances) and given the amount of goods and services available in the economy (Y), the more liquidity (M^S) is supplied in the markets the higher the final price level (P) will be, after some delay. So, if we estimate a – 0.5 or -1% year on year fall in the income velocity of money, and a 2.5% average growth of real GDP since 1999, money supply (M3) should have grown in the range of 5 – 5.5% in order to achieve price stability as defined by the ECB (HICP $\leq$ 2%)[41]. However, on average, M3 growth has not only doubled that reference value[42] since 1999, but even followed a different trend.

Chart 3, then, compares actual M3 growth in the euro area with the reference value deduced from equation 1 and the price stability rule of the ECB (HICP $\leq$ 2% yoy). From the end of 2003 to the last quarter of 2007 (see point B in *Chart 3*) M3 followed an upward trend, while the reference value for money growth prescribed a change in that upward trend much earlier (see point A, in *Chart 3*). In sum, the broad measure of liquidity M3 has grown much more quickly than the rate theoretically needed to finance the real growth of the economy without bringing about inflation.

[41] Thus, the *reference value* for M3 growth under the 'price stability rule' results from the following expression of the monetarist equation in logarithms: M3 = 2% + 2.5% - (-0.5 or -1%) = 5 or 5.5%.

[42] Due to the persistent discrepancy between the registered M3 growth and the *reference value* for M3 growth, the ECB stopped publishing it in 2003. Since then, it is not used as part of the communication policy of the ECB.

Questions rephrased

The data in charts 4 and 5 force us to rephrase the above two questions, thus:

(1) was the present hike in HIPC foreseeable, in view of the previous growth of M3 and other money supply indicators?

(2) has the present price rise caused a permanent shift in inflationary expectations?

(3) will the late fall in liquidity creation under all definitions shown in Chart 5 bring HIPC inflation to heel, without too prolonged a real contraction?

As can be seen in *Chart 5*, all money measures, M1, M2 and M3 have shown excessive growth from 2004 onwards, but the HICP only 'exploded' at the end of 2007. This is undoubtedly so. It is also a fact that the HICP does not and cannot take asset prices into account. However, it may have happened that excess liquidity first went into Eurostock 50 as shown in *Chart 4* and into house prices in Spain, Ireland, and other countries of Euro area, and not into the goods and services that make up the HICP. The excess liquidity was first reflected in financial asset and residential prices. Then, in the winter of 2007, it resulted in an increased the demand of goods and services. Using the *monetarist* explanation of inflation (see Friedman, 1956), the existing excess liquidity led to money holdings that exceeded people's desired cash balances, and then to an increased investment and consumption demand.

Using the money demand equation (see eqn. 2) in Friedman (1956), the increase of the money supply and individual cash balances would be followed by portfolio adjustments in part leading to higher prices for those assets, goods and services, demanded, and thus to a higher price level:

$$Y \times P = v\left(rb, re, \Delta P, w, \frac{Y}{P}, u \right) M^{S} \qquad \text{(eqn. 2)}$$

where, Y is the GDP or the real income of the economy, v is the money velocity, rb the bonds yield, re the equity yield, P the appreciation or depreciation of physical goods, w the ratio of wealth to income, and u the different preferences and other sociological variables that affect their desire to hold money.

As a result of all this, inflation is not merely reflected in higher consumption and service prices but also in higher prices of financial and physical assets. Accordingly, the measure of the true inflation in the economy should be the fall in the purchasing power of money as measured by the prices of all goods, services and assets traded in the market.

In the Euro area, there was a significant increase in the prices of financial assets in the last years, as well as in property values. The so-called *wealth effect* then led to a large increase in consumption patterns; which finally triggered consumer inflation reflected in the HICP. All in all, in the last years there has been a gradual decrease of the (domestic) purchasing power of the Euro. Moreover, the current decline in the Euro area economy growth is making the true inflation rate of the economy more evident: since the economy produces fewer goods and services in relation to the still existing high liquidity.

