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The Strength of the Euro

Monetary Dialogue July 2014

COMPILATION OF NOTES

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DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The strength of the Euro

Monetary Dialogue 14 July 2014

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Abstract

The notes in this compilation discuss the challenges for ECB monetary policy stemming from the recent appreciation of the Euro in the context of a nascent euro area recovery. The notes have been requested by the Committee on Economic and Monetary Affairs (ECON) as an input for the July 2014 session of the Monetary Dialogue between the Members of ECON and the President of the ECB.

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INTRODUCTION

The euro's relentless rise is one of the market surprises of 2014. Since the beginning of 2014 the euro has appreciated both against the dollar and in trade-weighted terms. At around USD1.40, the euro is at its strongest against the dollar since late 2011.

The consensus view at the start of the year was that the US economic recovery would put upward pressure on the dollar. The low level of current and expected short-term interest rates triggered by ECB's forward guidance was also likely to prompt a weakening of the currency. Instead, the euro's continued to strengthen, reflecting the current account surpluses run by euro area and the increasing investor confidence that the euro area debt crisis may be over. The strength of the euro has also kept price pressures subdued by lowering the cost of imports.

In this compilation of notes, selected monetary policy experts discuss the challenges for ECB monetary policy stemming from the euro's appreciation in the first part of 2014 in the context of a nascent euro area recovery. The main conclusions and policy options are summarised below.

The notes have been requested by the Committee on Economic and Monetary Affairs (ECON) of the European Parliament as an input for the July 2014 session of the Monetary Dialogue between the Members of the ECON Committee and the President of the ECB.

Daniel Gros *et al.* (Centre for European Policy Studies). The exchange rate and external demand are very important for the euro area, almost twice as important as for the US. When comparing the largest world economies in terms of openness, the euro area emerges strikingly as a very open region. Recent empirical estimates suggest that the current real exchange rate is in line with the equilibrium level and with its long run average. This would lead to the conclusion that if there is overvaluation this is unlikely to be large. There is some evidence that the euro is losing some market shares compared to other major economies. Interestingly, Japan has been in a similar situation (a loss of more than 10%) as euro area, but its exchange rate depreciated while the euro was appreciating. Data suggest that the effect of the exchange rate on the export performances of the various euro area economies is not necessarily the same. The divergent trend of export performances indicates differences in the ability of euro area economies to respond to changes in the global market, but also to the different elasticity of exports to the level of the exchange rate. This leads to the conclusion that when considering the performance of the external sector the focus should not be on the exchange rate but on the ability of the economy to respond to changes in global demand, which is the variable that explains best export performance. That said it is clear that a weaker euro could have a positive effect on exports, in some specific euro area Members States, but it seems difficult to justify a policy intervention, which would anyway be outside the ECB mandate.

Stefan Collignon *et al.* (Scuola Superiore Sant'Anna and London School of Economics). The exchange rate between the euro and the US dollar is the price between the two most important currencies in the world. Because many countries have pegged to either of the two currencies, exchange rate adjustment via the USD-euro rate would have to be large. The euro has appreciated against the USD since ECB President Draghi has restored confidence into the euro. However, the effect in nominal terms is moderate, and in real terms the euro has remained fairly stable when measured by effective exchange rates. Policy recommendation: The European Parliament ought to request ECB and Commission to harmonize the calculation of effective exchange rate indicators. The strength of the euro is less constraining euro-area exports than the effects of the global recession and the fallout from the financial crisis. Econometric estimates show that the ECB does in fact have an exchange policy, although it seems mainly to be at the service of the ECB's primary

objective of maintaining price stability. Despite the massive outflows of capital, the euro has strengthened due to current account surpluses, which have been caused by excessive austerity and a reduction in imports. Thus, we conclude that the recent strength of the euro is a consequence of austerity. In order to prevent an excess appreciation, the Euro Area needs a demand stimulus.

Ansgar Belke (University of Duisburg-Essen). At the ECB press conference of 5 June 2014, ECB President Mario Draghi downplayed deflation risks, but warned about the adverse effect of current very low inflation rates on debt-to-GDP ratios. In particular, very low inflation rates make the necessary adjustment in over-indebted euro-area member countries extremely painful. Rising expected inflation through a weakening the euro currency helps preventing deflation risks and, at the same time, alleviates debt-reduction costs. In Draghi's speech, the second effect appears to be more relevant. By contrast, a fall in the overall level of the consumer price index (deflation) with further negative effects on aggregate domestic demand is unlikely and judged to be lacking microeconomic foundations. A deflationary spiral may however set in, requiring increasing doses of ECB Quantitative Easing (QE) to withstand a reduction in private spending. Should QE prove successful, the above process may even be reinforced. The implied reduction of risks for southern euro-area's sovereign bonds, may strengthen the capital inflow from emerging markets, in turn putting upward rather than downward pressure on the euro exchange rate. All the more so, should the ECB's intervention involve the purchase of asset-backed securities (ABS). Most likely, the ECB does not wish to systematically affect the external value of the euro. And, even if the ECB managed to eventually lower the external value of the euro, the size of the currency adjustment is unlikely to be large enough to affect overall demand and (structural) unemployment. One also wonders why should the ECB take action against a "too strong euro" if its (high) level reflects increased markets' confidence in euro policies and improved business sentiments. In recent speeches, Mario Draghi's has often reiterated the thesis that the exchange rate of the euro is not a policy target for the ECB. Two key supporting arguments are: first, the effect of the exchange rate on the euro inflation varies strongly over time; second, it is not clear what level of the exchange is rate compatible with the euro-area's target for inflation. Clearly, this does not exclude the possibility of concerted actions with other central banks on exchange rate markets.

Sylvester C.W. Eijffinger *et al.* (Tilburg University). It is not advisable for ECB monetary policy to affect the level of the Euro in the current macroeconomic conditions of low growth and low inflation. The main reservation stems from the fact that the ECB primary mandate is to guarantee price stability (domestic monetary policy objective). Jointly assessing the business cycle position of the economy and its financial stability conditions is a daunting task in the current circumstances. Should macro-financial conditions suddenly change, the use of monetary policy for the external objective may be in conflict with the ECB primary mandate. Moreover, by engaging in "external" monetary policy, the ECB is de facto easing the pressure on political leaders in various European countries to pursue the necessary structural reforms. The process of disinflation in the southern countries is painful and is likely to remain so for quite a while. There is no easy way out. While a cheaper Euro would help to resume growth both in the periphery and the euro-area as a whole, the level of the Euro shall not be considered a policy target by the ECB.

Guillermo De La Dehesa (Centre for Economic Policy Research). Since its birth, the euro has tended to appreciate versus the dollar because euro area interest rates have been lower than those in the US; euro are current account has been mostly in surplus; and, finally, euro area inflation rate has been, on average, lower. Movements between the two currencies have become faster and more pronounced over time, mirroring the speed of

financial markets reaction vis-a-vis actual and expected movements in interest rates, current account positions and inflation rates. In assessing exchange rate developments, financial markets take increasingly into account also government and foreign debt positions as well terms of trade development).

European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The strength of the euro: Does it matter and is it really that strong?

Daniel GROS, Cinzia ALCIDI
Alessandro GIOVANNINI

IN-DEPTH ANALYSIS

Abstract

The exchange rate can have a very significant influence on the euro area, which is a rather open economy. Indeed the share of exports amounts to about 27% of GDP, much higher than for other economies of similar size (US or even Japan). However, the impact of exchange rates on exports is usually limited in the short run. Nevertheless there is some evidence that the euro is losing market shares compared to the US and this is sometimes put in relation to the euro appreciation. At the same time, the euro area has become the largest source of global current account imbalances despite the strength of its currency. Whether the exchange rate is determined by the current account or whether the exchange rate determines the current account, it seems impossible to explain the present strength of the euro in terms of today's fundamentals. The exchange rate is determined in very liquid asset markets, which discount future fundamentals, not only those of the euro area itself, but in relation to fundamentals in the rest of world. What is surprising about the present situation is the low level of volatility of the exchange rate, rather than its level, which is close to its long run average.

CONTENTS

EXECUTIVE SUMMARY

- Soon after the outbreak of the euro debt crisis a debate started on the exchange rate. While at first, expectations were dominated by the fear of a long period of a weak euro, soon many commentators pointed to the problem of a too strong currency not reflecting the fundamentals of the area.
- Although the exchange rate is not part of the ECB mandate, the preoccupation that a further appreciation of the euro could put at risk an already weak recovery is creating an increasing demand for the ECB to act.
- What this paper acknowledges is that the exchange rate and external demand are very important for the euro area, almost twice as important as for the US. When comparing the largest world economies in terms of openness, the euro area emerges strikingly as a very open region.
- Recent empirical estimates suggest that the current real exchange rate is in line with the equilibrium level and with its long run average. This would lead to the conclusion that if there is overvaluation this is unlikely to be large.
- There is some evidence that the euro is losing some market shares compared to other major economies. Interestingly, Japan has been in a similar situation (a loss of more than 10%) as euro area, but its exchange rate depreciated while the euro was appreciating.
- Data suggest that the effect of the exchange rate on the export performances of the various euro area economies is not necessarily the same. The divergent trend of export performances indicates differences in the ability of euro area economies to respond to changes in the global market, but also to the different elasticity of exports to the level of the exchange rate.
- This leads to the conclusion that when considering the performance of the external sector the focus should not be on the exchange rate but on the ability the economy to respond to changes in global demand, which is the variable that explains best export performance.
- That said it is clear that a weaker euro could have a positive effect on exports, in some specific euro area Members States, but it seems difficult to justify a policy intervention, which would anyway be outside the ECB mandate.

1. INTRODUCTION

Soon after the outbreak of the euro debt crisis a heated debate started on the exchange rate. While at first, expectations were dominated by the fear that the crisis could start a long period of depreciation, soon many commentators pointed to the opposite problem, i.e. a currency so strong that the recovery would be hampered.

As it will be shown later, after a high volatility during the first phase of the crisis linked to the high uncertainty on financial markets, the euro stabilized at a level close to before the crisis. This has been widely seen as not in line with the fundamentals of the euro area, which have much deteriorated after 2010 pointing to the fact that the euro exchange rate is overvalued. Along this idea, some commentators and policy makers have called for interventions by the European Central Bank (ECB) in the foreign exchange market to induce depreciation of the currency.

As an exampe, Arnaud Montebourg (the outspoken economy and industry French minister) recently affirmed: "We can make every effort to cut our costs of production, but if the 55 per cent of our exports sold outside the eurozone depend on a euro that is too strong, our efforts are greatly weakened[1]".

Although the exchange rate is not part of the ECB mandate[2] - in order to keep policy focused on price stability - there is an increasing preoccupation that the growing surplus of the Eurozone could induce further appreciation of the euro, putting at risk an already weak recovery and boosting deflationary pressure, if the ECB does not act. Even recent statements of the ECB[3] seem to go in this direction, by stressing that one of the drivers of the current low inflation is the exchange rate (together with the basically low growth rate of prices for food and energy and also, to some extent, the persistent weak demand).

Hence the natural questions are the following: how important is the overvaluation, if it exists? What are the reasons for it? What can be done?

Before trying to address these issues, it should be first observed that the debate about exchange rates is a global one and it does not only concern the euro. It has actually come to the fore in the context of the so-called *currency war*, and the harsh debate between emerging markets and the US after the waves of loose monetary policy of the Fed and the effects on currencies in Brazil and other emerging markets. The euro has remained out of this global debate, but some arguments have become valid in the domestic considerations.

In this respect it is worthwhile to recall that the exchange rate is a relative price, so if the currency of country A appreciates relative to B, then B depreciates relative to A. A corollary of this is that not all currencies can depreciate at the same time, likewise not all countries can have an export surplus. As relative price, the exchange rate, by its nature cannot only reflect the fundamentals of one country but, rather the relative fundamentals of the two regions/countries.

Moreover it should be noticed also that, in the economic literature it is impossible to find a robust relationship between exchange rates and (at least those present or past) fundamentals. Empirical evidence suggests that in reality the exchange rates tend to behave as an asset price which reflects future discounted fundamentals. This is a feature

[1] "France steps up campaign to weaken euro", Financial Times May 8, 2014

[2] The ECB's exchange rate policy is referred to in Articles 127 and 219 TFEU.

[3] Speech by V. Constancio at the Athens symposium on Banking Union, Monetary Policy and Economic Growth, Athens, 19 June 2014, http://www.ecb.europa.eu/press/key/date/2014/html/sp140619.en.html

specific of asset prices in general (like stock prices), which makes them highly volatile; so volatile that actual economic fundamentals cannot explain them. In this perspective, it is rather the relative stability of the euro during the last 2 years than its present level which require an explanation.

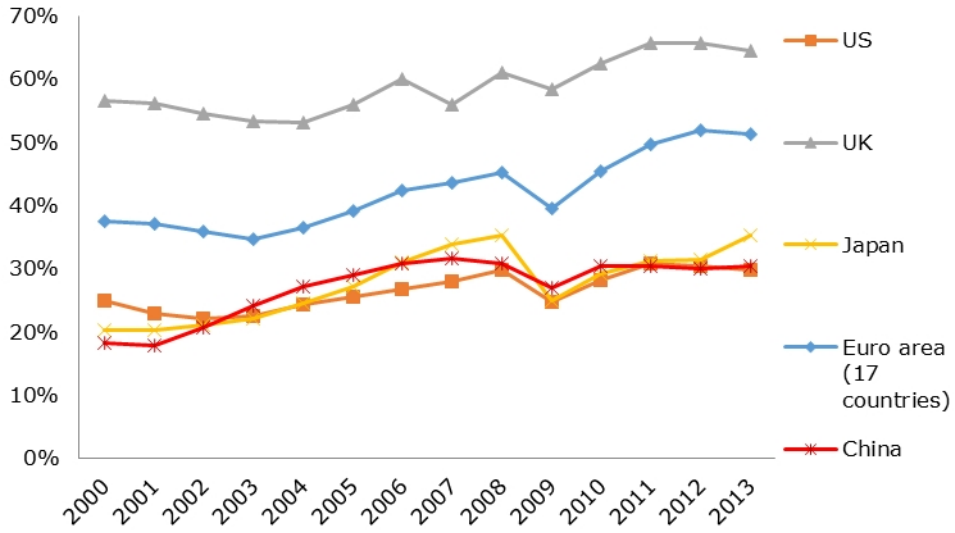
Last but not least, in order to assess if and how much the euro is overvalued, the equilibrium exchange rate should be calculated. Literature on the topic is as large as the different views on the topic. As most unobservable variables there is no agreement on how to calculate and even less on its value (See Durand and Lopez, 2013, for an overview) for this reason this paper does not aims at measuring analytical misalignments with respect to the equilibrium level.

Against this background, this paper is organized as follows: Section 2 highlights the macroeconomic features of the euro area which suggest that trade is very important for the area, also relative to other large world regions. Section 3 looks at the debate about the overvaluation and considers macroeconomic trends of the Euro area that may have influenced the appreciation of the euro, and how they can have impacted on the developments of the exchange rate. Section 4 addresses the issue of the exchange rate as an asset price and the degree of volatility of the euro. Conclusions are presented in the final section.

2. OPENNESS AND CURRENT ACCOUNTS: A COMPARISON AMONG THE MAJOR ECONOMIES

When comparing the most important regions globally in terms of openness, the euro area emerges strikingly as a very open region[4]. As shown in Figure 1, the most recent data suggest that the degree of trade openness in the euro is almost double that of the US, much higher than that of Japan and China. In other words, the exchange rate and external demand are almost twice as important for the euro area as for the US. This is one of the key reasons why US economic policy making generally ignores the exchange rate ('our dollar, your problem').

Figure 1: Trade openness, goods and services



Note: Openness is defined as the sum of imports and exports relative to GDP.

Source: Eurostat

Given the size of its economy, such degree of openness of the euro area is atypical . Large economies of the size of the euro area tend to be less open than small economies. China seemed to have constituted another exception, but the structure of its economy has changed rapidly, and the trend after 2009 seems to suggest that the degree of its openness has first stabilized and more recently has even declined slowly, while its size is increasing.

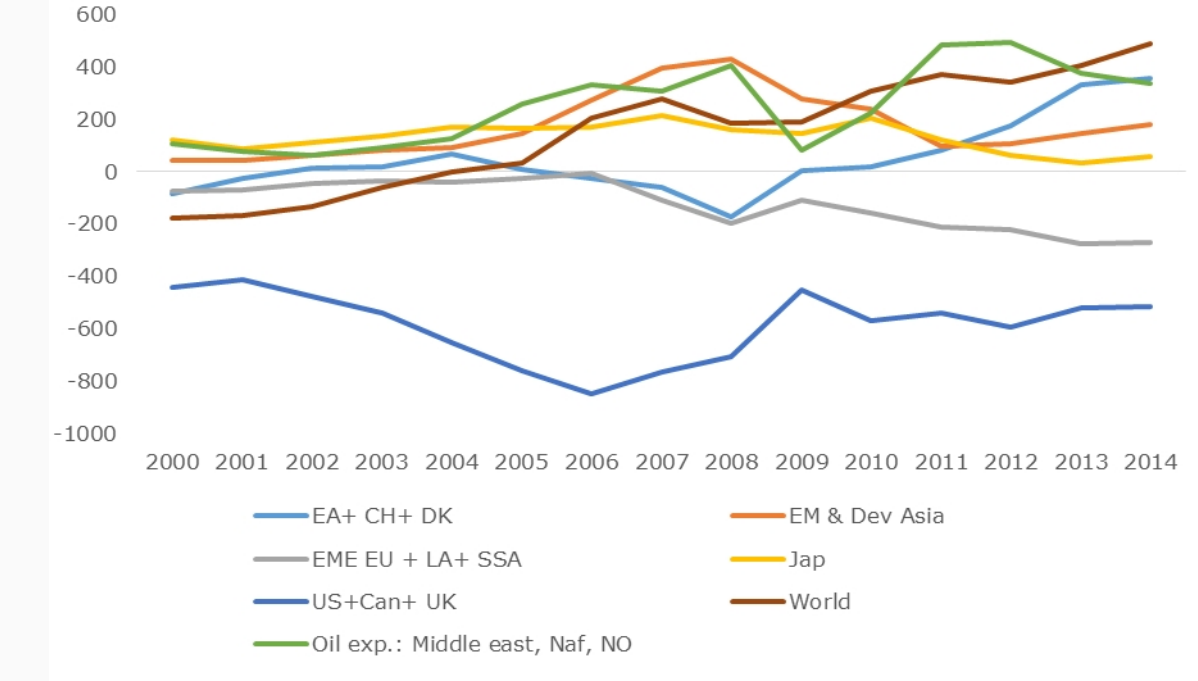
The euro area had displayed since its creation on average a balanced current account (and the sum of the current account balances of the major euro area members was usually close to zero even before 1999). Over the first 10 years the increasing German surplus was balanced by deficits elsewhere, especially in the periphery. However, once the euro crisis started and capital stopped flowing into the periphery these deficits declined rapidly and turned into today's surpluses. As the surplus of Germany (and other Northern European countries) did not diminish the result has been that the euro area has developed a very large current account surplus, larger than even that of China. Without this external 'safety valve' the euro crisis recession would have been even deeper and longer.

The overall result is that the euro area is now the largest contributor to global imbalances as shown in the Figure 2, which shows the evolution of the current account balances of the most important economies (or group of economies).