However, this upward shift in inflation does not have to be persistent. As previously shown in *Chart 4*, there has been true inflation in the Euro area since the third quarter of 2003. However, broad money growth seems to be turning. And we know from market data splashed all over the media that assets price are falling precipitously. The persistence of current inflation in the medium term depends on the rate of growth of liquidity in the Euro area.

Especially visible in *chart 5* is the deceleration of all measures of money since the end of 2007. This change in the money growth pattern reduces the liquidity provided to the market and, thus, the inflationary bias of monetary policy.

We can now perhaps answer one of the **question number (1)** asked above: **was the present hike in HIPC foreseeable, in view of the previous growth of M3 and other money supply indicators? The answer must be 'YES'**, with the implied criticism to the smaller attention paid to the evolution of monetary aggregates. Now for expectations.

Chart 4

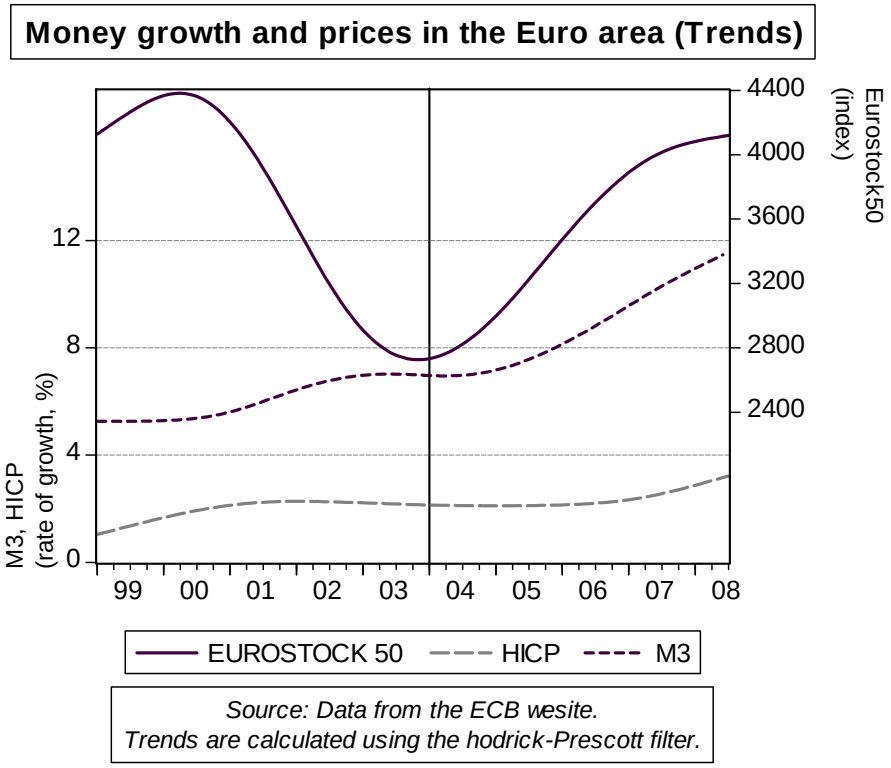
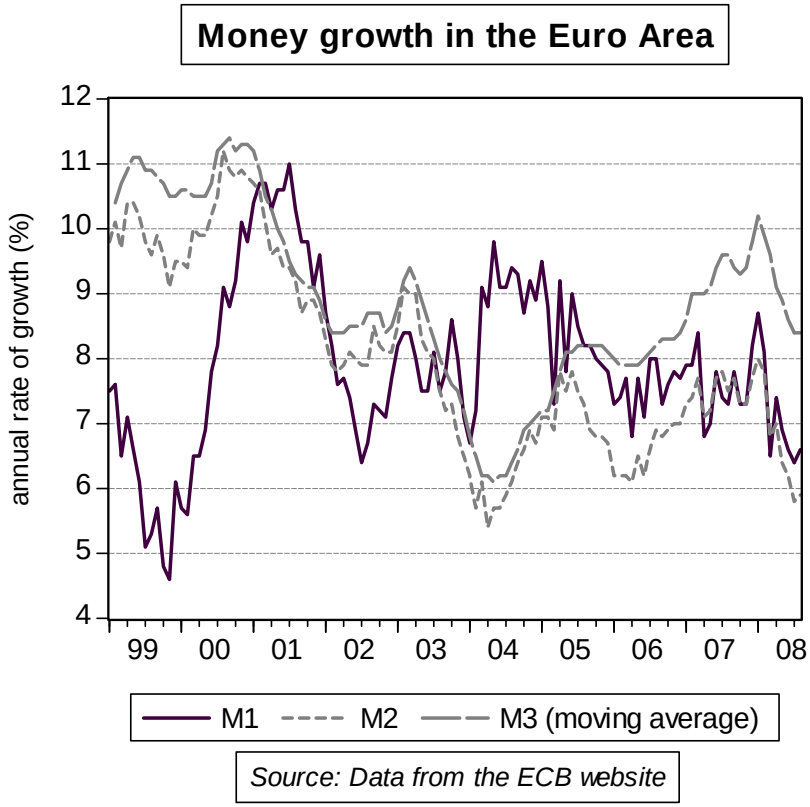


Chart 5



Is the current upward shift in inflation permanent?

We can sum up what we have said and left unsaid about the behaviour of liquidity and prices in the Euro area from 2002 onwards. The excessive increase in liquidity was a world-wide phenomenon, started by the irresponsible monetary policy of the Federal Reserve when confronted with the bursting of the 'dotcom bubble'. The ECB only started to get worried in December 2005, when it set about increasing the interest rate (see *Chart 1*). The effect of excess liquidity on the HCPI may have been contained for a time by cheap consumer imports (low Asian prices and a strong euro). At present, much of the hike in consumer prices follows from the passing through of oil and food import prices to consumers flushed with cash and credit (money is always the ultimate cause of persistent price rises). Now comes the question, has the spike in consumer prices changed expectations in the Euro area or can the ECB continue its calm anti-inflationary policy as before, until it gets consumer prices back to norm?

A number of markers seem to indicate that the accelerated loss in the purchasing power of the euro is less worrisome than appears is the recent turn in the prices of some of the components of the HICP basket of goods: oil prices seem to be turning downwards, processed and non-processed food have stopped climbing, and other primary goods show indications of scarcity but falls in demand. All this would be of little relief if the Euro area were kept a flush with liquidity. However, as can be seen in *Charts* 3 and 5, all measures of money seem to be turning south.

One last indicator offers some hope of properly anchored expectations: the GDP Deflator.

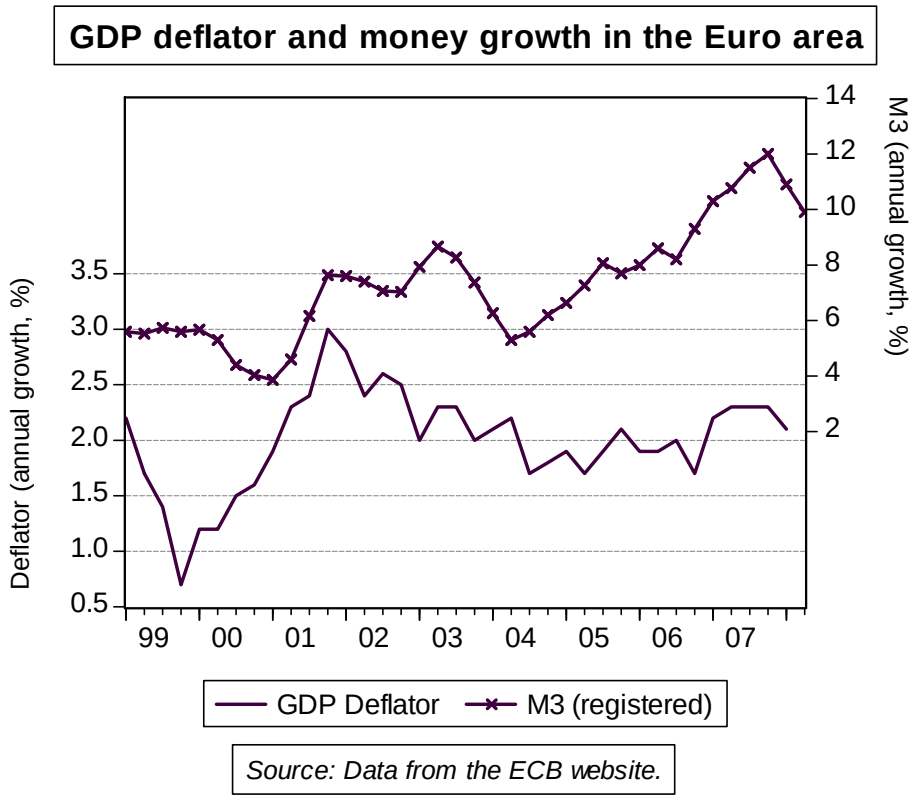
In measuring the purchasing power of the currency, we have to distinguish between its domestic and external value. In the case of the Euro, the ECB is committed to maintaining price stability in the Euro area and, thus, its internal value.