[4] The UK does better but this is driven by the large amount of trade with other EU countries.

Switzerland and Denmark are added to the euro area aggregate, since their currencies are tied to the euro, which brings the total current account surplus of the euro area to 400 billion dollars, well above that of China and other emerging and developing Asian countries together and also larger than that of the Middle East and other oil exporters, including Norway.

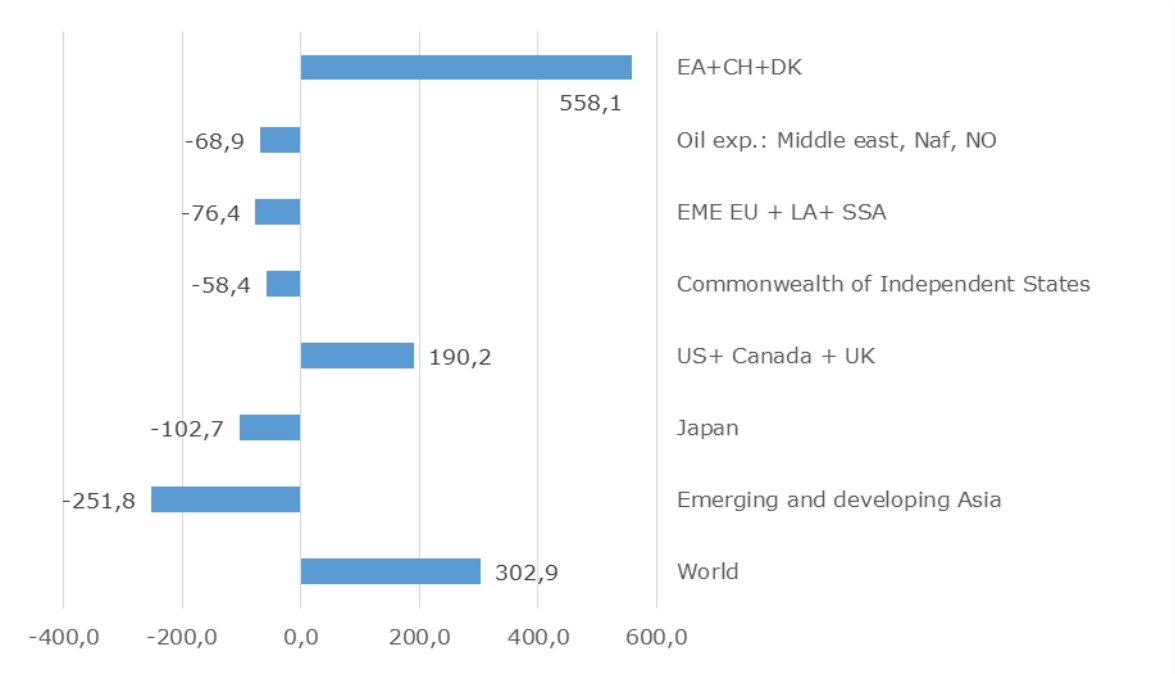
Figure 2: Current account surpluses and deficits



Source: IMF, WEO data April 2014.

Figure 3 below shows the changes in the current account positions over the last five years. It is apparent that the euro area (plus its two satellites) had an enormous deflationary impact on the global economy given that its current account increased by about 560 billion USD, or almost 2% of global GDP. By contrast, emerging and developing Asia reduced its surplus by about 250 billion USD, more than offsetting the tightening of the US deficit by 190 billion.

Figure 3: Change in current accounts 2008-2013 (billion USD)



Source: IMF, WEO

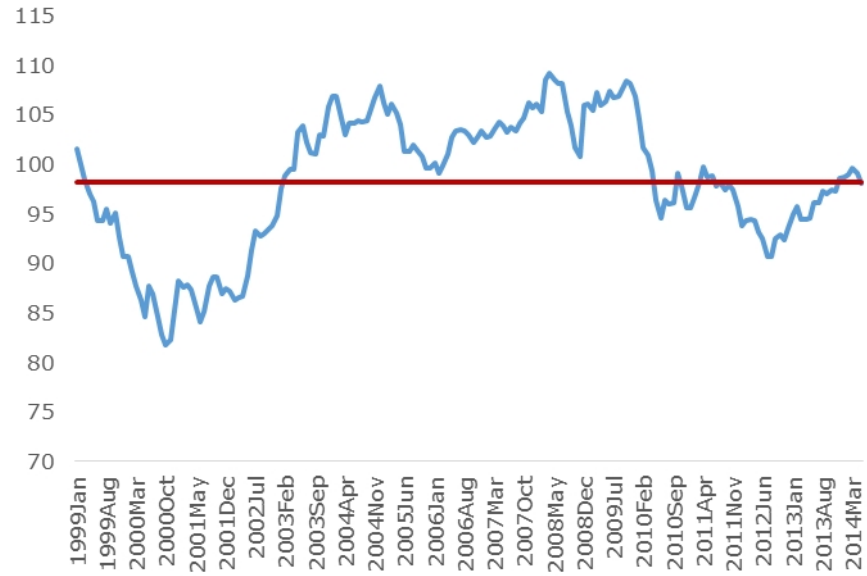
In judging these figures one has to take into account the fact that the current account balances do not add up to zero if one sums all countries. The world is apparently running a current account surplus with the rest of the universe of about 400 billion USD, and this surplus has arisen to a large extent over the last five years. It is thus likely that today's level - as well as the increase of the euro area' surplus - is somewhat overestimated.

As far as the future is concerned - according to the IMF's economic scenario - and thanks to the continuous re-absorption of internal imbalances, the Eurozone is going to run a substantial current account surplus of around 3% GDP in the years ahead.

3. EQUILIBRIUM EXCHANGE RATE AND EXPORTS

As mentioned in the introduction, one important issue relates to whether the euro exchange rate is overvalued. In order to address this issue, Figure 4 below reports the real effective exchange rate since 1999 and its average (the red line) over the whole period. Despite the appreciation starting in early 2013, today's rate seems in line with the long-term average, which gives an idea of the equilibrium exchange rate.

Figure 4: Euro real exchange rate



Source: ECB, statistical warehouse.

Note: ECB Real effective exch. rate CPI deflated, Euro area-18 countries vis-à-vis the 39 trading partners

Recent empirical estimates by Cline (2014), based on a different concept of an equilibrium exchange rate (fundamental equilibrium exchange rate, FEER) also suggest that the current rate is in line with the equilibrium level. This would lead to the conclusion that if there is overvaluation this is unlikely to be excessive.

Besides measurement the fears about overvaluation are that the further appreciation of the exchange rate could hamper exports, which have so far been a significant driver of growth in this weak recovery. Hence the fundamental question - more than on the price - is on the export volumes. How does the exchange rate affect exports?

A first way to answer this question is by looking at Figure 5 which shows the nominal effective exchange rate of the euro and the yen, and Figure 6 where the changes in volumes of exports are presented. Besides showing a different degree of volatility, volumes exhibit a quite high degree of co-movement, regardless of different patterns characterizing the exchange rate. This suggests that it is impossible to find a general relationship between exchange rate and exports.

Figure 5: Exchange rates dynamics

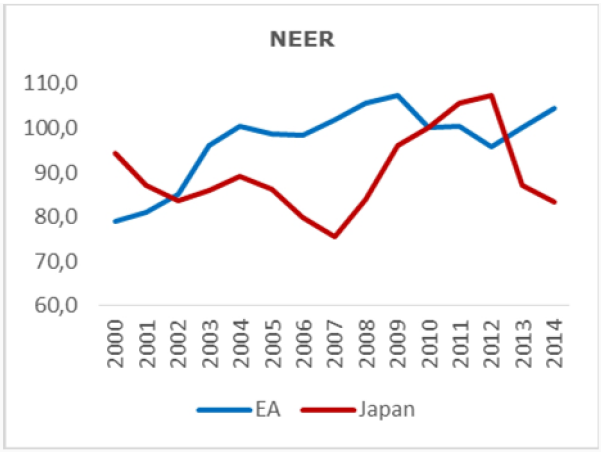


Figure 6: Export volumes

Source: BIS and Ameco

Another way to address the problem is by looking at market shares and their performance. There is some evidence that the euro is losing some market shares compared to other major economies. As in the case of the US and Japan, the share of euro area exports in total world trade has been declining since the late 1990s, mainly due to the rapid integration of emerging economies into world trade. In the last years, euro area exports market shares have dropped from 29% in 2009 to 25% in 2013, while in the U.S. share has remained almost stable. Interestingly, Japan was in a similar situation as the euro area (a loss of more than 10%), but its exchange rate depreciated while the euro was appreciating.

Table 1: Exports market shares of the major world economies

Countries	2000	2005	2007	2009	2011	2013	2014	2015
Japan	6.6	5.1	4.5	4.1	4.1	3.5	3.4	3.4
United States	14.0	10.3	9.7	10.1	9.5	9.9	9.7	9.5
China	3.6	6.6	7.8	8.5	9.5	10.6	10.7	10.8
Other BRI(C)	3.0	4.4	4.7	5.0	5.9	5.8	5.7	5.8
Euro area	29.3	30.1	30.0	29.1	26.2	25.5	26.0	25.6
-France	4.9	4.4	4.1	3.9	3.5	3.4	3.3	3.3
-Germany	8.0	8.9	9.2	8.9	8.4	8.3	8.1	8.3
-Italy	3.8	3.6	3.6	3.2	2.9	2.9	2.8	2.8

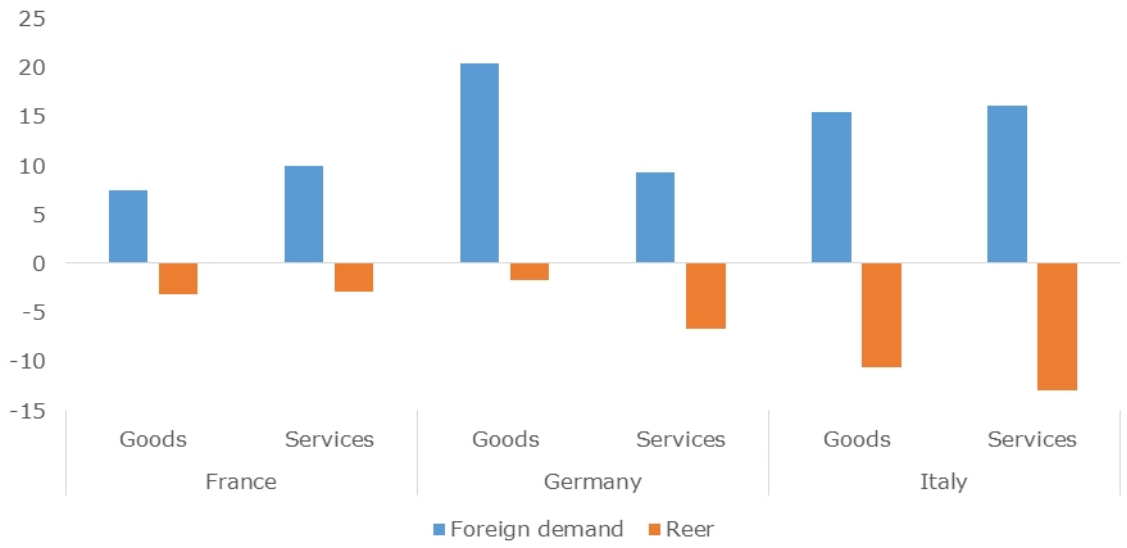
Source: Authors' authors' calculation on OECD data.

Table 1 shows export market shares in selected euro area Member States. While shares in world exports have declined by 12% in France and by around 10% in Italy between 2009 and 2013, they decreased only by about half (6%) in Germany in the same period.

These statistics demonstrate that the effect of the exchange rate on the export performances of the various euro area economies is not necessarily the same. This is the case today, as it was in the past. The divergent trend of export performances over the last decade indicates the differences in the ability of euro area economies to respond to changes in the global market, but also to the different elasticity of individual countries' exports to the level of the exchange rate.

According to the IMF (2005), the main explanation of inter-country differences in trade growth during 2001–04 was a different ability to capture growing foreign demand. Due to different geographic orientation and different demand elasticities, external demand contributed differently to Member States export growth, with France experiencing the weakest contribution (Figure 7).

Figure 7: Accounting for Country Differences in Trade Growth: Contribution to Export Growth (2001–04)



Source: Authors' elaboration on IMF, 2005

In 2001-2004, the real effective exchange rate appreciation is estimated to have adversely affected exports of goods and services especially in Italy, while Germany seems to have been relatively less hit (Figure 7). This reflects lower estimated exchange rate elasticities for goods for Germany (0.3) than for Italy (0.7), compounded by the lesser degree of Real Effective Exchange Rate appreciation in Germany.

Another recent study of Breuer and Klose (2013) confirms this view. By decomposing the change in the real effective exchange rate into a nominal exchange rate component and a relative price component, they show how France tends to have the highest elasticities followed by Germany and Italy. Interestingly, the authors also document how (similarly to IMF estimates) Germany seems to gain more from an increase in world demand than France and Italy and France would do.

It emerges, therefore, that countries would benefit from euro depreciation and would be hit by an appreciation in a different fashion. If, under such circumstances, the strength of the euro may have affected the performance of European exports (although this does not prevent to run a current account surplus and is valid especially only for some countries), it is worth wondering about what are the elements that influence the evolution of the exchange rate.

4. EXCHANGE RATE MOVEMENTS: DO FUNDAMENTALS MATTER?

The foreign exchange market is influenced by several factors, and its unpredictability has given rise to a large part of the economic literature, which tends to explain its movements. Especially in recent decades, under the flexible exchange rate systems developed after the collapse of Bretton Woods, these theories have increased their levels of complexity and accuracy, both from the theoretical and empirical point of view.

A strand of this literature is developed by economics scholars who theorize that the value of the exchange rate is based on solid economic fundamentals, such as the current state of the economy, the level of interest rates, the profitability of financial assets, etc.

For example, in the Mundell-Fleming model, the exchange rate is a mere factor that contributes to the balance of the entire system, and therefore it is only influenced by the variables that compose the system itself. For instance, an increase of production (and hence a rise in GDP) will increase prices and this will result in a depreciation of the exchange rate, because of the balance of payments movements. In fact, both of these changes will lead to a deterioration in the balance, and would thus require a depreciation shift to rebalance the system. On the contrary, an increase in the domestic interest rate (relative to foreign rates) will cause a rise in capital inflows (due to higher profit perspectives) in the country and consequently an appreciation of the currency.

According to other models, such as those of the monetarists, the exchange rate depends on the relationship between the amounts of money present in two different countries. Therefore, imbalances in the external accounts are often caused by imbalances between demand/supply of monetary assets. Under flexible exchange rates systems, the exchange rate and prices are the key factors to restore external real balances.

Although it has been a long-standing challenge to tie exchange rates to economic fundamentals, this link has not been proven to be solid. As Richard Meese and Kenneth Rogoff (1983) already showed 30 years ago, a "random walk" model is often proved to be just as good as predictor of exchange rate movements as models based on the economic fundamentals, such as the money supply, trade balance and national income.

4.1. Exchange rate and fundamentals: a simplified test

Since Meese and Rogoffs' paper, many other economists have tried to defend the fundamental-based exchange rate models. They usually define the relationship between economic fundamentals and exchange rate (current and future) levels as follows:

$$s_t = f_t + z_t + E_t[s_{t+1}]$$

Where s_t is the current exchange rate (defined as the home currency prices of foreign currency) and f_t and z_t are, respectively, observable and unobservable economic current (and/or past) fundamentals that could drive the exchange rate, such as money supplies, money demand shock, productivity shocks, etc.

Similarly, here we test whether some of these fundamentals are able to explain the euro bilateral exchange rate vis-à-vis the US Dollar, the Japanese yen, the UK pound sterling and the Canadian dollar. Similarly to Engel and West (2003), we consider a set of fundamental variables such as relative money supplies, outputs, inflation rates and interest rates.

Table 2 shows the results of the granger causality test for the bilateral exchange rate (see box 1 for the explanation). In 2000-2007, the results are not entirely robust, although they suggest how differentials in the volume of monetary aggregates and in the rate of growth of the economy could have a partial role in explaining the euro exchange rate movements, or at least that a link (albeit weak, and not for all countries) exists between these elements.

Table 2: The role of fundamentals in explaining euro movements before/after the crisis

FUNDAMENTALS	US DOLLAR		JAPANESE YEN		UK POUND STERLING		CANADIAN DOLLAR	
	PRE 2007	POST 2007	PRE 2007	POST 2007	PRE 2007	POST 2007	PRE 2007	POST 2007
Interest rate differentials				**			***	
Real GDP growth Differentials	*				*		**	
Prices differentials			**					
Money Supply Differentials	**		*		**		**	

Note: Relationship significant at (*) 10% level, (**) 5% level, (***) 1% level. See box 1 for the explanation.
Source: authors' calculation on ECB and OECD data.

Box 1: Assessing the causality relationship between exchange rate movements and economic fundamentals using the Granger-Wald Causality Test

To determine the causality relationship between exchange rate movements and economic fundamentals we use quarterly data, 2001:1-2014:1. With one observation lost to differencing, the sample size is T 56. We study bilateral euro exchange rates versus the other major economies members of the G7: United States, Canada, Japan and the United Kingdom. The ECB statistical Data Warehouse is the source for the end of quarter exchange rate (s_t), while the OECD is the source for consumer prices (p_t), seasonally adjusted money supply (m_t), real seasonally adjusted GDP (y_t) and interest rates (i_t). We compute the bilateral differences of these fundamentals (f_t) between the Euro area and the other economies, i.e.: ($p_t - p_t^*$), ($m_t - m_t^*$), ($y_t - y_t^*$) and ($i_t - i_t^*$) where the superscript * stands for the foreign country.

Similarly to the approach used in the literature, we run a multivariate Vector Autoregression (VAR) model in which changes in bilateral exchange rate (Δs_t) are function of changes in the relative fundamentals (Δf_t) between the Euro area and the other

economies on bilateral , i.e. $\Delta\ (p_t - p_t^*)$, $\Delta\ (m_t - m_t^*)$, $\Delta\ (y_t - y_t^*)$ and $\Delta\ (i_t - i_t^*)$. We then test the causality relationship between these elements running Granger-Wald Causality Test, considering two periods: before and after the crisis. Essentially this econometric technique tests whether changes in (Δs_t) could be not only explained by past values of (Δs_t), but also by past realizations of the fundamentals (Δf_t). That is, as long as Δf_t embodies some information on Δs_t in addition to that included in its past values of (Δs_t), then Δf_t is said to Granger cause Δs_t.

In the Granger-Causality Test, the null-hypothesis (H_0) is that endogenous variables do not Granger cause the dependent variable. In this case (reported in Table 1), consider the four tests for each bilateral equation we have, the null hypothesis cannot be rejected for interest rate $(\Delta\ (i_t - i_t^*))$ and prices differentials $(\Delta\ (p_t - p_t^*))$ in the cases of the US, UK in the pre-2007 period and for all the bilateral exchange rates in the period after 2007. Therefore, we cannot reject the hypothesis that interest rate and prices differentials do not Granger cause changes in the exchange rate (Δs_t). On the contrary, we reject the null hypothesis that Money Supply $(\Delta\ (m_t - m_t^*))$ and Real GDP growth $(\Delta\ (y_t - y_t^*))$ differentials do not Granger cause bilateral EUR/US Dollar/Pound Sterling/Canadian Dollar for the period before 2007.