Even though the exchange rate of the Euro affects domestic prices, it is not a policy target. The internal purchasing power of money measures the amount of goods and services that the currency is able to purchase; thus, a higher price level, and not just the increase of some prices relatively to others, reduces the purchasing power of money. As a consequence, it would be advisable for the ECB to look at the other index that takes into account the prices of all the goods and services traded in the Euro economy, viz. the GDP Deflator.

As can be seen in *Chart 6* compared with *Chart 3*, the GDP Deflator has shown even less sensitiveness to monetary expansion than the HICP. A number of explanations could be found for this surprising behaviour, such as that it covers the whole of the productive economy and not only consumer expenditure. From our point of view, however, it seems to indicate no piggy-backing of producer prices on abundant liquidity. We interpret this as a symptom of stable inflationary expectations.

In consequence, we can take the risk of answering the two other questions posed above. **Question number (2): has the present price rise caused a permanent shift in inflationary expectations? The answer seems to be 'NO'.** For the time being, the ECB has earned itself the relative trust of economic agents. This trust can be reinforced if the ECB does not succumb to Keynesian pressure to reduce interest rates counter-cyclically, with the aim of avoiding a much needed deflationary correction. **Question number (3): will the late fall in liquidity creation under all definitions shown in *Chart* 5 bring HIPC inflation to heel, without too prolonged a real contraction? The answer is, 'none of ECB's business'.** A quick passing of the coming recession depends on structural reforms in the financial and real sectors of the Euro area economies.

Chart 6



Source: Data from the ECB website.

One lesson has been learnt. As explained by well-established monetary economics, and by the empirical evidence associated with past episodes of inflation, excessive broad money growth will be followed by higher asset prices, which act as leading indicators of higher consumer inflation. Most important, incorporating this information in its communication strategy, the ECB is not targeting any financial or real assets prices as the final policy goal; the developments of those markets are out of the scope and control of the policy-maker, so it does not have to intervene in their functioning. In its place, the central bank would only use the evolution of those markets as sources of information to communicate its overall inflation expectations.

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The End of Low Inflation?

Briefing Paper for the Monetary Dialogue of September 2008 by the Committee on Economic and Monetary Affairs of the European Parliament with the President of the European Central Bank

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Executive Summary

The sudden and unexpected surge of inflation in September 2007 is mostly due to the equally sudden and unexpected increase of food prices. The increase of oil prices made the situation worse. These are world-wide events, which the ECB cannot control. The best that it can do is to let the euro appreciate, which it did let happen as a by-product of its policy stance.

Oil and food price changes are relative price changes, in contrast to inflation which measures the evolution of the overall price index. One-off relative price changes only have temporary effects on the inflation rate. If they are subsequently reversed, relative price increases first raise inflation, then lead to a decline, with no long-run effects. For relative price changes to durably affect inflation, they must be continuous or trigger second round effects.

This observation should help dispel a number of popular misconceptions:

- Commodity price increases do not create inflation. At their normal medium-run horizon, central banks can offset commodity price increases, whether they are one-off or continuous.

- Emerging market economies are not a source of inflation. They did not reduce inflation in the early 2000s when they exported cheap goods. They do not raise inflation now that their prices are rising.

- Climate change policies raise some good prices but they are not a source of inflation. These policies only have relative price effects.

- Excessively high growth of monetary aggregates is not directly responsible for current inflation. When they control the interest rate, central banks cannot affect the rate of growth of monetary aggregates, which reflect only the public's demand for liquidity. The fast growth of monetary aggregates in 2005-6 reflects mostly the economic expansion at that time. It could be that the central bank should have raised faster its interest rate, but this is unrelated to money growth.

Should the ECB adopt a somewhat higher definition of price stability? Yes, because experience shows that the objective is too ambitious, not because of events like energy and food price shocks.

Should the ECB exclude energy and food from the price index? No, because HICP measures what citizens live through.

The big inflation surprise

Figure 1 shows that inflation surged between September and December 2007. An important question is why this surge was so generally unexpected. The only way to answer is to examine why it happened.

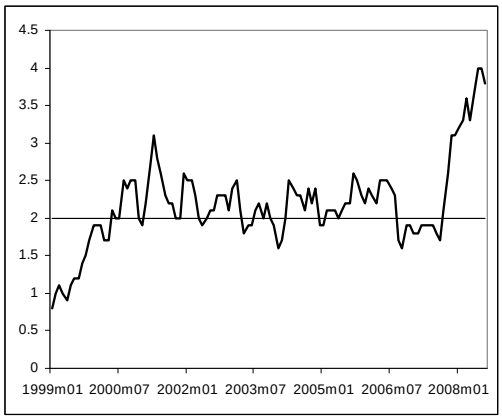

Figure 1: Euro area HICP inflation

Source: Eurostat

The prime suspect is the oil shock that started in early 2007. The left-hand chart in Figure 1 displays inflation excluding energy along with the energy component of HICP. The chart suggests several intriguing observations:

- First, energy prices started to rise very significantly almost one year before HICP. The delay in filtering through to the consumer price index is suspiciously long.

- Second, previous energy price increases – in 2000 and in 2005 – did not have a strong impact on overall inflation.

- Third, HICP excluding energy rose quite significantly (from 2% in September 2007 to 2.8% in March 2008).

The main reason for the inflation surge is the sudden increase in food prices. This conclusion emerges from a study of the right hand-side chart in Figure 1, which displays inflation excluding energy and food, and the food and energy component of HICP. It may seem surprising that, lumped together, food and energy did not increase much in 2005, when energy prices rose very strongly as the left hand-side chart shows. The explanation is that food prices were then stable – even declining a little – and that food prices account for a much larger share of consumption than energy.43 The specificity of the 2007 episode is that both components rose in 2007. In fact food prices suddenly started to rise precisely in September 2007. This interpretation is further confirmed by the fact that, excluding both energy and food, HICP inflation has remained and still is at or below 2%.

That the inflation surge is chiefly due to the rapid rise in food prices, which indeed occurred unexpectedly, leads to important conclusions presented in the rest of this note. We note, first, that the food price increase is a world-wide phenomenon. It is not specific to the Euro area. It follows that any interpretation that emphasizes local reasons is likely to be wrong.

[43] The weights differ from country to country. In France, for instance, the energy weight is 7.9% while the food weight is 16.4%.