It is important to note that the Granger Wald test does not provide clear cut results, since the "Granger causality" should not be entirely interpreted according to the normal meaning of "causality". In other words, Granger causality does not imply real causality. I would say that Granger causality measures if statistically "A happens before B" rather than "A is the cause of B".

4.2. Asset pricing theory, fundamentals and the exchange rate

Several theories have been offered to explain the disconnect between the two. Some recent research supports the idea that exchange rates behave like prices of financial assets, whose movements are primarily driven by changes in expectations about future economic fundamentals, rather than by changes in current fundamentals. As clearly recognized by Obstfeld and Rogoff (1996): "One very important and quite robust insight is that the nominal exchange rate must be viewed as an asset price. Like other assets, the exchange rate depends on expectations of future variables".

Many researchers have followed this approach, by developing models in which nominal exchange rates are asset prices influenced by expectations about the future. According to this approach, exchange rates are prices of assets driven by a present discounted sum of expected future fundamentals, combined with market's expectations concerning present economic conditions.

This approach has allowed partially reconciling the puzzling conflict between the theoretical/empirical analyses on the relationship between economic fundamentals and exchange rates. For instance, Engel and West (2005) re-write existing exchange rate models in a form of a present-value asset-pricing format. In this approach, current fundamentals receive very little weight in determining the exchange rate, while

expectations of what the fundamentals will be in the future are more relevant and very useful in explaining its evolution. In this case, fundamentals-based models - such as exchange rate and trade policy analysis - are still appropriate for economic analysis, but they are just useless in forecasting. This approach has found empirical support, including in the works of Chen, Rogoff, and Rossi (2008) (at least for the exchange rates of Australia, Canada, Chile, New Zealand, and South Africa, in which commodities account for a large portion of exports) and in Engel, Mark, and West (2007).

However, Table 1 seems to suggest that is no longer the case for the euro exchange rate after 2007, al least vis-à-vis the major G7 economies. It shows that the feeble link between exchange rate movements and economic fundamentals (found for the pre-2007 period) is even more attenuated after the crisis. Almost no fundamental significance is detectable after the financial crisis and the turmoil in the financial markets (and foreign exchange market) that followed and yet still takes place. This suggests, therefore, that looking at the fundamentals of the economy and the macroeconomic variables in order to understand the evolution of the foreign exchange markets (and especially the performance of the euro exchange rate) is of little relevance.

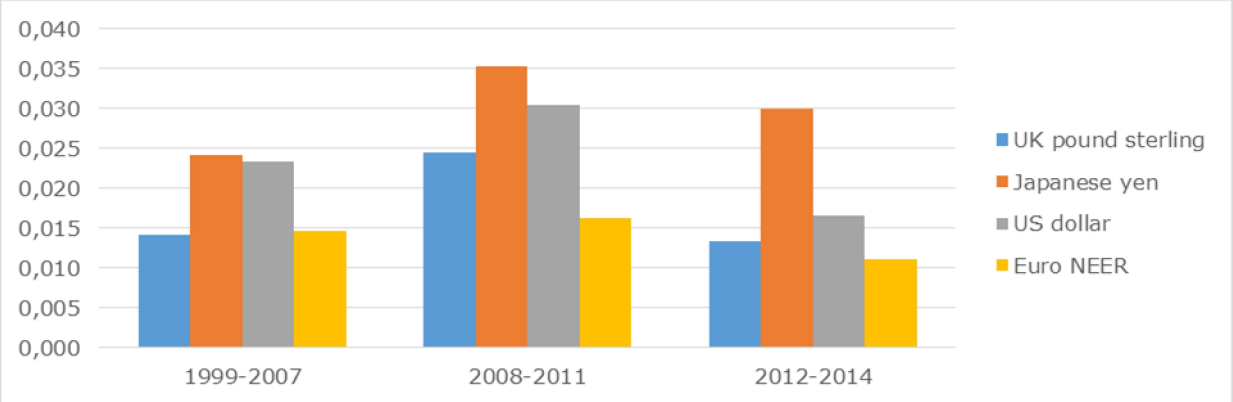
Box 2: Exchange rate volatility

Another consistent result of the empirical literature is that exchange rates tend to be more volatile than what could be justified by the limited changes in their fundamentals. Moreover, many studies have shown that a high volatility of exchange rate tends to deter trade.

Given these patterns, it is both surprising and encouraging that the exchange rate of the euro has been relatively stable recently. Figure 8 below allows for a comparison of exchange rate volatility (measured by the standard deviation of their percentage changes) both across countries and over time.

Two results stand out: the (average effective) exchange rate of the euro is much more stable than that of the other major currencies, especially than that of the US dollar. Moreover, exchange rate volatility has declined over time and is now at an historically low level.

Figure 8: Comparing exchange rate volatility across currencies and over time



Source: Authors' elaboration on BIS data, 2014

This result is even more puzzling in the current economic situation, which is still characterized by a significant uncertainty about future growth and inflation. Theoretical and empirical models of news and uncertainty have argued that market participants may react more strongly to news in periods when they are uncertain about the state and direction of the economy (e.g. Veronesi 1999)

How can these additional conflicting results be reconciled? A possible approach is to consider that exchange rate movements may be driven by both a permanent long-term trend and some transitory noise, a suggested by Engel, Wang and Wu (2008). Under this approach, some stationary fundamentals exist that are able to explain the long-horizon predictability of exchange rates, but in the short-run noisy terms can drive them away from their long-run levels. The short-term noise is related to a fundamental that is not observable, but can be linked to the risk premium for holding a currency. For instance, if a country's real interest rate rises, its currency appreciates not only because its assets pay a higher interest rate but also because they are less risky. This relationship, however, is hard to assess, as the securities of the high-interest rate country could be relatively riskier in the short-run, but could be expected to be less risky than the other country's securities in the more distant future (Engel, 2011).

5. CONCLUDING REMARKS

The euro area is a rather open economy for its size. Exports amount to about 27% of GDP, much higher than other economies of a similar size (US or even Japan). The - admittedly weak - recovery of the last two years would not have been possible without a substantial external impulse. It is thus not surprising that there is widespread perception that the exchange rate is a key variable for the euro area's economy and therefore that any further appreciation would constitute a threat to the recovery.

We show that the linkages between the exchange rate and the real economy are more complex than widely perceived. As the experience of Japan suggests, depreciation does not necessarily translate into large market shares nor does it always give way to a current account surplus. The euro has somewhat appreciated over the last year, but remains today close to its longer term average. It is thus difficult to ascribe the (small) loss of market share, at least if compared to the US, to unfavourable exchange rate movements.

Due to weak domestic demand, the euro area has become the largest source of global current account imbalances – despite the relative strength of its currency.

Overall, it seems very difficult to explain the present strength of the euro in terms of today's economic fundamentals. The exchange rate is determined in very liquid asset markets, which discount future fundamentals, not only those of the euro area per se, but in relation to fundamentals in the rest of world and affected by financial conditions which are not directly related to fundamentals.

This leads to the conclusion that - when considering the performance of the external sector - the focus should not be on the exchange rate but on the ability the economy to respond to changes in global demand, as this is the variable that best explains export performance.

That said, it is clear that a weaker euro could have a positive effect on the export performance of some individual euro area Members States, while it seems difficult to justify a policy intervention at a euro area wide level, which -, moreover - would not be covered by the present ECB mandate.

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NOTES

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Explaining the strength of the euro

Stefan COLLIGNON, Sebastian DIESSNER

IN-DEPTH ANALYSIS

Abstract

The appreciation of the euro is less detrimental to the Euro Area economy than often claimed. The recent strength of the euro is explained by current account surpluses due to excessive austerity and it is estimated that interventions by the ECB in the forex market are prohibitively expensive. Rather than asking the ECB to intervene in markets, policy makers should stimulate domestic demand in the Euro Area.

CONTENTS

EXECUTIVE SUMMARY

- The exchange rate between the euro and the US dollar is the price between the two most important currencies in the world. Because many countries have pegged to either of the two currencies, exchange rate adjustment via the USD-euro rate would have to be large.
- The euro has appreciated against the USD since ECB President Draghi has restored confidence into the euro. However, the effect in nominal terms is moderate, and in real terms the euro has remained fairly stable when measured by effective exchange rates.
- Policy recommendation: The European Parliament ought to request ECB and Commission to harmonize the calculation of effective exchange rate indicators.
- The strength of the euro is less constraining Euro Area exports than the effects of the global recession and the fallout from the financial crisis.
- Our estimates show that the ECB does in fact have an exchange policy, although it seems mainly to be at the service of the ECB's primary objective of maintaining price stability.
- Despite the massive outflows of capital, the euro has strengthened due to current account surpluses, which have been caused by excessive austerity and a reduction in imports. Thus, we conclude that the recent strength of the euro is a consequence of austerity. In order to prevent an excess appreciation, the Euro Area needs a demand stimulus.

1. INTRODUCTION

Since mid-2012, effectively since ECB President Draghi said the European Central Bank would "do whatever it takes to save the euro", Europe's currency has had a tendency to appreciate. As usual, and with seemingly unshakable regularity after a period of appreciation, policy makers and business representatives have started to complain about the strong euro. Unemployment, recession, and fiscal crises are blamed on the currency's strength and the European Central Bank has been urged to weaken the euro. As it is often assumed that a weaker exchange rate could fix the underlying economic competitiveness problems, these voices are louder in member states with apparent problems of competitiveness.

In this paper I will first present the basic facts with respect to the USD-euro exchange rate and effective exchange rates; I will then turn to monetary policy and evaluate policy options for reducing excessive strength.

2. FACTS ABOUT THE STRENGTH OF THE EURO

2.1 Currency areas

The exchange rate between the euro and the US dollar is the price between the two most important currencies in the world. Well over one quarter of the foreign exchange spot market transactions consists of bilateral transactions between euro and dollar. See Table 1. In the Swap market the market share is even higher. The exchange rate is the outcome of supply and demand of foreign currency in foreign exchange markets. It therefore follows the logic of asset prices which are in principle unpredictable.[1] Nevertheless, between economies with different currencies, the exchange rate is an important factor for the determination of competitiveness, because it sets the relative price for goods and services and generates opportunities for trade arbitrage. However, contrary to earlier theories going back to the time of the Gold Standard, such as the law of one price and purchasing power parity, the exchange rate is not determined by relative prices for goods. This means that given the volumes in global financial markets, the exchange rate is to a large degree a function of financial payment flows. This makes freely floating exchange rates a persistent source of noise, distortions and uncertainty. As a consequence, it is not only the level of exchange rates, but also their volatility which influences trade and investment opportunities.

In order to reduce this volatility, numerous countries have pegged their currencies to either the USD or the euro. See Figure 1. As a consequence, changes in the bilateral exchange rate between the two main global currencies will not only affect trade between the Euro Area and the USA, but a much larger share of global trade. Hence, if a weaker USD-euro exchange rate is to improve export and trade performances, the variations in the bilateral rate would have to be large, because exchange rates within the currency blocs are relatively fixed.[2]

On the other hand, it is important to keep in mind, that transactions within the single market and the Euro Area are not "foreign" even if they are recorded in foreign trade and balance of payment statistics. Intra-European trade depends partly on intra-European supply chain developments, which have gained increasing importance since the single market and the single currency were set up, and partly on internal demand, which is a consequence of macroeconomic policies within the Euro Area (monetary and fiscal policy, wage settlements). A depreciation of the euro may (or may not) affect demand from the rest of the world for exports, but the national impact is much less than official export statistics seem to indicate. See Figure 2, which shows that in most member states intra-European exports are an important part of total exports.[3] This means that the exchange rate is less relevant for export promotion than domestic measures of competitiveness.

[1] In technical terms, this means that the daily USD-euro exchange rate has a unit root, which means it evolves as a random walk (see annex 1) where the probability of an appreciation or depreciation at any moment is 50:50, and the exchange rate at any point in time reflects the accumulated shocks of the entire past.

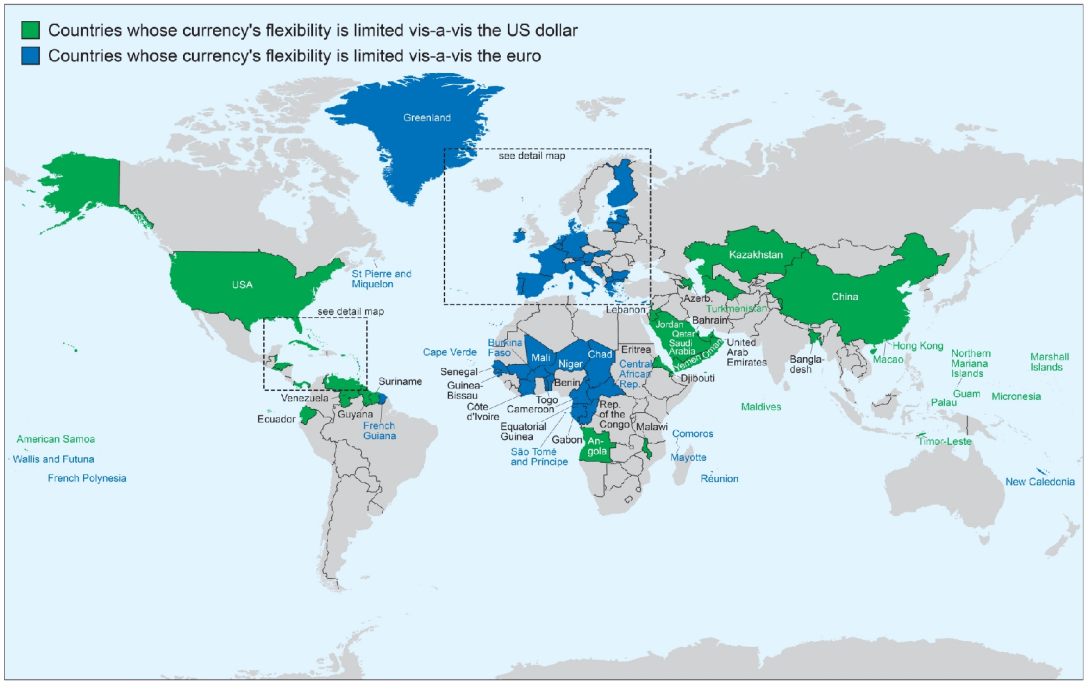
[2] For an explanatory theory of currency blocs, see Collignon, 2002; for evidence: Fischer 2012.

[3] Note the differences in scale in Figure 2.

Table 1.

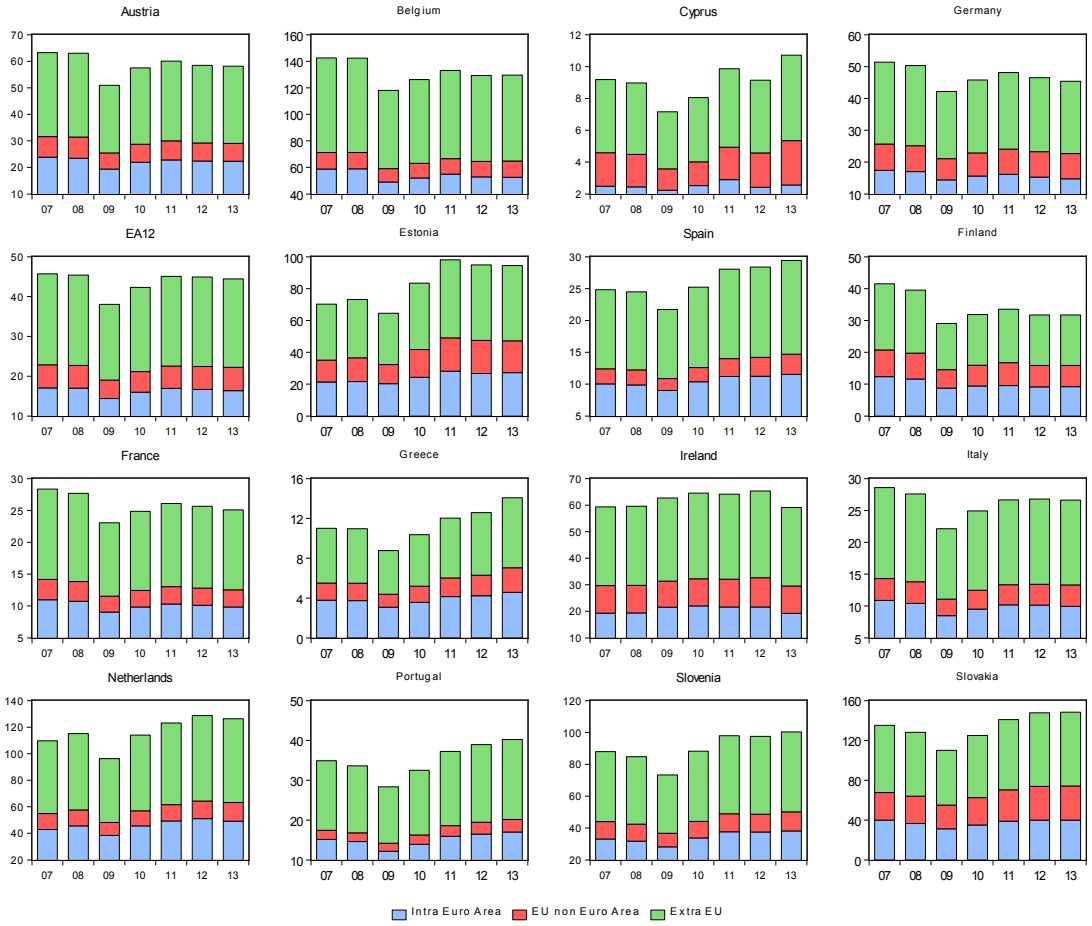
FOREIGN EXCHANGE SPOT TRANSACTIONS 2013		
Average Daily Volume, Millions of U.S. Dollars		
Currency Pair	**Total**	**Percent**
U.S. DOLLAR versus		
Euro	105,227	27.2%
Japanese yen	66,892	17.3%
British pound	41,671	10.8%
Canadian dollar	22,299	5.8%
Swiss franc	14,488	3.7%
Australian dollar	25,500	6.6%
Argentine peso	29	0.0%
Brazilian real	3,744	1.0%
Chilean peso	714	0.2%
Mexican peso	13,955	3.6%
All other currencies	35,414	9.2%
EURO versus		0.0%
Japanese yen	12,056	3.1%
British pound	8,344	2.2%
Swiss franc	5,977	1.5%
ALL OTHER CURRENCY PAIRS	30,560	7.9%
Total	**386,870**	100.0%
***Source*:** New York Federal Reserve Bank, http://www.newyorkfed.org/fxc/volumesurvey/		

Figure 1. Map of the two major currency blocs in 2008



Source: Fischer 2012

Figure 2. Export intensities by area



Source: own elaboration on Eurostat-Comext database

2.2 The euro exchange rate

Since the start of monetary union, one can distinguish three phases in the evolution of the external value of the euro with respect to the US dollar. See Figure 3. In the initial phase, when it was uncertain whether the new currency would work, the euro lost value. After the burst of the dot.com bubble and 9/11 until the initial phase of the financial crisis, the euro became very strong, appreciating by nearly 80 percent and reaching an all-time peak at 1.60 USD per euro. Especially in the second half of the 2000s when the economy grew rapidly, creating more jobs than ever before and reducing fiscal deficits, the euro gained strength; yet, during those years hardly anyone complained that it was too strong.

The third phase started after the Lehman disaster. At first the Euro strengthened as the US economy was at the brink of depression, but then Europe's home-made problems became dominant. After the election of G. Papandreou and the revelation that the Greek deficit had been underreported, the euro weakened again; after the bailout in form of the EFSF and the ESM, it returned to the previous level, but in early 2011, economic problems worsened again and the euro fell to its low level of USD 1.20. Only in the summer of 2012, after Mario Draghi's announcement which subsequently led to the creation of the Outright Monetary Transaction program (OMT), did financial markets regain their confidence in the European currency. Since then the euro has appreciated by nearly 15 percent, which is significant, although the exchange rate is still 12.5 percent below the 2007-peak.

Figure 3.

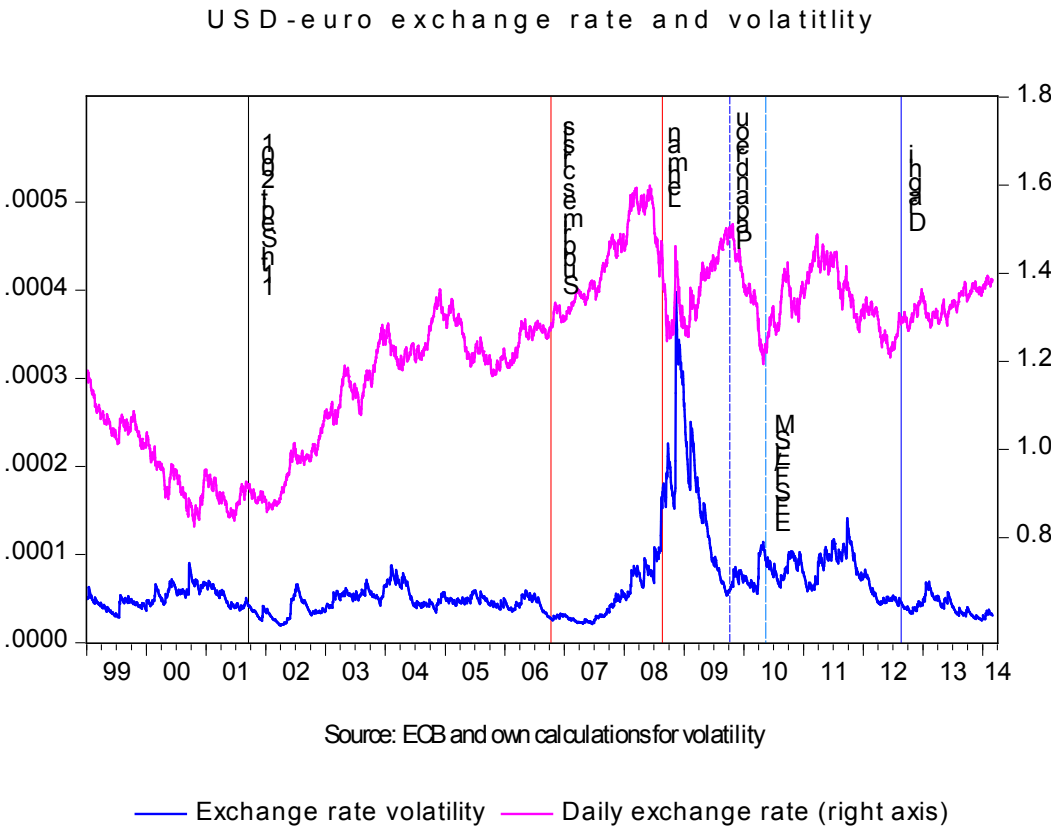


Figure 3 also shows the volatility of the bilateral exchange rate.[4] Volatility was relatively low until the early phase of the financial crisis in 2007. It exploded after the Lehman bankruptcy and then stayed at a higher level during the euro crisis, until President Draghi's declaration in 2012 helped to restore confidence into the euro.

[4] Measured by a Garch model. See Centro Europa Ricerche, 2014.

2.3 The exchange rate and competitiveness

Because the exchange rate does determine the relative prices for goods and services between different currency areas, it has an effect on price and cost competitiveness. This is measured by constructing so-called effective exchange rates, which are the weighted average of different currency exchange rates, where the weights reflect the importance of trade. These effective exchange rate indices are calculated by various international organisations, such as the ECB, European Commission, BIS and IMF.[5] Given different methodologies, they generate different results. The European Commission's index deviates from the ECB's and the BIS indices, largely because the Commission does not sufficiently take into account changes in the structure of world trade, especially the growing weight of Euro-Chinese exchanges. Lauro and Schmitz (2012) therefore emphasize that "it would be desirable to follow the same methodology in constructing these indicators – in particular as regards the composition of trading partner groups".

Policy recommendation: The European Parliament ought to request ECB and Commission to harmonize the calculation of effective exchange rate indicators.

Table 2 shows the variation of effective exchange rates based on the BIS methodology (which is very similar to the ECB). One distinguishes between nominal and effective exchange rates. Nominal rates are the trade-weighted basket of nominal exchange rates, while real rates take into account the relative inflation rates. The real effective exchange rate (REER) is therefore an indicator for price competitiveness. Table 2 shows that while the nominal effective exchange rate (NEER) appreciated for all member states of the Euro Area, price competitiveness only deteriorated in Estonia, Slovakia, Austria and Luxemburg.

By contrast, countries with national currencies like Sweden, Czech Republic and Hungary did experience nominal effective depreciations which re-enforced competitive improvements. Japan is a clear outlier, as the depreciation of the yen was the direct consequence of Prime Minister Abe's economic stimulus packet. We also notice that the USD effectively *appreciated* against the most important trade partners of the United States in nominal terms, but nevertheless slow inflation improved the price competitiveness of American exports. Finally, China, which had been accused of exchange rate dumping only a few years ago, has effectively seen its currency appreciate in nominal and real terms, thereby losing comparative advantages.

The overall conclusion is that the concerns with a strong euro are hardly supported by the facts. One may object that the competitiveness improvements, which have taken place despite nominal appreciations, are due to deflation in the appreciating countries, but this argument places the policy debate on a different level than simple exchange rate policies. In particular it raises questions about Euro Area macroeconomic policies and the role of austerity in the context of global trade and capital flows.

[5] For a comparison of these different indices and their methodological differences, see Lauro and Schmitz (2012).

Table 2.

Changes in Effective Exchange Rates: September 2008- April 2014					
	NEER	***REER***		***NEER***	***REER***
Estonia	6.1%	3.2%	Lithuania	5.4%	4.4%
Slovakia	5.1%	2.0%	Bulgaria	6.0%	1.3%
Austria	4.5%	1.2%	United Kingdom	2.4%	0.1%
Luxembourg	3.3%	1.0%	Latvia	4.0%	-0.6%
Slovenia	4.0%	-0.8%	Denmark	5.9%	-1.4%
Netherlands	6.8%	-1.0%	Sweden	-2.7%	-2.0%
Belgium	5.5%	-1.1%	Romania	6.5%	-4.6%
Italy	6.0%	-1.6%	Croatia	2.3%	-6.4%
Spain	5.1%	-1.8%	Czech Republic	-4.3%	-12.3%
Greece	4.6%	-1.9%	Hungary	-4.5%	-14.2%
Finland	7.5%	-2.3%	Poland	2.9%	-15.5%
Portugal	3.2%	-2.6%			
Germany	7.1%	-3.9%	China	5.1%	16.8%
France	5.7%	-4.0%	Korea	12.3%	10.1%
Malta	7.2%	-4.2%	United States	1.7%	-2.7%
Euro area	12.2%	-4.5%	Japan	-24.2%	-11.5%
Cyprus	4.9%	-5.4%			
Ireland	7.3%	-12.5%			
Source: BIS					

In order to check and estimate the conventional assumption that a depreciation of the USD-euro exchange rate would boost European exports, we have regresses exports and imports on the exchange rate, its volatility and industrial production abroad and at home ass a proxy for aggregate demand. The results are shown in the annex 2. The results are somewhat surprising.

The long-run tendency of the Euro Area is that a depreciation of the USD-euro exchange rate will very moderately improve exports, while volatility is not significant. However, an improvement in foreign demand for European goods has a much stronger effect than a depreciation. On the other hand, imports do not significantly respond to the exchange rate, but to exchange rate volatility. However, here too, effective demand is much more powerful in increasing imports.

We must therefore conclude that the strength of the euro is less constraining Euro Area exports than the effects of the global recession and the fallout from the financial crisis.

3. CURRENT ACCOUNTS, CAPITAL FLOWS AND THE EXCHANGE RATE

The estimates in annex 2 indicate that a depreciation of the euro would affect exports less than imports and will therefore increase the current account balance by lower imports, unless domestic demand in the Euro Area is simultaneously expanded. However, current account dynamics are often mirrored by financial flows which might lead to over- or undershooting of market movements. The European Central Bank could smooth such movements by intervening in the market and buying foreign currency to avoid a strengthening of the euro. However, such interventions are largely counterproductive, as I will now show.

3.1. Foreign exchange reserves

When the foreign exchange market is in equilibrium, the exchange rate ought to be stable. While it is true that such equilibrium might constantly be disturbed by expectations and speculations, it is useful to take the equilibrium as a benchmark for our discussion.

The supply of foreign currency originates from exports or from financial inflows, which may be foreign direct investment (FDI), portfolio investment or transfers. The demand for foreign currency expresses the need to pay for imports, financial outflows such as investing abroad, buying securities abroad or making transfers. The difference of supply (S) and demand (D) in foreign currency is the change in foreign exchange reserves (FXR) accumulated by the central bank. This is shown by the accounting identity:

(1) S-D = (Exports-Imports) + (financial inflows – financial outflows) =

= current account + net financial outflows = ΔFXR

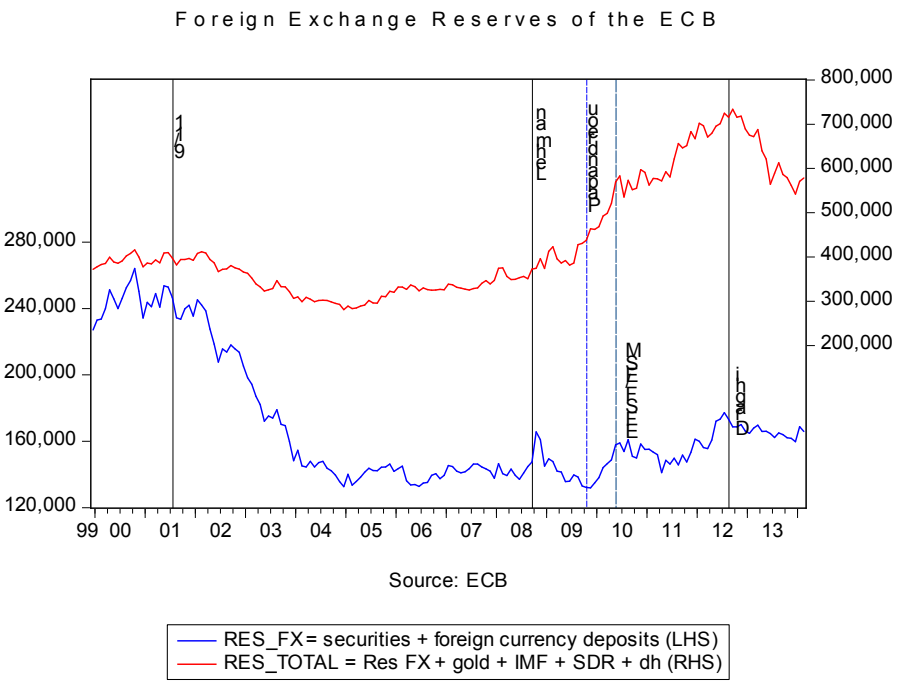
If the central bank stays out of the market, an excess of supply of foreign exchange will lead to an appreciation of the domestic currency, or to depreciation in the opposite case. However, the central bank can intervene in the market in order to stabilise the exchange rate by buying the excess of foreign currency or selling reserves. In that case the disequilibrium in the exchange market does not show up as the appreciation of the exchange rate but as an increase (loss) of central bank foreign reserves (ΔFXR).

The variations of foreign reserves are therefore an indicator for central bank behaviour with respect to the exchange rate. Figure 4 shows the evolution of foreign exchange reserves since the beginning of the Euro. First we must distinguish between market driven reserves (securities and deposits) and total reserves, which include institutional reserves such as gold, which has appreciated during the crisis, and reserves with the IMF, which were increased in 2009. For our purposes, the lower blue line is more relevant. We find a clear correlation between the loss of reserves between 2001 and 2004 and the strengthening of the euro during this time. Thus, the ECB used the exchange rate during the boom period to lean against inflationary pressures.

After the Lehman crisis, the ECB also first lost reserves and then started to accumulate them again moderately. During the Euro crisis, the ECB increased foreign exchange reserves, which meant it resisted an appreciation when the Euro Area was at the brink of deflation. Since the Draghi-announcement on OMT in August 2012, reserves have remained rather constant, which means the exchange rate presently reflects market forces.

We conclude that the ECB does in fact have an exchange policy, although it seems mainly to be at the service of the ECB's primary objective of maintaining price stability.

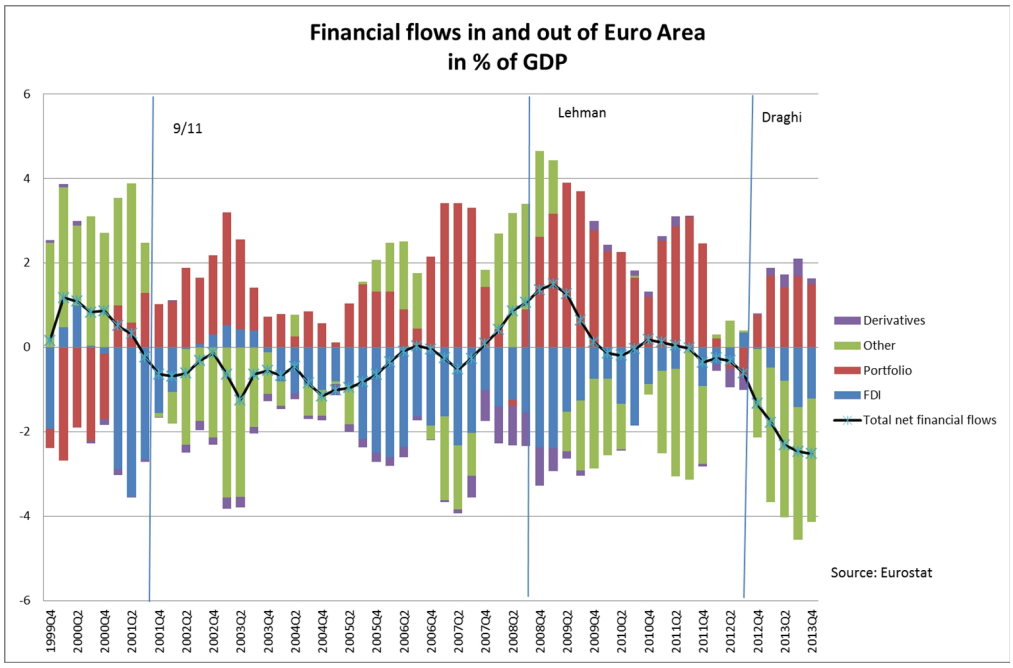
Figure 4.



3.2. Financial flows

Given the accounting identity in equation (1), it is clear that pressures for a euro appreciation may result from current account surpluses or from net financial outflows. Figure 5 shows some of the major items in the financial balance. For most of the time, the Euro Area had net outflows of foreign direct investment (FDI), and a net inflow of portfolio investment, although the volumes vary enormously. The highest FDI outflow was in 2001 at more than 3.5% of GDP, and the highest portfolio inflow was in 2009 with 3.9% of GDP. Other financial flows have also been important. It is, however, remarkable how strongly financial flows have been influenced by the crisis, especially in 2011 and 2012. Hence, the political uncertainty about the future of the euro was a major handicap for financial markets.

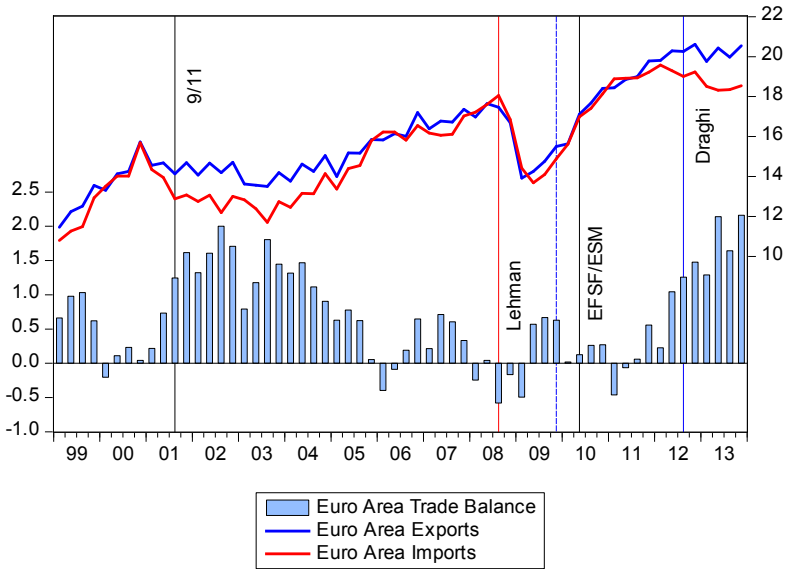
Figure 5.



In aggregate, the Euro Area has experienced massive financial net outflows since the euro crisis became critical in 2011. Despite the trust-building measures of the ECB, this capital outflow has not stopped. If the euro has strengthened despite these developments, it must be because the current account balance has turned into huge surpluses. Yet, contrary to the boom period in the early 2000s, this surplus is not a consequence of higher exports, but of the reduction in imports due to austerity and slow growth in the Euro Area. See Figure 6.

Thus, we conclude that the recent strength of the euro is a consequence of austerity. In order to prevent an excess appreciation, the Euro Area needs a demand stimulus.

Figure 6.



Source: Eurostat

3.3. How to stabilise the euro

Given these trends, one may argue that the euro ought to be weakened and exports strengthened, by the ECB taking a more active stance in the foreign exchange market. To test whether this is a reasonable policy action, we have estimated the model in Annex 3, which estimates the interactions between exchange rates, current accounts, trade balances, and reserves.[6]

An increase in foreign reserves by the ECB has a very small effect on the exchange rate so that a reduction of the USD-euro exchange rate by 15 cents would require accumulating reserves equivalent to 3.6% of the Euro Area GDP. Given the size of the ECB balance sheet this amount seems to be not easily compatible with the monetary policy objectives. In particular, it would greatly reduce the ECB's capacity to conduct unconventional monetary policies and OMT.