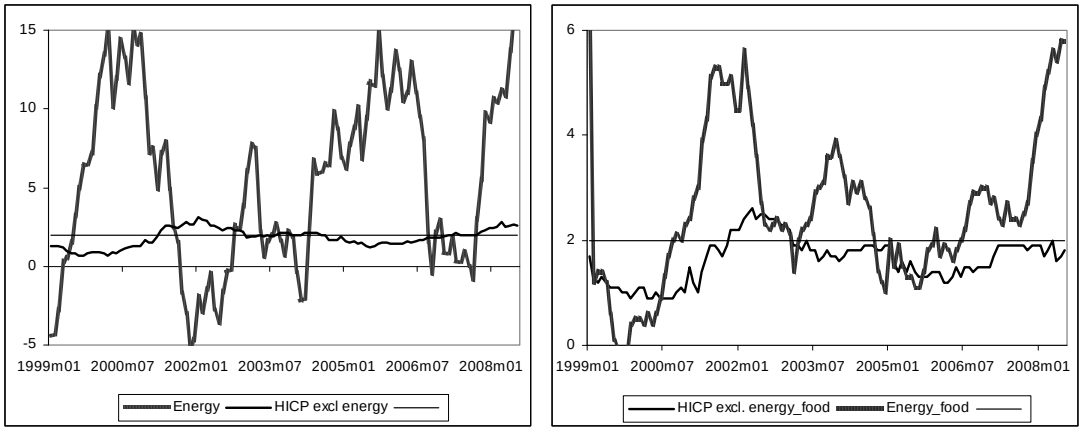

Figure 1 Details of HCPI inflation

Source: Eurostat

Inflation vs. relative price changes

The view that the era of low inflation has come to an end rests on many popular misconceptions, to be detailed below. They are all based on the confusion between a relative price change, which may temporarily raise inflation, with true inflation, which is properly defined as a continuing and broad-based process. This subtle distinction can be made clear with the help of a simple pedagogic example.

Imagine a country where people consume in the same proportion two kinds of goods: food and non-food. Further imagine that both prices have been rising at the same rate, say 2%. Now a shock happens and makes food twice as expensive as non-food. This is relative price change: food vs. non-food prices. The shock means that food prices increase by 104%. The annual price index rises by 53% (50% of 2% for the non-food component plus 50% of 104% for the food component). This is a mechanical effect. It does not tell us anything at all about what will inflation be the following year. Going forward, several possibilities arise, which are summarized in

Table 3:

- Case 1. If, over the following years, food remains twice as expensive as non-food, both will grow at 2% and so will the overall price index. There will have been a one-year spike in inflation. Importantly, this assumes no-second round effects that would accelerate non-food price increases, an issue to which we return below.

- Case 2. For the event to lead to recurrent inflation, we need food prices to keep rising relatively to non-food prices. For example, if the relative price doubles up again the following year, inflation will be again 53%. (By then the food prices **will have** quadrupled vis-à-vis non-prices!) For inflation to continue in subsequent years, the relative price of food must keep rising relative to non-food.

- Case 3. If the relative price increase is temporary, food prices will decline the following year. They will fall by half relative to non-food prices and the price index will decline by 23%.

These results are summarized in the following table where we assume that initially, each good was worth € 100:

Table 3 Relative price changes

	Food price	Non-food price	Overall price index	Inflation
No relative price change				
Year 0	€ 100	€ 100	100	
Year 1	€ 102	€ 102	102	2%
Case 1: one-off increase				
Year 0	€ 100	€ 100	100	
Year 1	€ 204	€ 102	153	53%
Year 2	€ 208	€ 104	156	2%
Case 2: doubling every year				
Year 0	€ 100	€ 100	100	
Year 1	€ 204	€ 102	153	53%
Year 2	€ 416	€ 104	234	53%
Case 3: temporary increase				
Year 0	€ 100	€ 100	100	
Year 1	€ 202	€ 102	152	53%
Year 2	€ 104	€ 104	117	-23.5%

The evolution of non-food prices in Table 3 assumes no second-round effect. As the ECB keeps emphasizing, this is the current challenge. If such effects materialize, the underlying rate of inflation could become, say, 4% and it would take much effort – i.e. a long-lasting growth slowdown – to bring it down to 2%. The right hand-side chart in Figure 1 suggests that second round effects have not yet occurred, although recent wage increases may be a tell-tale signal that they are in the making.

Popular misconceptions

The distinction between relative price changes and inflation should make it clear why several popular views are erroneous.

Commodity prices permanently raise inflation

We have seen that, for this to be the case, commodity prices must keep rising faster than domestic prices, this is Case 2 in Table 3. How likely is it? A recurrent oil and food price shock is very unlikely. To see why, note that there is a crucial difference between primary commodities and food. Primary commodities are exhaustible, so their prices must rise secularly because of increasing scarcity. So oil prices are bound to rise over the next decades, unless new resources are discovered. In the near future, the world-wide growth slowdown under way will reduce demand for oil. Indeed oil prices are already receding. This makes Case 1 a reasonable approximation.