As pointed out above, the change in foreign exchange reserves is partly determined by the current account position. The effect of a change in the current account balance appears to be much more effective in moving the exchange rate. An exogenous shock to the current account balance of 1.1% of GDP has a cumulated effect on the exchange rate of almost 3 cents after a year and 4.7 cents after two years. This effect of current account changes is driven by the balance of trade in goods, while a shock to the balance of services has practically no effect on the exchange rate dynamics. Given our estimates, a reduction of the surplus form 2.2% to 0.1% of GDP would lower the USD-euro exchange rate by 13-14 cents. Thus, the rebalancing of the current accounts would be significantly more effective and less costly in bringing down the exchange rate than market interventions by the ECB.

These results suggest that the accumulation of foreign exchange reserves by the ECB aimed at bringing down the euro would be ineffective as its current value is mainly the result of the high international net lending which results from the current account surplus. The implication is that the strength of the euro is due to the recession in many countries which kept imports low and improved the Euro Area's net position with the rest of the world.

[6] This is based on unpublished research by *Centro Europa Ricerche*, Rome. It will appear in CER, Rapport on Europe, 2014

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ANNEX 1. UNIT ROOT TEST

Null Hypothesis: EXC_USD has a unit root
Exogenous: Constant
Lag length: 0 (Spectral GLS-detrended AR based on SIC, maxlag=30)
Sample (adjusted): 1/01/1999 2/28/2014
Included observations: 3956 after adjustments

		MZa	MZt	MSB	MPT
Ng-Perron test statistics		-2.82625	-1.08123	0.38257	8.38020
Asymptotic critical values*:	1%	-13.8000	-2.58000	0.17400	1.78000
	5%	-8.10000	-1.98000	0.23300	3.17000
	10%	-5.70000	-1.62000	0.27500	4.45000

*Ng-Perron (2001, Table 1)

HAC corrected variance (Spectral GLS-detrended AR)	6.19E-05

Null Hypothesis: D(EXC_USD) has a unit root
Exogenous: Constant
Lag length: 0 (Spectral GLS-detrended AR based on SIC, maxlag=30)
Sample (adjusted): 1/04/1999 2/28/2014
Included observations: 3955 after adjustments

		MZa	MZt	MSB	MPT
Ng-Perron test statistics		-1976.96	-31.4400	0.01590	0.01245
Asymptotic critical values*:	1%	-13.8000	-2.58000	0.17400	1.78000
	5%	-8.10000	-1.98000	0.23300	3.17000
	10%	-5.70000	-1.62000	0.27500	4.45000

*Ng-Perron (2001, Table 1)

HAC corrected variance (Spectral GLS-detrended AR)	6.20E-05

ANNEX 2. TRADE ESTIMATES

Exports

Dependent Variable: LOG(EXP_G)
Method: Dynamic Least Squares (DOLS)
Date: 06/06/14 Time: 11:39
Sample (adjusted): 1999M02 2013M12
Included observations: 179 after adjustments
Cointegrating equation deterministics: C @TREND
Automatic leads and lags specification (lead=0 and lag=0 based on SIC criterion, max=12)
HAC standard errors & covariance (Bartlett kernel, Newey-West automatic bandwidth = 11.2872, NW automatic lag length = 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(EXR_AVG_)	-0.343148	0.112469	-3.051040	0.0026
LOG(GARCH01)	0.016123	0.022713	0.709854	0.4788
LOG(IPI_US)	1.495764	0.209405	7.142916	0.0000
C	4.465307	0.937386	4.763573	0.0000
@TREND	0.004832	0.000376	12.86004	0.0000

R-squared	0.960712	Mean dependent var	11.60742
Adjusted R-squared	0.959103	S.D. dependent var	0.254708
S.E. of regression	0.051509	Sum squared resid	0.453699
Durbin-Watson stat	0.301092		

Imports

Dependent Variable: LOG(IMPORTS)
Method: Dynamic Least Squares (DOLS)
Date: 06/06/14 Time: 11:39
Sample (adjusted): 1999M11 2012M12
Included observations: 158 after adjustments
Cointegrating equation deterministics: C
Automatic leads and lags specification (lead=12 and lag=9 based on SIC criterion, max=12)
HAC standard errors & covariance (Bartlett kernel, Newey-West automatic bandwidth = 5.9817, NW automatic lag length = 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(EXR_AVG_)	-0.043359	0.069088	-0.627592	0.5325
LOG(GARCH01)	-0.070471	0.031685	-2.224152	0.0296
LOG(IPI_EA)	4.331154	0.253009	17.11857	0.0000
CRISIS	0.532352	0.025573	20.81685	0.0000
C	-9.338515	1.099975	-8.489751	0.0000

R-squared	0.996569	Mean dependent var	11.56714
Adjusted R-squared	0.991713	S.D. dependent var	0.242243
S.E. of regression	0.022052	Sum squared resid	0.031608
Durbin-Watson stat	0.794962		

ANNEX 3. A VAR MODEL FOR THE USD-EURO EXCHANGE RATE

In order to stabilize or reduce the level of the exchange rate the ECB could accumulate of foreign exchange reserves. We test whether a change in foreign reserves affects the exchange rate dynamics by estimating a Vector Auto Regressive (VAR) model which relates changes in the exchange rate to the current account position and to the variation of foreign exchange reserves. The VAR specification is a system of equations where each of the three variable is alternatively the dependent one and is expressed as function of its lagged levels as well as the lags of the other two variables as in equations 1- 3:

$$Y_t = \alpha_1 + \alpha_2 Y_{t-1} + \alpha_3 Y_{t-2} + \alpha_4 X_{t-1} + \alpha_5 X_{t-2} + \alpha_6 Z_{t-1} + \alpha_7 Z_{t-2} + \varepsilon_{1,t} \quad (1)$$

$$X_t = \beta_1 + \beta_2 Y_{t-1} + \beta_3 Y_{t-2} + \beta_4 X_{t-1} + \beta_5 X_{t-2} + \beta_6 Z_{t-1} + \beta_7 Z_{t-2} + \varepsilon_{2,t} \quad (2)$$

$$Z_t = \gamma_1 + \gamma_2 Y_{t-1} + \gamma_3 Y_{t-2} + \gamma_4 X_{t-1} + \gamma_5 X_{t-2} + \gamma_6 Z_{t-1} + \gamma_7 Z_{t-2} + \varepsilon_{3,t} \quad (3)$$

where Y=Δ(Exchange rate), X=current account balance, balance of goods, balance of services, Z=change in reserves. The VAR is estimated on a sample of quarterly data from Q1-1999 to Q4-2013. This formulation allows us to calculate impulse response functions (IRF) which describe the evolution of the variables in the system in response to an exogenous shock to one of the three variables. IRF are calculated using the Cholesky decomposition which implies an ordering of the variables from the least endogenous (i.e. the one that is subject to the initial exogenous shock) to the most endogenous. In order to test the significance of an ECB intervention aimed at reducing the exchange rate we first verify the impact of an exogenous shock to foreign exchange reserves. The IRF function is shown in figure A. An increase in foreign reserves of 0.24% of GDP (1 standard deviation) has a very small effect on the exchange rate (close to 1 cent) so that a reduction of the exchange rate by 15 cents would cost 3.6% of the Euro Area GDP in terms of accumulation of foreign reserves.

The effect of a change in the current account balance appears to be much more effective in moving the exchange rate. As we show in figure B an exogenous s.d. shock to the current account balance (1.1% of GDP) has a cumulated effect on the exchange rate of almost 3 cents after a year and 4.7 cents after two years. In figure C we show that this effect of current account changes is driven by the balance of trade in goods, while a shock to the balance of services (figure D) has practically no effect on the exchange rate dynamics. Given that the standard deviation of the trade balance is 0.7% of GDP, a reduction of the surplus form 2.2% to 0.1% would lower the exchange rate by 13-14 cents. Rebalancing the current accounts would be significantly more effective and less costly in bringing down the exchange rate.

Figure A. Cumulated response of exchange rate changes to changes in foreign exchange reserves

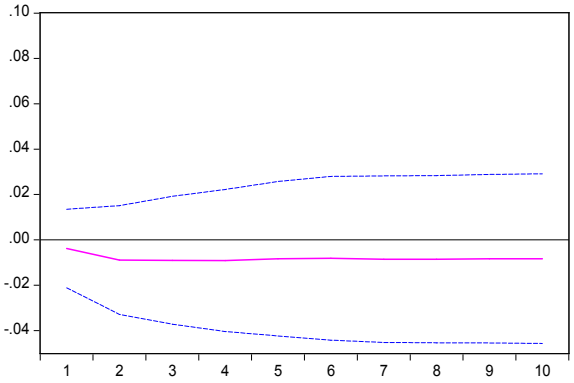


Figure B. Cumulated response of exchange rate changes to the current account to GDP ratio

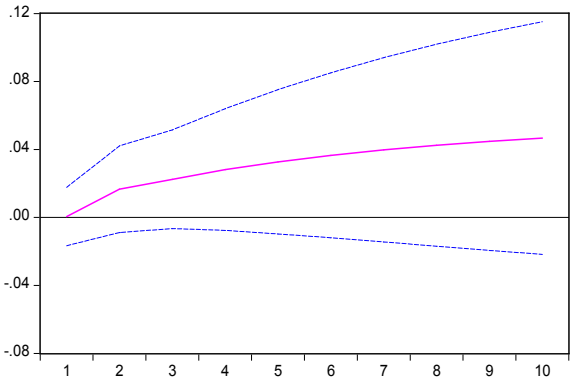
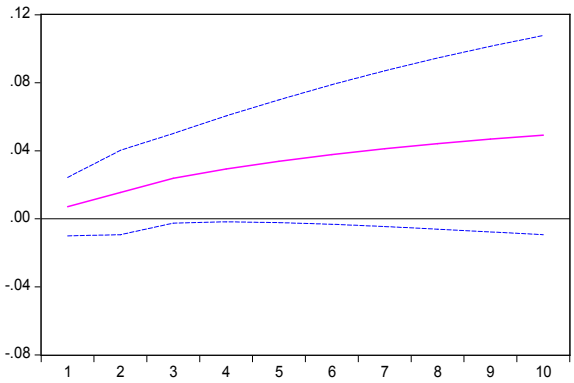


Figure C. Cumulated response of exchange rate changes to the balance of goods to GDP ratio



NOTES

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The strength of the Euro: Challenges for ECB monetary policy

Ansgar BELKE

IN-DEPTH ANALYSIS

Abstract

This paper comments on the main challenges for ECB monetary policy stemming from the strong euro. Against the background of the current macroeconomic situation in the euro area, the paper goes through statements by ECB President Mario Draghi on exchange rate issues on occasion of recent ECB press conferences following the monthly meetings of the ECB Governing Council. The paper then deals with some key economic challenges potentially emerging by targeting ECB (unconventional) monetary policies towards the euro exchange rate. The final part of paper dwells extensively on the effects of envisaged Quantitative Easing policies on current and forward interest rates in the euro area and - via the asset portfolio channel - on the external value of the euro.

CONTENTS

EXECUTIVE SUMMARY

At the ECB press conference of 5 June 2014, ECB President Mario Draghi downplayed deflation risks, but warned about the adverse effect of current very low inflation rates on debt-to-GDP ratios. In particular, very low inflation rates making the necessary adjustment in over-indebted euro-area member countries extremely painful.

Rising expected inflation through a weakening of the euro currency helps preventing deflation risks and, at the same time, alleviates debt-reduction costs. In Draghi's speech, the second effect appears to be more relevant. By contrast, a fall in the overall level of the consumer price index (deflation) with further negative effects on aggregate domestic demand is unlikely and judged to be lacking microeconomic foundations. This paper argues that a deflationary spiral may however set in, requiring increasing doses of ECB Quantitative Easing (QE) to withstand a reduction in private spending.

Should QE prove successful, the above process may even be reinforced. The implied reduction of risks for southern euro-area's sovereign bonds may strengthen the capital inflow from emerging markets, in turn putting upward rather than downward pressure on the euro exchange rate. All the more so, should the ECB's intervention involve the purchase of asset-backed securities (ABS).

Most likely, the ECB does not wish to systematically affect the external value of the euro. And even if the ECB managed to eventually lower the external value of the euro, the size of the currency adjustment is unlikely to be large enough to affect overall demand and (structural) unemployment. One also wonders why should the ECB take action against a "too strong euro" if its (high) level reflects increased markets' confidence in euro policies and improved business sentiments.

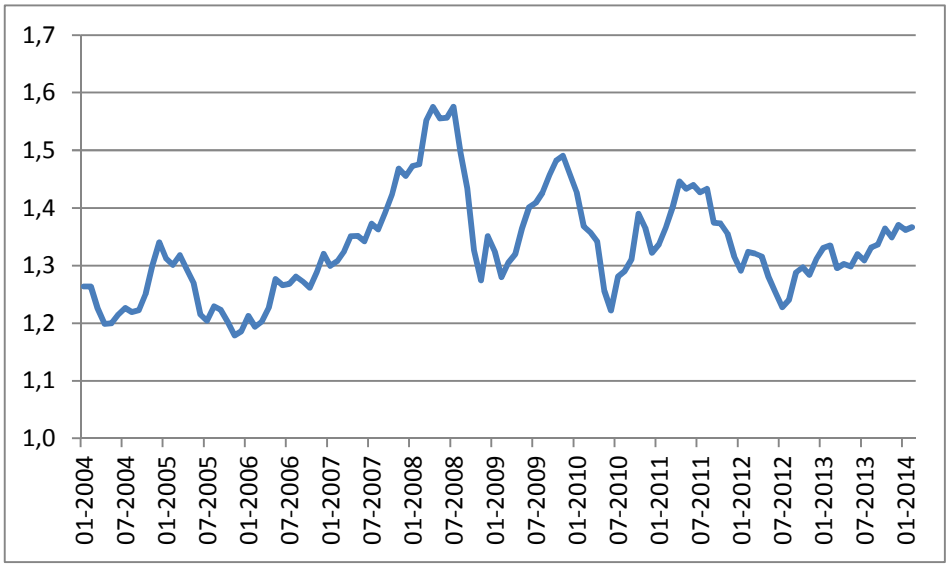
In recent speeches[1], Mario Draghi's has often reiterated the thesis that the exchange rate of the euro is, according to its constitution, not a policy target for the ECB. This paper adds two key supporting arguments: first, the effect of the exchange rate on the euro inflation varies strongly over time; second, it is not clear what level of the exchange is rate compatible with the euro-area's target for inflation. Clearly, this does not exclude the possibility of concerted actions with other central banks on exchange rate markets.

[1] ECB's Council Meeting press conference of 3 April 2014: "*We don't discuss policy measures for the effect they might have on the exchange rate; that is going to be determined by the marketplace*" (http://www.ecb.europa.eu/press/pressconf/2014/html/is140403.en.html). ECB's Council Meeting press conference of 8 May 2014: *"Over the last few days we received plenty of advice from political figures, from institutions and, almost every day now, … on exchange rates … . So we are certainly thankful for this advice and certainly respect the views of all these people. But we are, by the Treaty, we are independent. So people should be aware that if this might be seen as a threat to our independence, it could cause long-term damage to our credibility."* (http://www.ecb.europa.eu/press/pressconf/2014/html/is140508.en.html.).

1. INTRODUCTION

The euro's steady rise represents one of the market surprises of the current year. Since the beginning of 2014, the euro has appreciated both against the dollar and – although much less – also in trade-weighted terms. At around USD1.40 in mid-March and early May, the euro has been at its highest level against the dollar since late 2011 (Figure 1). In the year to early July 2014, the euro has appreciated by almost 10%, while receding somewhat [2] in recent weeks.

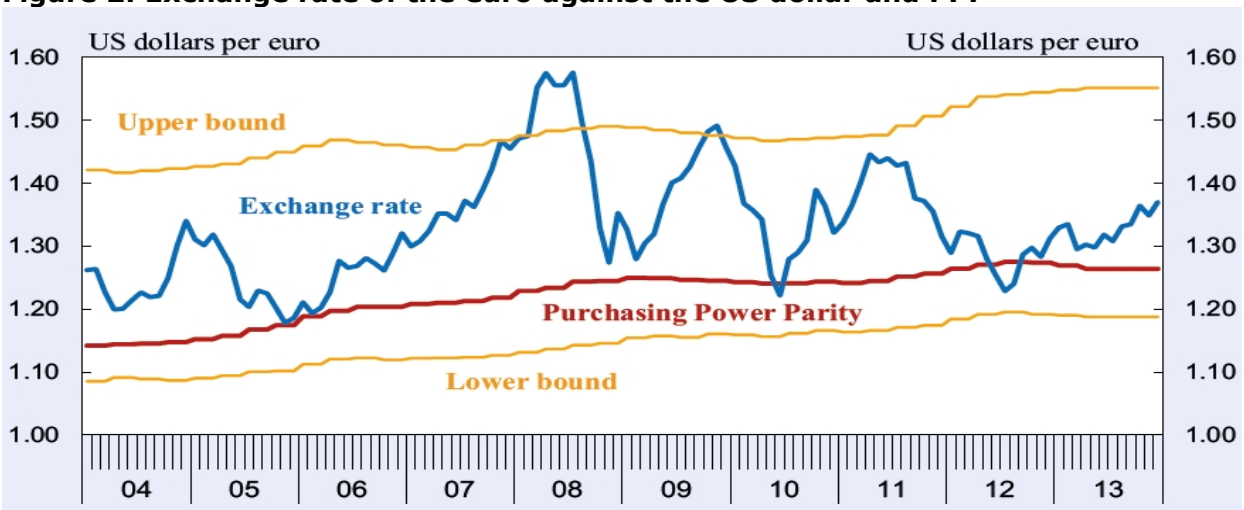
Figure 1: USD/EUR exchange rate, nominal since 2004



Source: Bank for International Settlements, Web: http://www.bis.org/statistics .

Since mid-2012, the euro exchange rate has witnessed a steady appreciation euro against the USD (see Figure 2). However, even the recent maximum of EUR 1.40 remains well below the 75% confidence band of the PPP rate.

Figure 2: Exchange rate of the euro against the US dollar and PPP



Source: EEAG (2014), p. 34. Monthly data for the nominal exchange rate; quarterly data for PPP exchange rate (EUR/USD). The PPP upper resp. lower bound represents the 75th resp. 25th percentile of the euro country-specific PPP estimates vis-à-vis the US dollar. The PPP exchange rate is calculated as the GDP-weighted average of the euro country-specific PPP estimates vis-à-vis the US dollar. Source: OECD Economic Outlook 93, June 2013, European Central Bank.

The consensus view at the start of 2014 was that the US economic recovery would have exerted upward pressure on the USD exchange rate. The ECB policy of keeping key interest rates at current low levels for an extended period of time (forward guidance) was also expected to put downward pressure on the euro. On the contrary, the euro-area currency has continued to appreciate, a trend likely reflecting euro-area current account surpluses and improving investor confidence, as the worse of the euro-area debt crisis is over. As pointed out by M. Draghi (2014), *"Incidentally, one of the reasons for the strength of the exchange rate was the inflows coming from outside from investors interested in euro-area economies"*. By lowering the prices of imports, the euro's appreciation has contributed to lower overall inflation, which is currently well below the ECB target for price stability.[3]

[3] See Mario Draghi (2014a) during the ECB's May Press Conference in Brussels: "… the strengthening of the exchange rate in the context of low inflation is cause for serious concern in the view of the Governing Council".

2. THE STRONG EURO: MAIN CHALLENGES FOR ECB MONETARY POLICY

2.1 Macroeconomic background

The challenges posed by the strength of the euro for ECB's monetary policy are to be assessed in a macroeconomic context characterised by overall low inflation levels – stemming from necessary competitive price adjustments in the euro-area periphery as well as a from widespread deleveraging processes still on-going [4] - and improved growth projections in the euro-area. At the same time, both current and expected inflation are well below the ECB's target of slightly below 2 percent HICP inflation. A consensus emerged among economists over the last months that the most recent unconventional ECB policy measures have contributed to a sustained euro devaluation (Jolly, Alderman and Bray, 2014)

For a relatively open economy like the euro area, the strength of the euro and falling energy and food prices have become significant drivers of increasingly lower inflation rates in the euro area (Draghi, 2014). As stated by ECB president Mario Draghi (2014): *"If we go back to the last three years, we have two stories. First, the first half of the last three years, it was mostly the declines in the price of oil and food and perhaps some other commodities that have accounted for something like 75%, 80% of the difference between inflation then and inflation now. Then, in the last year, it was the prices in dollar terms haven't moved much; it was the exchange rate that has accounted for the decline in inflation".*

The exchange rate is not an ECB policy target. However, an inflation rate persistently below the ECB target for price stability is a source of concern and is likely to trigger further unconventional monetary policies geared towards a weakening of the euro exchange rate (Draghi, 2014, 2014a, 2014b). In this vein, policy measures such as Quantitative Easing (QE) could be seen as an *insurance against deflation*.

Deflation fears rank high on the ECB policy agenda. The main concern is that already very low positive inflation rates, not necessarily deflation, *make the necessary reduction of public debt* in over-indebted euro-area member countries *more difficult*. This is so because more real resources have to be spent for the necessary cutback of public debt in view of disappointing growth figures in these countries (e.g. Italy and France).

According to some estimates, the French debt-to-GDP ratio may climb beyond the 100 percent threshold already next year and reach 105 percent until 2018, while in Italy the debt-to-GDP ratio could rise up to 150 percent of GDP in the coming years (Eckert and Zschaepitz, 2014).

Higher inflation rates would delay deflation risks and alleviate the debt cutting costs. ECB tends to downplay dangers of future deflation in the euro area, once deflation is properly defined, that is as the permanent fall in the overall level of prices, thus inducing consumers to defer purchases in to the distant future with severe adverse effects on aggregate demand. At the level of individual goods in the euro area, one usually finds a number of goods where prices have actually been falling, but one finds only scarce evidence for related declines in demand (and sometimes even the contrary). Hence, the widespread *concerns about deflation impairing aggregate consumption does not seem to be due backed by sound microeconomic foundation*.

The next session assesses the main arguments in favour or against efforts by the ECB to weaken the euro. We start from the basic insight that the relevant variable for expenditure switching is not the nominal but the *real* exchange rate. But there is hardly any evidence that central banks are able to sustainably affect the real exchange rate. On the contrary, in

[4] Both should be very welcomed by the ECB and, hence, should not be counteracted by it.

the short run any manipulation of the nominal exchange rate bears the character of a "beggar-thy-neighbour" policy. And, the consequences of the exchange rate moves so far do not make a case for a "market failure", which could be a reason for central bank intervention (Belke, 2013).

2.2 Does exchange rate orientation of monetary policy represent a violation of the ECB's mandate?

Exchange rate orientation of monetary policy does not represent a violation of the ECB's mandate, as long it is not understood as a direct exchange rate target and policy considerations take also into account the second pillar of the ECB's strategy. As pointed out by ECB President: *"I've often said the exchange rate is not a policy target, but it's very important for price stability and growth. And I think we've discussed on other occasions how the current level of inflation has been impacted by the appreciation of the exchange rate"*.[5]

2.3 Searching for the exchange rate benchmark: what exactly is the equilibrium rate to target?

The statement "the euro is too strong" requires an *exact well-founded benchmark*, an estimate of the equilibrium exchange rate consistent which the ECB's HICP inflation target. That is a very challenging issue. One can hardly think of a more controversial issue in international macroeconomics than determining equilibrium exchange rates. (Krugman, Obstfeld and Melitz, 2012, pp. 350ff.).

What factors lie behind the appreciation of the euro? Some analysts try to explain it by pointing at the ECB balance sheets which have been shrinking relative to the balance sheet of the Fed and the BoE over the last year or so. The euro-area's significant current account surplus, capital inflows into the South of the euro area, at times of falling yields for dollar bonds and shrinking amounts of dollar traded euro-area MFIs may have played their role as well.

The euro currently appears too strong for some of Southern euro-area countries and too weak for some Northern euro-area countries, including Germany. If this is true, a further fall of the external value of the euro would lead to windfall gains for countries which are already in better economic shape.

Hans Redeker (2014), *estimates the USD/EUR exchange rate pain thresholds* and ranks countries accordingly: the USD/EUR threshold is 1.54 for Germany, 1.29 for Spain, 1.28 for Finland, 1.23 for France, 1.19 for Italy, and 1.04 for Greece. The estimate for Germany turns out to be surprisingly close to the threshold of USD/EUR 1.55 calculated by Belke, Goecke and Guenther (2013). In summary, these studies conclude that there is *no unique USD/EUR exchange rate to target* in order to revive the euro-area economy, avoid deflation and preserve the ECB price stability target.

What is more, economic literature has often detected destabilising effects from intervention:*"Experience shows that intervention increases the probability of stability only when the rate is clearly misaligned. An additional, and perhaps more striking argument against intervention, is that the factors driving the direction and intensity of exchange rate moves – that is, for instance, expected growth and capital returns – are beyond the reach of monetary policy: apart from the price level it is hard to see how monetary policy can have a systematic impact on the variables which are usually held responsible for exchange rate levels"* (Belke et al., 2004).

In addition, *the established relation between the exchange rate and its fundamental drivers itself appears to be highly distorted by unconventional monetary policies* adopted by

[5] Mario Draghi (2014a) at the ECB's Brussels press conference in May 2014.

world's leading central banks. Therefore, it should not come as a surprise that the theory of interest rate parity cannot explain the relatively high external value of the euro in the current macroeconomic environment of subdued growth..

Finally, in order to influence the exchange rate permanently, one would require *reiterated interventions*. But direct forex market interventions are politically costly. Hence, there is an incentive for central banks for not intervening on the foreign exchange market. However, investors appear to have conjectured that the ECB's unconventional monetary policies are geared towards the exchange rate (Belke and Gros, 2014). According to Jolly, Alderman and Bray (2014) and many others: *"the biggest problem the E.C.B. really faces is the strength of the euro. The Federal Reserve, the Bank of England and the Bank of Japan all set out deliberately to weaken their national currencies … and now the European Central Bank is catching up"*. Mario Draghi stressed on several occasions that the euro exchange rate is not an ECB policy target. If asked to comment whether the ECB *"Governing Council has some kind of a trigger point where the euro exchange rate is too strong, prompting the bank to act in the future"* he answered *"No, we don't have a trigger. We just see that this is having the effect of basically depressing further the inflation rate. [....] And it's actually the exchange rate that keeps the inflation rate low and depressed."* (Draghi, 2014a).

2.4 Influencing the euro's real exchange rate through changes of the nominal rate – searching for the "euro bottomline"

There are serious doubts that it really makes sense to apply direct or indirect exchange rate policy to compensate for the euro-area specific bad growth performance. This is because *high (youth) unemployment* and low GDP growth in some of the euro-area member countries bear a *structural* character. Beyond significant fine-tuning problems, a multitude of studies has shown that a (too?) strong focus has been put on public budget and debt consolidation as compared to increasing international competitiveness (Gros et al., 2014). If at all, the *benefits of a weaker euro should consist of enhancing international competitiveness* of the euro-area's problem countries. If, in turn, *these benefits are neutralised by higher wage growth*, weakening the euro does not make much sense. If a spiral of devaluations and wage increases sets in, the ensuing unforeseeable variability of *uncertainty about the (equilibrium) euro exchange rate* will have nasty economic consequences. This scenario frequently coincides *"with periods of excessive speculation which have the potential to harm the economy because the speculation waves hamper a sound calculation by the export oriented firms"* (Belke et al., 2004).

Hence, any exchange rate policy which is backed by discretionary unconventional monetary policy runs the risk of triggering additional destabilizing real effects and of durably modifying the functioning and the dynamics of the economy. Most traditional asset price models for sovereign bonds or stocks cannot be used anymore because they do not properly are take into account discretionary central banks' interventions. As such, it cannot be excluded that the most recent euro appreciation "*was largely determined by speculation about the future ECB policy itself. The markets may to be willing to test the "bottom line" of the central bank threshold for the USD/EUR exchange rate: 1.30, 1.40 or 1.50?"* (Belke et al., 2004). Overall, a credible ECB commitment not to directly or indirectly target the exchange rate with its current and future unconventional monetary policy measures would probably represent the best measure to calm down the foreign exchange markets and to stop the upward trend of the euro (Belke et al., 2004).

2.5 Devaluations through unconventional monetary policies prevent necessary structural adjustment

"[...] *The credible absence of interventions or of a monetary policy geared to the exchange rate forces entrepreneurs and politicians to enact the necessary adjustments"* (Belke et al.,

2004). This is a rather important point since evidence shows that declining credit growth in some parts of the euro area is not a supply but a demand problem (see Section 2.1). *"Especially in the case of negative supply shocks, one should refrain from accommodating devaluations which at best alleviate the short term symptoms of low growth in Europe. Pro-active devaluations significantly lower the incentives to break open encrusted structures on labour and product markets and, thus, prospects for growth and employment"* (Belke et al., 2004).

2.6 Structural reforms more effective than devaluations

It has often been argued that a lack of international competitiveness stemming from labour and product market sclerosis combined with low productivity can be compensated much easier *"if the necessary macroeconomic adjustment takes place via the exchange rate than through wages. From this perspective, the devaluation of the euro may represent a substitute for wage restraint and structural reforms"* (Belke et al., 2004, Belke, Herz and Vogel, 2006). *"However, empirical evidence is, at best, mixed For instance, it is by now clear that the positive employment impacts without additional inflation claimed for the UK and Italy after their exit from the European Monetary System (EMS) in 1992 cannot be traced back to the massive devaluations of the respective currencies. Rather, these effects were induced by policy reforms which took effect simultaneously with the exit of the Italian lira and the British pound from the EMS. Hence, in empirical studies investigating the efficiency of exchange rate movements in terms of employment, the extent of reform has to be modelled as an explaining variable which is endogenous with regard to the choice of the exchange rate system. Then it may become clear that structural reforms and not, as often maintained, pro-active devaluations of the respective home currency are the most efficient way towards more growth and employment. Hence, the euro exchange rate cannot be regarded as an important short-term oriented instrument to prevent path-dependence in unemployment in the presence of negative shocks"* (Belke et al., 2004).

Further arguments against exchange rate policies stem from the relative inelasticity of euro-area exports to the exchange rate movements and the potential for increased exchange rate volatility following the adoption of unconventional monetary policies economy (Belke et al., 2004).

2.7 One-sided political interests? Driving forces behind the pressure for euro devaluation

Political pressures to weaken the euro area currency are mounting. The French government is pushing for a weakening the euro as the French economy is losing competitiveness and the growth performance remains poor. Lowering the external value of the home currency has been a policy tool often used in the past to escape more painful structural reforms. Mario Draghi took a strong stance on the issue in a recent press conference: *"We are hearing more and more complaints from Paris about the strength of the euro. Would you like to respond to them at all?"*. He argues that these kinds of testimonies with respect to the strength of the euro may seriously threaten the ECB's independence and credibility. In detail he answered: *"To the … question, I would say that … we received plenty of advice from political figures, from institutions and, almost every day now, on interest rates, on exchange rate… . So we are certainly thankful for this advice and certainly respect the views of all these people. But we are, by the Treaty, we are independent. So people should be aware that if this might be seen as a threat to our independence, it could cause long-term damage to our credibility"* (2014a).

This example is only part of a more general (legitimacy and equal representation) problem. *"The stylised fact that currency depreciations tend to have only a small direct macroeconomic impact on growth and employment in the export branch and may even be counter-productive in the medium and the long run is supported by the mainstream of*

economists but is stubbornly rejected by some industry representatives. The latter often speak out in favour of a devaluation policy probably because they expect a group-specific net gain from this devaluation. By this, the determination of exchange rates and, thus, also a significant part of the exchange rate variance come under the influence of political-economic considerations" (Belke et al., 2004). Also from this point of view, it becomes quite clear that exchange rates these days tend to *"represent more a policy instrument than a shock-absorber. This rather unambiguous public choice assessment involves the danger of not calculable fine-tuning the exchange rate by monetary policy which tends to destabilise expectations and to deter investors instead of attracting them. Hence, policy is well-advised to credibly voice its opposition against "manipulations" of the euro exchange rate"* (Belke et al., 2004).

2.8 Devaluations ineffective in fighting a business cycle trough

The so-called J-curve effect makes impact of devaluations of the home currency difficult to ascertain in the short term (Krugman, Obstfeld, Melitz, 2012, pp. 477ff.). This is relevant because the ECB's inflation projections point at a pick-up of inflation over the medium term only (with HICP to average 1.5% in 2016); the alleged "disinflation issue" thus remains relevant in the short-term, which is exactly the time-frame for the J-curve effect.

Euro-area prices are automatically impacted by a depreciation since import prices increase and production inputs become more expensive. In the short run there is nothing monetary policy can (and, in case of the ECB, wants) do to offset this effect which per se goes along with a negative impact on the current account, measured in the home currency. However, this increase in import prices (which may also feed through to consumer prices) is merely a valuation effect which is necessary but not at all sufficient to revive the economy in *real* terms through an improvement of the current account (which is already increasingly positive for the euro area on the whole as opposed to that of some specific member countries). *"How significant this mechanical pass-through effect is for the euro area is difficult to assess ex ante because it depends on the degree to which euro-area imports are denominated in other currencies than the euro and it is not known on a solid empirical basis up to now what share of euro-area imports is denominated in euro. Nevertheless, it can be argued that more than 20 percent of world trade is denominated in euros and that, above all, countries not belonging to but geographically close to the euro area like the Central and Eastern European countries denominate their exports to the euro area in euros. Hence, the USD/EUR exchange rate remains relevant for euro-area imports. However, neither the exact time pattern of the expansionary effect, nor the resulting net expansionary effect can be calculated and forecasted exactly"* (Belke et al., 2004).

For the majority of industrialised countries, a J-curve lasting between six months and one year turns out to be a relative precise estimate. It is not a remote possibility that monetary expansion can thus even depress output initially by depreciating the home currency. It thus may take some time before any type of unconventional monetary policy may cause an improvement of the current account and higher demand for euro-area products or services. In summary, there will be no significant export-led employment gains by a devaluation of the euro (Belke et al., 2004). Our main argument is also backed by the good performance of the German stock market DAX which has been pointing upwards, in spite of the euro's appreciation. Instead, the pessimistic scenario for euro-area growth and for inflation can be turned by enhancing structural reforms, increased flexibility by both firms and unions.

3. THE EURO EXCHANGE RATE AND QUANTITATIVE EASING

As stated at the beginning, *the ECB may aim at sustained euro devaluation, because all other transmission mechanisms are more or less distorted*. As indicated in Mario Draghi's most recent press conference in June 2014, QE may represent one option to achieve this goal. QE probably has lower political costs than explicit foreign exchange market interventions by the ECB. For this reason, explicit ECB forex market interventions have taken place only very rarely.

Standard textbooks such would tend to argue that QE in the euro area would most probably lead to a depreciation of the euro. But through which channels? How to deal with its impact on bond and asset prices in exchange rate portfolio models etc.? Unfortunately, the scientific literature on QE and its exchange rate effects is still in its infancy. Hence, here we bring forward some casual observations and thoughts.

The recent experiences with QE conducted by the Fed, BoE and Bank of Japan reveal that the exchange rate effects of these policies are generally ambiguous. With respect to the success of QE in the EU Nobel prize winner Joseph Stiglitz said recently at the World Economic Forum: *"… the evidence that it provided much stimulus to the economy is very weak. … It may have contributed to asset price bubbles, it may have contributed a little bit to the weaker dollar, which actually helps US exports"*.[6] Earlier, in 2010, Stiglitz has been dismissing the Federal Reserve's quantitative easing even as a "beggar-thy-neighbour" strategy of currency devaluation: *"President Obama has rightly said that the whole world will benefit if the U.S. grows, but what he forgot to mention is … that competitive devaluation is a form of growth that comes at the expense of others. … So I think it is likely to present problems for the global economy going forward"*. If he is right, QE (in the euro area and elsewhere) would be a step in a "currency war", with uncertain effects for overall growth and, potentially, less positive effects than originally foreseen on euro-area inflation.

In any case, the ECB Governing Council is unlikely to implement additional QE before knowing the results of the asset quality review, as QE may affect the outstanding value of bank assets and the underlying capital requirements.

Should the ECB's QE prove successful in stabilising the Southern euro-area's sovereign bond market, this may lead to additional inflow of foreign capital and, in turn, generate *upward, instead of downward pressure on the euro exchange rate*. Belke and Gros (2014) warn about unintended effects of QE policy on the exchange rate of the euro.

There is currently high pressure on the ECB 'to do something' to stimulate the economy and ward off the "ghost of deflation". In terms of conventional monetary policy measures, there is little room for action: short term interest rates are already close to zero across most assets categories, including for sovereign bonds of distressed economies. The only rates which can still go down are thus longer term interest rates. But are even lower long-term interest rates a solution (Belke and Gros, 2014)?

The next section argues that that lower long-term rates might even be counterproductive.

3.1 Lower interest rates – income losses for savers

First, pushing interest rate further below current low levels is bad for savers and may undermine the financial stability of such institutions as pensions funds and insurance companies. More generally, if the income effect of lower interest rates dominates the

[6] See http://www.taipeitimes.com/News/biz/archives/2013/05/27/2003563249 .

substitution effect, lower interest rates may lead to lower demand rather than stimulate it. (Belke and Gros, 2014).

Of course, one could argue that for every saver there must be a borrower whose burden of debt goes down as interest rates decline. This is indeed true in a closed system. But a country like Germany, for example, is a large net creditor and its economy thus loses income if interest rates go down. German debtors shall of course benefit from a lower interest burden. But as peripheral economies are strongly deleveraging, their firms and households might just use this windfall for further debt reductions instead of increasing their expenditure. The Spanish households do not really profit from lower long-term rates because mortgage rates are indexed to very short-run interbank rates. Moreover, many over-indebted households and firms must first of all pay back their existing loans, before they can even dare to think about new expenditures (Belke and Gros, 2014).

One reason why QE has worked better in the US compared to the euro area is thus simply that the US is the world's biggest borrower and the various rounds of QE lowered considerably the interest burden on the entire economy. Foreigners' holdings of US bonds is worth about USD 7000 billion. A reduction of the bond yield by 1 pp. yields a net gain of about 0.5 percent of GDP. The investment income balance of the US had indeed improved since the start of QE by about 0.7 percent of GDP, although the net foreign investment position of the US has continued to deteriorate. For the US lower interest rates thus represent a considerable income gain. This is not the case for several euro area countries, which enjoy a net creditor position vis-a-vis the rest of the world. Seen on the whole, thus, ever lower interest rates may have a negative impact on demand in the euro area. At the start of European Monetary Union this was different, since at that time over-indebtedness was not prevalent on a large scale and house prices increased whereas they fall today (Belke and Gros, 2014).