Food, however, is renewable. Until we face a scarcity of land, there is no reason why supply will not rise to meet demand.

The supply response may be delayed – it takes a couple of years to 'produce' a cow – but it is bound to happen, even if agricultural markets are severely distorted. For food, Case 3 is more realistic.

The conclusion is that commodity price increases cannot be a continuing source of inflation. It suffices that non commodity prices increase less fast to compensate for secularly rising commodity prices, which account for a small portion of the overall price index. Over the medium run, central banks remain in full control of non-commodity prices and therefore of the price level.

Emerging market economies as a source of inflation

A widely-accepted view is that the emerging market countries were first a source of low inflation because they produced cheap exports and that they are now a source of high inflation because their standards of living are rising and their exports are becoming more expensive. Both assertions are wrong.

The reasoning is similar to the one presented above. Imagine that half of our consumption is made of goods imported from emerging market economies and that these prices will now increase 2% faster than locally produced goods. If locally produced good prices grow by 2%, imported good prices grow by 4% and the price index rises by 3%. But the central bank can see to it that locally produced good prices grow by 1%, which would mean that imported good prices grow by 3% and the price index rises by 2%. We cannot control relative prices but the overall price level is entirely home made.

Climate change policies as a source of inflation

There is little doubt that the best way to fight climate change is to make energy-intensive goods and services more expensive. For exactly the same reason as above, this cannot be a source of lasting inflation because it involves relative prices. By controlling 'clean good' locally-produced good prices, central banks can always deliver their target inflation rates.

Excessively high growth of monetary aggregates led to current inflation

This may be correct but confusing because it mixes up cause and effect. Central banks set the interest rate. To do so, they must provide whatever liquidity is demanded on the money market. Keeping interest rate low encourages demand and means faster liquidity growth. Conversely, when the central bank raises its interest rate, it encourages a slowdown of liquidity. Figure 2 confirms this inverse relationship.

The proper way of rephrasing the question is whether interest rates have been kept too low for too long. This is a controversial issue, especially in the US where low interest rates probably encouraged the housing bubble. It is much less credible in the euro area where interest rates were kept higher. True, housing bubbles have developed in Ireland and Spain and monetary policy may have made that possible. Here we find, maybe for the first time since the creation of the euro, that monetary policy cannot always be exactly right for every monetary union member country (one size does not fit all). This problem has long been identified and it is bound to happen from time to time. Elsewhere, the suddenness and timing of the inflation surge largely exonerates the central bank.

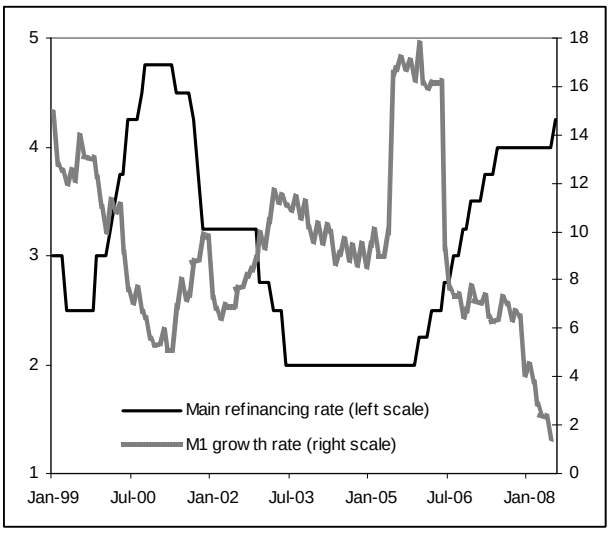

Figure 2 Euro area interest rate and liquidity

Source; Monthly Bulletin, ECB

The confusing nature of the statement matters because it suggests that the ECB should focus on monetary aggregates and not on the interest rate (it cannot control both). This is an old debate about the monetary policy strategy. The two-pillar strategy sought to obviate the issue, which has fed much controversy. The intellectual debate seemed to be settled in favour of interest rate setting when the monetary pillar was demoted to second rank. Those who never accepted that conclusion are currently trying to revive the debate. It is a safe bet that, when the dust settles, the conclusion will remain the same: the ECB should keep setting the interest rate and let monetary aggregates grow endogenously.