3.2 Increasing real estate prices

Lower interest rates may stimulate demand via a wealth effect resulting from rising asset prices, especially house prices. Here again, the US, where this mechanism is at work, may be a misleading example. The key difference is, again, Germany: house prices are indeed increasing in Germany, but this risks dampening, rather than fostering consumption demand. In Germany only about 40 % of households own their house. For tenants, higher house translate into higher rents, which reduce their disposable income and consumption. Another effect is at work. In Germany, financial institutions own a large share of the housing stock. Change in house prices thus their balance sheets. However, according to German accounting conventions, housing are not valued at market prices, but at historical cost. This is convenient for these financial institutions as tax liabilities are kept low. But it also means that higher house price have only a limited effect on demand. Moreover, the German financial system does not easily allow households to cash in the increased value of the real estate (mortgage equity withdrawal) because of banks' "conservative attitude" in terms of loan to value ratios.[7]

3.3 Lower interest rates stimulate investment demand only to a limited extent

Lower interest rates should lead to higher investment demand by firms. However, most empirical studies find at best a marginal impact of interest rates on investment. At the current juncture, other factors may play a bigger role, for instance the uncertainty related to monetary policies (especially those dealing with a smooth exit from unconventional

[7] See Belke and Gros (2014) for a robustness check of these arguments.

monetary policies and its side effects, see Belke, 2013) as well as structural policies (minimum wages). In addition, enterprises in Europe tend to refinance themselves through bank short- to medium-term maturity loans. Hence, lowering long-term rates brings little advantages to firms (Belke and Gros, 2014).

All in all it appears that any QE or asset purchases might have a negative impact on demand (in creditor countries, particularly in Germany) and at best a marginal positive impact in the periphery. Lower ECB interest rates could therefore make the intra area rebalancing even more difficult. The same applies to targeted long-term lending operations to SMEs. If the key issue in the euro area is excessive surplus (or too weak domestic demand) in core countries. Additional QE may aggravate rather than solve the problem.

The ECB should thus resist the temptation to reduce interest rates further.

3.4 QE's exchange rate effect will not stimulate the business cycle

It is often argued that the recovery of the euro-area economy is hampered by the strength of the euro and a depreciation induced by lower interest rates would foster economic activity. But the relation between the long-run interest rate, the exchange rate and in turn, growth, is rather loose (Belke and Goecke, 2005, Belke, Goecke and Guenther, 2013).

This partly explains the on-going discussion in the US about the Fed's exit taking place in the framework of the so-called "interest rate puzzle" of the exchange rate: for a long time the USD/EUR exchange rate has been hardly correlated to the US/euro area interest rate differential.

As shown earlier in this paper, the exchange rate pain thresholds are path-dependent and also country-specific. Likely, for Germany, which is currently the growth locomotive of the euro area, the exchange rate elasticity of exports is pretty low: German exports respond more to demand that to prices (exchange rates).

3.5 Impact of QE and its exchange rate effect can be deflationary

Overall, QE is likely to have a negative impact on aggregate demand in Germany and, possibly, only a marginally positive impact in the periphery, with little help in terms of rebalancing the euro area economy. The same applies to targeted purchases of specific bundles of loans in order to promote the extension of credit to small and medium-sized enterprises. Such a measure would be redundant in Germany. Still too weak domestic demand in Germany and other Northern European countries with current account surpluses remains the key problem of the euro area. Hence, the ECB should resist the temptation to fight the deflation danger via QE. What might have succeeded in the US is unlikely to work in the euro area. Quantitative Easing could actually make things worse. If *QE is unable to stimulate aggregate demand,* a *deflationary spiral* may set in, leading to additional inflow of foreign capital and exerting *upward, instead of downward, pressure on the euro exchange rate* (Belke and Gros, 2014).[8]

[8] For a supporting statement by the author see http://www.cnbc.com/id/101654170 .

4. CONCLUSIONS

The ECB will probably not be able to affect the external value of the euro. But even if the ECB would succeed, this would not solve the bottlenecks, chiefly high structural unemployment, affecting the euro area economy. A Fed exit from unconventional policy measures is likely to be the best option in the current circumstances (Belke, 2013).

Some additional considerations are worth mentioning. If a strong euro reflects an increase of market confidence in euro policies and improved business sentiments, why should the ECB take any ("exchange rate") action? *The ECB Governing Council shall abstain from unilaterally influencing the euro exchange rate* because the exchange rate is not an ECB policy target and also due to the large uncertainties linking interest rates, inflation and exchange rates developments.

But this does, of course, not exclude concerted action amongst central banks to move exchange markets. As Mario Draghi put it: *"You know that there is a G-20 statement that says that exchange rate matters are matters of common concern. And so we will have to reflect on this and see"* (Draghi, 2014a).

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DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The strength of the Euro

Sylvester C.W. EIJFFINGER, Louis RAES

IN-DEPTH ANALYSIS

Abstract

This paper discusses the challenges of euro-area monetary policy in the current macroeconomic environment of subdued growth, very low inflation and featuring at the same time a strong currency. The paper argues that ECB monetary policy should focus on the internal monetary policy objective, that is the ECB should stick to its primary mandate of ensuring price stability for the euro area as a whole. The exchange rate of the Euro is not a policy target of the European Central Bank and the use of the monetary policy toolkit to address the external target is not risk-free.

CONTENTS

1. INTRODUCTION

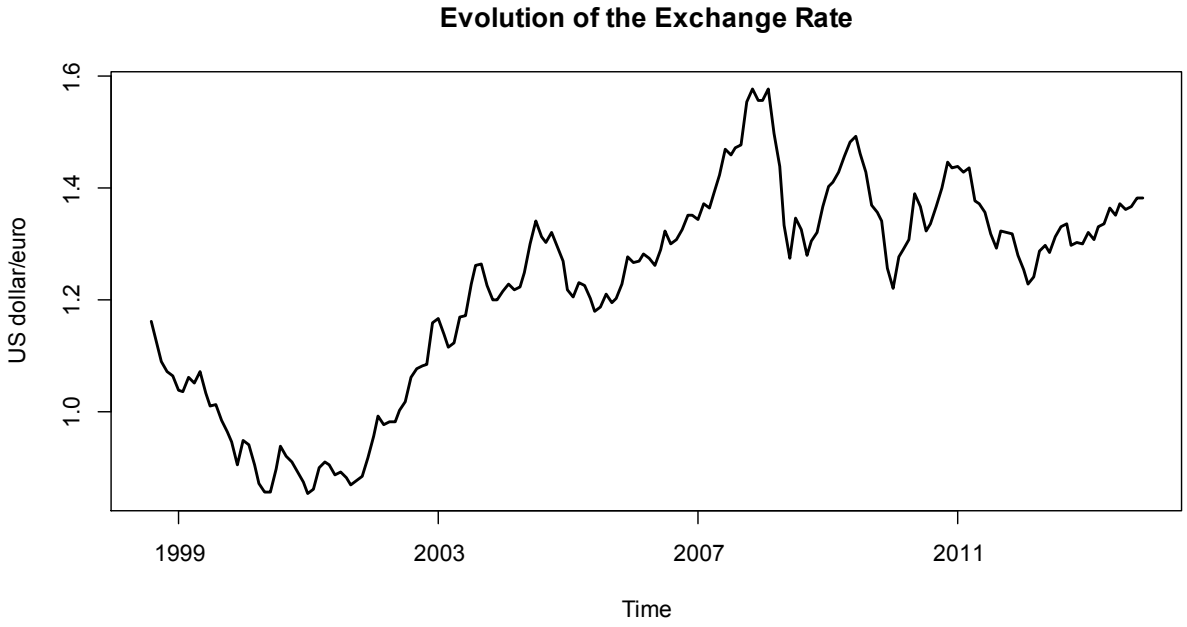
This paper discusses some of the policy challenges posed by the rise of the Euro exchange rate both in trade-weighted terms and against the Dollar. To put the issue in perspective, Figure 1 plots the evolution of the Euro-Dollar exchange rate since the inception of the Euro (top panel) as well as the difference in policy interest rates (bottom panel), as the discussion on the equilibrium exchange rate is often framed in the context of interest rate parity theory.[1] The graph shows the evolution of the difference between the euro-area policy rate and the Federal Funds rate. Over the last few years the difference was positive i.e. the euro-area policy rate was higher than the Federal Funds rate. Lately, due to further easing by the ECB, the two policy rates have been converging and both are now approaching the zero lower bound.

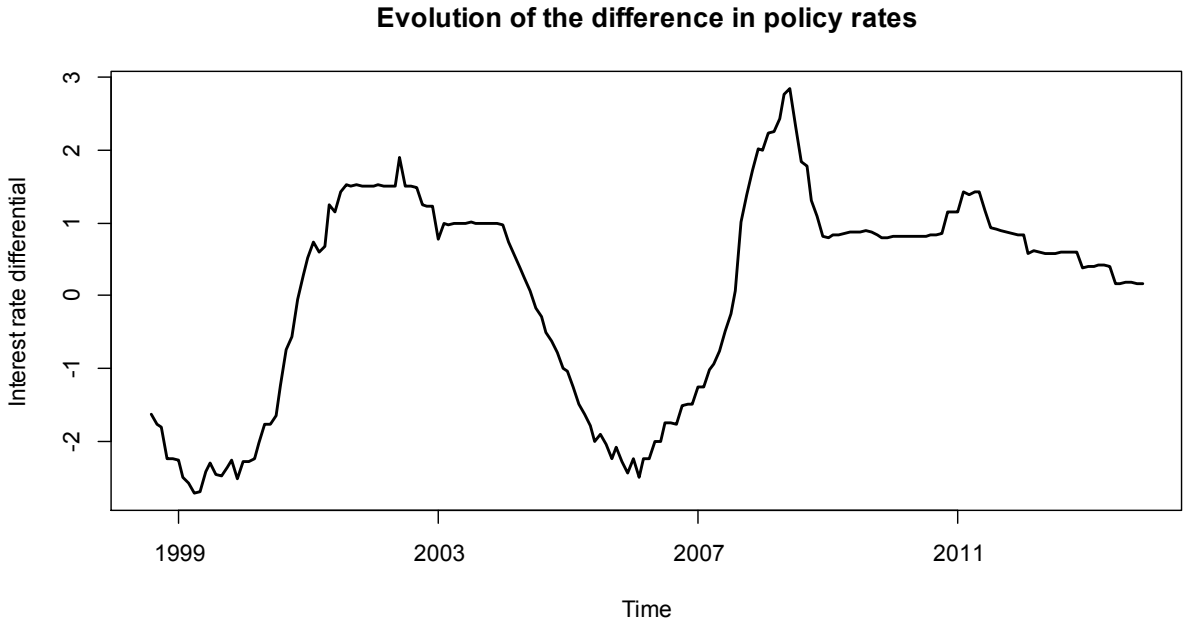
The top panel supports the notion that the Euro has appreciated recently, but also shows that the Euro has known several higher peaks in the past decade. The appreciation of the Euro is a topic of discussion because a strong Euro makes exports relatively more expensive than imports, thus adversely affecting the economic recovery in the Euro area. Many observers believed that the economic recovery in the US and the monetary policy choices of the European Central Bank would have contributed to weaken the Euro in 2014. In contrast, a combination of increasing investor confidence and current account surpluses led to a further strengthening of the euro-area currency.

This paper starts by reviewing some theoretical considerations on the conduct of exchange rate policies. Subsequently, it discusses the evolution of euro-area inflation in the current context of a strong currency and near absence of growth. It concludes with a brief assessment and some recommendations for current monetary policy.

[1] The interest parity theory states that interest rate differentials between two different currencies will be reflected in the premium or discount for the forward exchange rate on the foreign currency if there is no arbitrage. Interest rate parity is a no-arbitrage condition representing an equilibrium state under which investors will be indifferent to interest rates (returns) available in two countries. In the next section we discuss this further when reviewing some aspects of this theory.

Figure 1: Evolution of the Euro-Dollar Exchange rate and of the difference in policy rates





Source: Author's elaborations. Data from the European Central Bank and Eurostat.

2. EXCHANGE RATE POLICIES

The Euro has appreciated substantially in 2014 both vis-à-vis the Dollar and in trade-weighted terms. At the time of writing, the Euro is at its highest level against the Dollar since the summer of 2011. As discussed later in this paper, there are good arguments supporting a more tempered Euro. But before entering the discussion on exchange rate policy, it may be useful to frame exchange rate policy in the context of European Central Bank (ECB) mandate for price stability.

The ECB can influence the exchange rate of the Euro against any third currency either via foreign exchange interventions (coordinated or not) and/or via adjustments of domestic money market interest rates. The theory of interest rate parity suggests that an increase in the domestic money market interest rate relative to foreign money market interest rates results in an appreciation of the domestic currency. Likewise then, a decrease of the domestic money market rates weakens the domestic currency. It is well known that the domestic money market interest rate is a target for the ECB policy rate. Hence, using the domestic money market interest rate as a policy instrument may result in a possible conflict between *external* and *domestic* monetary policy objectives. Table 1 provides an overview of different situations which may arise.

Table 1: Conflicts between the ECB's Internal and External Objectives of Monetary Policies: Overview of different situations:

Internal / External	*ECB's exchange rate policy aimed at the appreciation of the Euro*	*ECB's exchange rate policy aimed at the depreciation of the Euro*
ECB's restrictive money supply policy (overshooting of target and/or expected inflation)	*No* conflict: internally and externally higher European money market interest rate	*Possible conflict:* internally higher, but externally lower EU money market interest rate
ECB's expansionary money supply policy (undershooting of target and/or expected inflation)	*Possible conflict:* internally lower, but externally higher EU money market interest rate.	*No conflict:* internally and externally lower European money market interest rate.

***Source**:* Eijffinger, S. and de Haan, J. (2000), p.175

Domestic monetary policy refers to the policy aimed at influencing money growth and lending to the economy through the money market interest rates. By reducing or augmenting policy rates, the ECB is affecting money supply and demand for credit, thus shaping the structure of market interest rates.

Table 1 indicates that in two of the four situations considered, a conflict between domestic and external objectives may arise.

Given that the primary objective of the ECB is price stability[2] (internal monetary policy objective), the possibility and the economic consequences of a conflict with the external objective shall always be properly assessed.

In the current environment of very subdued growth and too low inflation[3], the monetary toolkit could in principle be used to weaken the currency. Thus would seem to catch two birds with one stone: supporting growth and at the same time safeguarding both the domestic and the external monetary policy objectives (see bottom-right panel in table 1)

Before assessing the pros and cons of the monetary policy toolkit under such circumstances, it is worth to take a look at the data on inflation and interest rates in the Euro area.

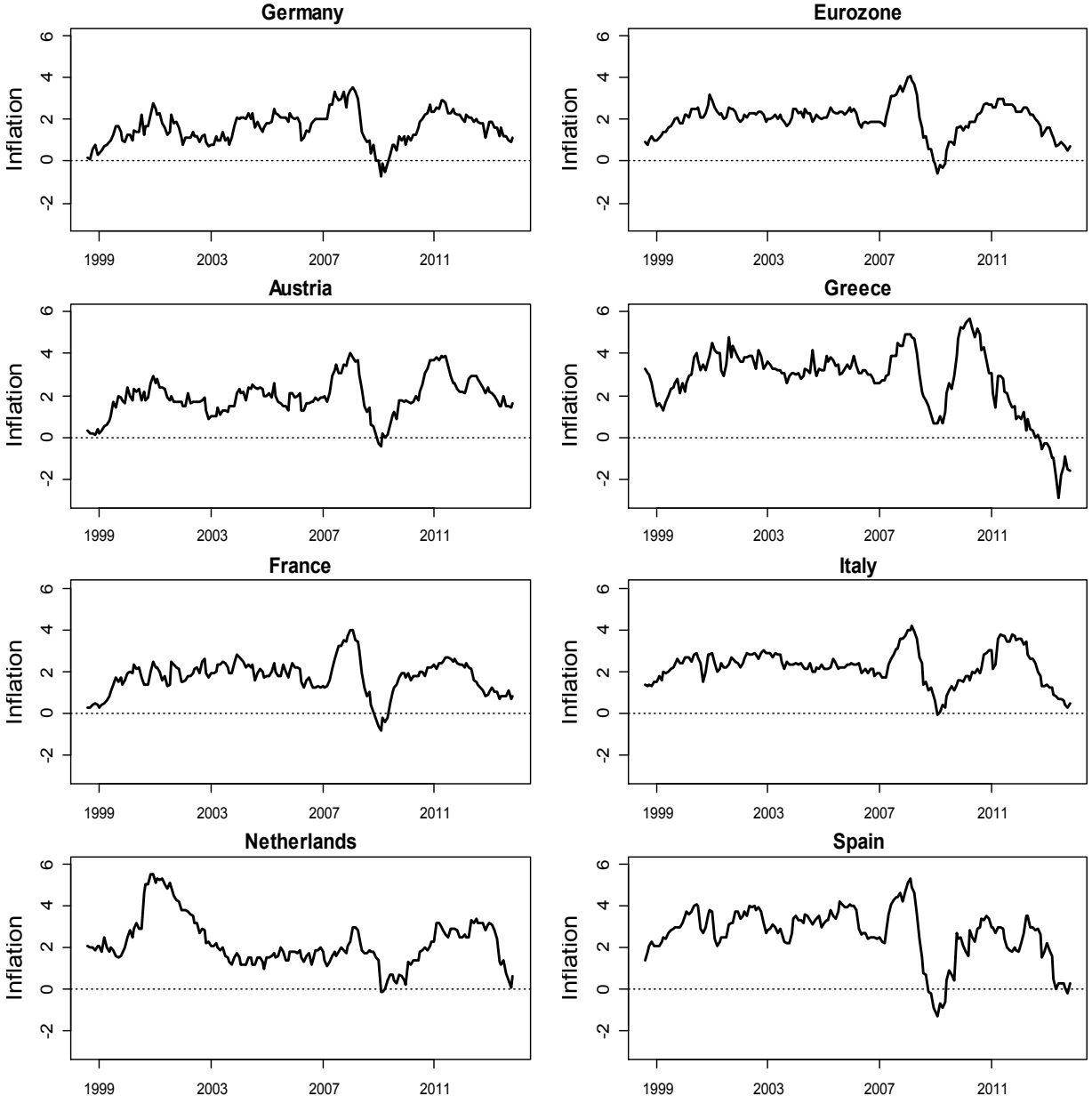
[2] See article 2 of the statute of the ECB.

[3] Draghi, Mario (2014) 'Monetary policy in a prolonged period of low inflation'. Speech at the ECB forum on Central Banking: http://www.ecb.europa.eu/press/key/date/2014/html/sp140526.en.html

3. CURRENT SITUATION

There is a broad consensus that inflation in the Euro area is currently (excessively) low. This is confirmed by Figure 2, which presents headline inflation rates in the Euro area and in selected Euro-area countries since 1999.