The politics of relative price changes

The central argument that relative price changes cannot be a source of lasting inflation is solidly grounded in economic principles, but relative price changes are politically delicate. For instance, an increase in oil prices reduces our terms of trade, meaning that we must sell more of our goods to buy the same quantity of imported oil. This reduces our standard of leaving. This is an unfortunate event, but one that we cannot avoid.

On the other hand, citizens are undeniably hurt. Policymakers are under pressure to "do something". Raising our inflation rate is futile. It would only lead to currency depreciation and further raise the price of oil measured in euros. This is why the ECB should not attempt to "do something". It must focus on its main objective and endeavour to bring inflation down. Governments may try and alleviate the shock. Cutting oil taxes will not do because these taxes must be financed; it would just take money from the right pocket of citizens to put it in their left pocket. The best response is to target the neediest who have little or no room to absorb the terms of trade loss. This involves a transfer from the more affluent to the neediest through subsidies entirely financed by taxes.

The wrong inflation target?

Relative price changes challenge the inflation target. In a previous example where goods imported from emerging market economies, which were assumed to amount to half of the consumption basket, increase faster than locally produced goods, we looked at the case where the relative price changes by 2% per year. If instead the relative price changes by 5% per year, keeping the inflation rate at 2% would require that the prices of locally produced goods and services *decline* by 0.5% per year.

These are very simple and unrealistic examples but the implication should be clear. The larger is the *continuing* deterioration of our terms of trade, the stricter must monetary policy be to keep the 2% inflation target. Put differently, a *continuing* deterioration of our terms of trade makes it more difficult for the central bank to achieve its inflation objective.

Does this suggest that the ECB should raise its target? I have repeatedly argued that it should do so simply because it has been unable to achieve its objective, as Figure 1 reminds us. The current situation makes it even harder, so it would seem to provide another argument. The argument is weak for three main reasons:

- The share of commodity prices and imports from emerging market economies is much smaller than assumed in the previous examples. This means that the impact of the worsening terms of trade is quantitatively limited.

- The reasoning assumes a *continuing* deterioration of our terms of trade. As we saw in the first example, a one-off change has no long-term inflation effect. It is very likely that commodity prices are on a rising trend, but previous experience suggests that this will happen in fits and starts: occasional sharp increases followed by decreases. This means occasional one-off disturbances that will occasionally derail the inflation rate.

- As for goods imported from emerging markets, China may now start becoming a richer and more expensive country, but more countries are in the pipe-line. Forty years ago, it was Japan that took off, followed by the South East Asian tigers (Korea, Thailand, Malaysia, Indonesia). China will be followed by India, Vietnam, Laos and more countries from Latin America and, hopefully, from Africa. As long as there are poor countries that finally take off, the well will be replenished.

The definition of inflation

The decomposition of HICP inflation shown in Figure 1 and the previous discussion emphasizes that central banks cannot control relative prices. They can only affect the overall price index. This has led to suggestions that central banks should focus on indices that exclude energy and food prices, as the Fed does. Core inflation, as the corresponding measure is often called, has the advantage of usually being more stable and possibly easier to predict.

The choice of using headline or core inflation is a matter of heated debates, which can become quite technical. There are two good reasons why headline inflation, as measured by the HICP, is the more desirable option:

- Monetary policy should aim at price stability as perceived by ordinary citizens. Core inflation may be more logical in some respects, but it does not capture inflation on the ground.

- Once we start excluding ‘inconvenient’ components of the price index, the logic will be to continuously refine the composition of core inflation. This opens up the central bank to the criticism that it chooses its index by pure convenience, possibly even to mislead the public. There is already considerably scepticism about the price index, with a widely held view that it does not represent what happens in reality. This is why the price index should be as transparent and as non-manipulable as possible.