Figure 2: Headline inflation in the euro area and selected euro-area countries



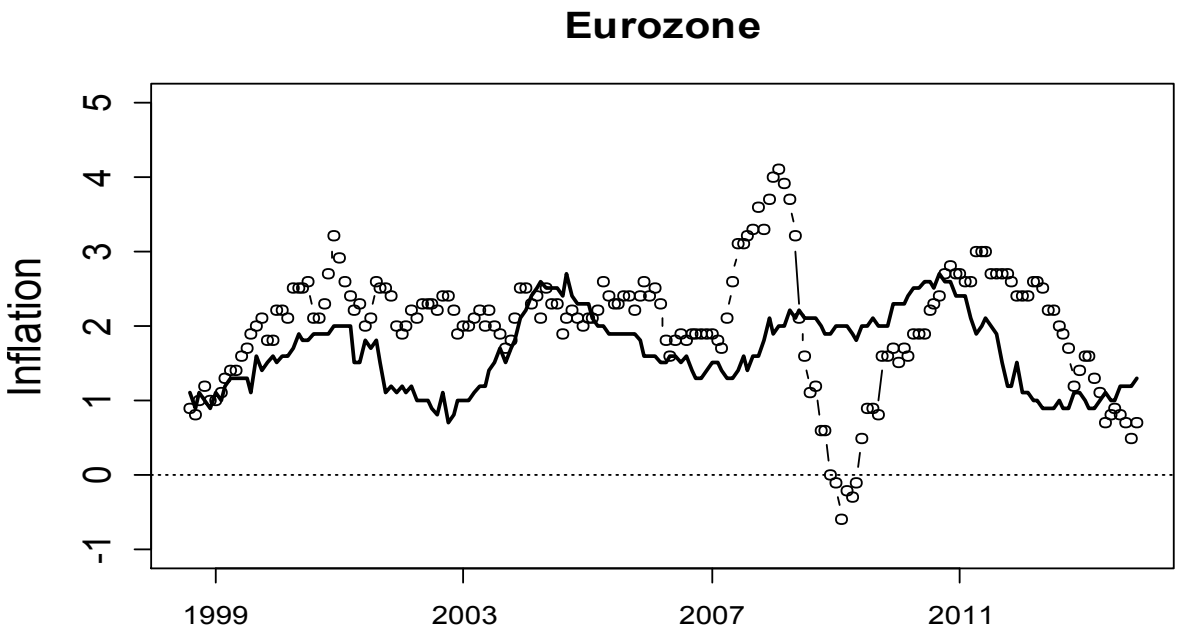
Source: Author's elaborations. Data was obtained from Eurostat.

The left column of Table 1 depicts the evolution of headline inflation in Germany, Austria, France and the Netherlands, traditionally considered the core of the Euro zone. The right column depicts the evolution of headline inflation for the Euro area as a whole as well as in selected Southern Euro-area countries. The country-specific graphs show that inflation has been trending down recently in all regions considered. In the euro area, inflation is currently averaging around ½ pp., thus significantly below the ECB target of "below, but close to 2%, over the medium term". This reflects inflation rates below their historical average in most individual countries. There are, however, important cross-country

differences. Inflation has dropped more strongly in the peripheral countries. Main reasons are quite well known and have been laid out by ECB president Mario Draghi in a recent speech. Two key factors explaining low euro-area wide inflation are the fall in import prices as a result of the strength of the Euro and the improved competitiveness (in terms of relative price-cost adjustment) of peripheral countries. What is perhaps less well known is that the very low level of inflation in core Euro-area countries is - to some extent - hampering a larger (and beneficial) price-cost adjustment process in peripheral countries. It is important to keep this distinction between common factors (the currency) and country-specific elements in mind when assessing the appropriate response in terms of euro-area monetary policy.

A qualification is also in order regarding the (best) target for inflation. When discussing inflation in a policy context, the medium term should be the correct and relevant timing horizon. Accordingly, core inflation rather than headline inflation is the appropriate aggregate price index to be monitored. Indeed, core inflation excludes the volatile (short-term) components of energy and unprocessed food from the overall price index (headline inflation). Figure 3 depicts the series for core inflation (black line) as well as headline inflation (round circles) in the euro area since 1999. Currently, not only is core inflation higher than headline inflation but, more importantly, the underlying trends point in different directions: headline inflation is still decelerating, while core inflation appears to have bottomed up. From the perspective of ECB policy objectives, core (i.e. medium-term) recent inflation numbers seem to be somewhat less worrying than headline figures.

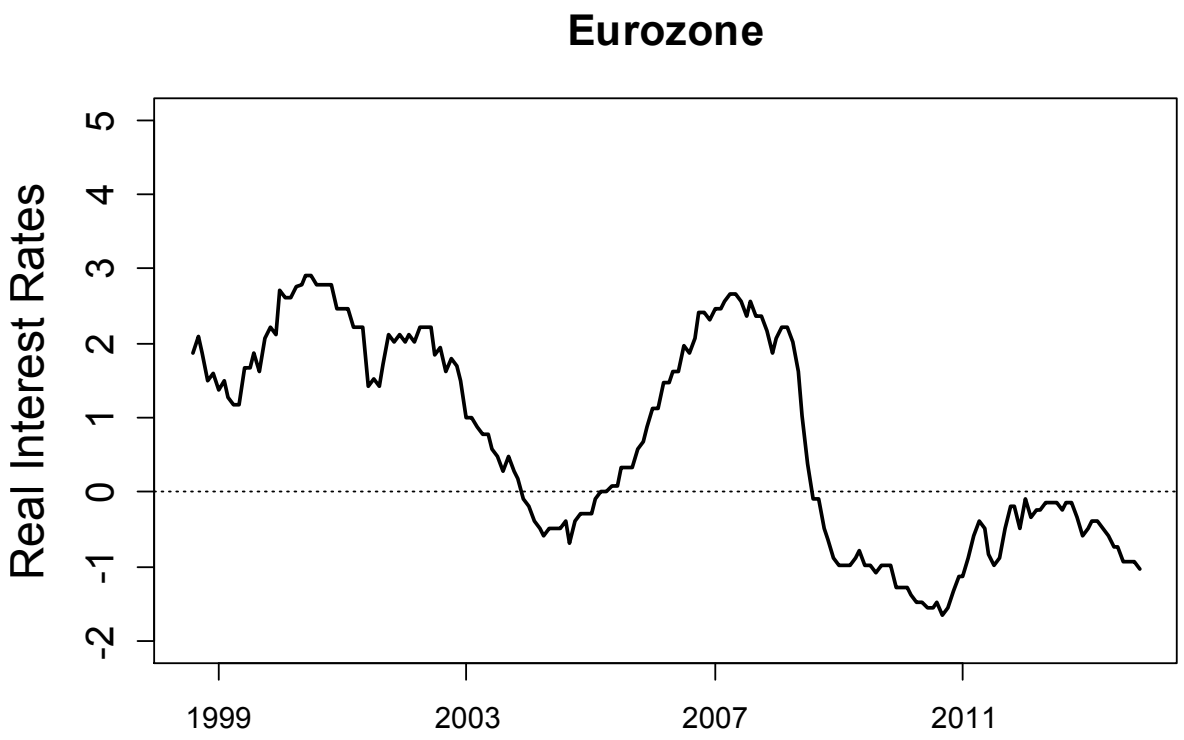
Figure 3: Headline inflation (circles) and core inflation (black line)



Source: Author's elaborations. Data was obtained from the European Central Bank and Eurostat.

Short-term nominal interest rates are central banks' key policy targets. However, agents' decisions to spend and save are affected by real rather than nominal interest rates. The real interest rate is defined as the nominal interest rates corrected for inflation (or expected inflation). Figure 4 shows the evolution of the (short-term) real interest rate[4] in the euro area since 1999. In normal times, the real interest rate is positive, reflecting the premium for postponing consumption. The real interest rate tends to move in tandem with the business cycle. During the current "great recession" the real interest has been mostly into negative territory and even resumed a downward trend over the last year or so. A negative real interest rate lasting over a prolonged period of time is an undesirable feature for an economy. Such a situation is often qualified as one of financial repression, with adverse effects on savings and relevant challenges for monetary policy.

Figure 4: Real Short Term Interest Rate



Source: Author's elaborations. Data was obtained from the European Central Bank and Eurostat.

[4] The following Fisher identity is used to calculate the real interest rate r: r=((1+i)/(1+Pi)-1)*100 where i the Euro-area policy rate and Pi the inflation rate.. We used observed headline inflation instead of expected inflation.

4. POLICY

From the previous discussion it may be argued that in the current economic circumstances the monetary policy toolkit could successfully address the issue represented by the (excessive) strength of the Euro. Indeed, the combination of low growth and low inflation allows monetary authorities to pursue simultaneously the external and the domestic policy objective. Some euro-area countries are even experiencing negative growth and (close to) falling prices (deflation). An expansionary monetary policy appears to be the appropriate policy response. Risks, however, are not absent. Two are worth mentioning: First, as the timing of the turnaround of the current economic cycle remains highly uncertain, it is particularly difficult at his juncture to assess the financial stability and ensuing risks for (too loose) monetary policy; Second, the impact on the euro area economy of an early tapering by the Fed also remains highly uncertain, but, in a globalized financial system, ECB policy-reaction function must take this into account. It cannot therefore be excluded that the domestic objective calls for a more restrictive monetary policy before any progress on the external objective (i.e. the excessive strength of the Euro) is achieved. To keep pursuing the external objective in such circumstances must be the result of a comprehensive assessment of the different factors behind the (too) low inflation rates in the Euro area, including the price (cost) effects of the strong euro on the euro-area trade balance as compared to demand effects.

In this comprehensive assessment, country-specific factors may also play a role. In the speech mentioned above, Mario Draghi recognized the progress made in terms of cross-country adjustments in recent years. However, it also pointed out that significant differences in the business cycles of the various euro-area economies make the task of ECB particularly difficult as the single monetary policy cannot address country-specific shocks. National factors still impeding a sustainable growth path in peripheral countries need to be tackled and solved by the (national) policy makers, through painful budgetary and structural reforms. In this perspective, the current very accommodative stance of ECB monetary policy may actually give the wrong signal in terms of policy responsibility and commitment to reforms in the periphery.

Some northern euro-area countries may have room for fiscal stimulus, including Germany. A fiscal stimulus from these countries may prove all the more useful in the current situation where the effectiveness of monetary policy is constrained by policy rats being close to the zero lower bound. Countries with large trade surpluses (notably Germany) could think boosting consumption and domestic demand with significant positive spillover growth effects on the rest of the euro area. The southern euro-area countries, on the other hand, have limited choices, but to continue on the disinflation path to regain competitiveness. When fiscally feasible, tax cuts focused on low and middle incomes as well as jointly (public-private) financed investment projects may help growth in the periphery.

Resuming growth in the Euro area is a policy imperative. In the current economic circumstances there appears to be room for monetary policy to weaken the currency, thereby spurring growth. Economists should however keep in mid the lesson of Tinbergen: different (independent) targets should be addressed by different (independent) instruments. In this regards, the paper warns about using expansionary monetary policy for goals which fall outside of the ECB key mandate of price stability.

5. CONCLUSION

This paper has discussed whether it is advisable for ECB monetary policy to affect the level of the Euro in the current macroeconomic conditions of low growth and low inflation. The paper briefly assessed the pros and cons and concluded with reservations for the ECB to use such an option. The main reservation stems from the fact that the ECB primary mandate is to guarantee price stability (domestic monetary policy objective). And at the current juncture, jointly assessing the business cycle position of an economy and its financial stability conditions is a daunting task; those conditions may suddenly change, impeding in the near future the use of monetary policy for the external objective without breaching the ECB primary mandate. Moreover, by engaging in external monetary policy, the ECB might be easing the pressure on political leaders in various European countries to pursue the necessary structural reforms. The process of disinflation in the southern countries is painful and is likely to remain so for quite a while. There is no easy way out. While a cheaper Euro would help to resume growth both in the periphery and the euro-area as a whole, the level of the Euro shall not be considered a policy target by the ECB.

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European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

The euro-dollar exchange rate

Guillermo DE LA DEHESEA

IN-DEPTH ANALYSIS

Abstract

In the short term, exchange rates tend to move to equalize their nominal interest rate differentials until the expected investment returns in both currencies is the same (interest rate parity condition). In the medium term, exchange rates tend to move to equalize their current account differentials (current account position). In the long term, exchange rates tend to move to equalize their inflation differentials (purchasing power parity condition). Since its birth, the euro has tended to appreciate versus the dollar because euro area interest rates have been lower than those in the US; euro are current account has been mostly in surplus; and, finally, euro area inflation rate has been, on average, lower. Movements among both currencies have become faster and more pronounced over time, mirroring the speed of financial markets reaction vis-a-vis actual and expected movements in interest rates, current account positions and inflation rates. In assessing exchange rate developments, financial markets take increasingly into account also government and foreign debt positions as well terms of trade development).

CONTENTS

EXECUTIVE SUMMARY

- The euro and the dollar are the two leading global currencies. Because of that, most investors, including central banks and sovereign wealth funds, heavily invest in these two currencies and closely follow their exchange rate determinants. Investors tend to look, in the short-term, at the interest rate differentials between the US and the euro area; in the medium term, at the US and euro area current account position differentials and, in the long-term, at their inflation rate differentials. These three measures tend to determine the relative strength of the euro versus the dollar.
- The US banking crisis (2008-2009) and ensuing euro-area crisis have created large swings in both currencies. The underlying trend shows, however, that since its birth in 1999, the euro has strengthened against the dollar. The empirical evidence is based on the following facts:

Short-term effects: relative interest rates levels tend to predominate.

- As US interest rates react mainly to developments in the US volatile equity markets, short- term US rates tend to have a large influence on euro area interest rates. Historically, an increase of 100 basis points in the domestic short-term interest rates leads to a fall in US equity prices by 0.75% compared to more than 2% in the euro area equity prices.
- In the euro area, short-term interest rates tend to have a higher impact on the euro exchange rate than US short-term rates have on the US dollar. Historically, an increase of
- 100 basis points in euro area short-term interest rates leads to an appreciation of the euro of 5.7% compared to only 1.7% appreciation of the US dollar, on average. A reason may be that the euro area is a more open economy than the US.

Medium-term effects: relative current accounts positions tend to predominate.

- In 2013, US exports accounted for 13.5% of GDP and US imports for 16.2% of GDP, resulting in a current account deficit of 2.7% of GDP. The euro-area exports accounted for 13.2% of GDP and euro-area imports for 12.6% of GDP, resulting in a current account surplus of 0.6% of GDP. Since its birth, the euro area economy has exhibited a current account surplus, the US economy a current account deficit and this matters to investors. Moreover, the price deflator of exports of goods and services of the euro area has been systematically lower: 1.13% against 1.87%, on average, since 1999.

Long-term effects: inflation differentials tend to predominate.

- Since the birth of the euro, the overall GDP deflator of the euro area has *been 1.4% compared to 2.2% in the US.*
- Finally, the euro and the dollar being the two leading currencies in the world, they attract investors and therefore tend to appreciate beyond and above the level justified by underlying competitiveness indicators.
- Against this background, the euro may weaken vis-a-vis the US dollar due to:
- In short to medium term: an increase in the FED policy rates, with the ECB maintaining its very accommodative monetary policy, perhaps not even sterilizing its €165 billion of Securities Market Programme (SMP).
- In the medium term: the planned €400 billion of ABS purchase to revive credit,

increase internal demand, reduce both the current euro account surplus (or even generate a deficit) and the US current account deficit.

- In the longer term: an increase in euro area inflation rate, to get it closer to ECB price stability target of (close to) 2%.

1. EXCHANGE RATE DETERMINATION

According to standard macroeconomic theory, the relative equilibrium level of two currencies is the result of short, medium and long factors as follows:

In the short term, under perfect substitutability between domestic and foreign assets and excluding the risk factor, the relative value of two countries moves in tandem with the relative interest rate differentials until the expected investment returns in both countries is the same. This is called the "interest rate parity" (IP) condition (Jacob Frenkel and Richard Levich (1981).

The "interest rate parity" condition implies that the expected return on domestic assets will equal the exchange rate-adjusted expected return on foreign currency assets. In such a situation, investors cannot earn arbitrage profits by borrowing in the country with the lower interest rate, convert the outstanding amount in a foreign currency and invest it in the country with the higher interest rate.

There are two forms of "interest rate parity": the "uncovered interest rate parity" (UIP) refers to the parity condition in which exposure to foreign exchange risk (unanticipated changes in exchange rates) in unconstrained. The "covered interest rate parity" (CIP) refers to the condition in which forward contracts have been used to cover the exposure to exchange rate risk.

In the medium term, the relative value of two countries currencies move in tandem with the respective current account balance positions (CAP). The country with a weaker current account position tends to have a weaker currency (Edwards, 1989). The country with a current account deficit and with limited foreign currency reserves at its disposal may be forced by financial markets to depreciate its currency or, alternatively, to have a sharp reduction in its domestic demand, through an internal devaluation. By contrast, the country with a current account surplus will tend to experiment an appreciation of its currency (Krugman, (1979 and 1999)).

In the long term, the relative value of two countries tends to reflect their inflation differentials. That is, a bundle of goods in one country should cost the same in another country after exchange rates differentials have been accounted for. This is known as the absolute or relative Purchasing Power Parity condition (PPP). The country with the higher inflation will see its currency to lose value and the country with the lower inflation will see its currency to appreciate. According to Rudiger Dornbusch (1985) "This theory has the same status in the history of economic thought as the Quantitative Theory of Money".

The Absolute Purchasing Power Parity (APPP) is derived from the basic idea of the "law of one price", which states that the "real" price of a good, i.e. once inflation has been taken into account, must be the same across all countries. APPP maintains that the exchange rate between two currencies should be identical to the ratio of the two countries' price levels, provided that the goods in each country are freely tradable and the price index in both countries refers to the same basket of goods.

The Relative Purchasing Power Parity (RPPP) relates the change in the two countries' expected inflation rates to the change in their exchange rates as inflation reduces the real purchasing power of a currency. The higher the inflation rate, the lower the RPPP of the currency.

The Interest Rate Parity (IP) and the Purchasing Power Parity (PPP) are similar: The IP is expected to hold when there is no arbitrage opportunity in financial markets, while the PPP is expected to hold when there is no arbitrage opportunity in the goods markets. As financial assets prices adjust to new information more quickly than goods prices do, IP theory works well in the short run and PPP works well in the long run. Irving Fisher (1933)

was the first economist to establish the theoretical relationship between inflation and the real interest rate. One problem with the PPP theory is that the quality of goods is hard to measure, but significant progress of this matter has been made recently (Horn, 2008).

Besides these three key drivers of exchange rate determination, there are at least 3 other factors that investors look at. First, the levels of public debt matter. Countries with very large levels of public debt relative to GDP are less attractive to foreign investors, because large accumulated debts are often paid either through either higher inflation and or financial repression, often socially painful. This is why the rating agencies keep a permanent eye on countries' debt levels. In 2013, the general government consolidated debt in the euro area was 95% of GDP versus 104.5% of GDP in the US. Second, the "terms of trade", that is, the ratio between export prices and import prices matters as well. In a nutshell, the currency value falls when imports keep growing faster than exports and vice versa, i.e. when the current account position deteriorates (mentioned in the previous section). Finally, the relative economic growth of a country is also an important factor to decided whether to invest or not in (the currency of) a country.

2. THE EURO-DOLLAR EXCHANGE RATE SINCE THE BIRTH OF THE EURO

According to the ECB's euro-dollar statistical series, the level of the euro started at USD 1.18 (for 1 Euro) in 1999, reached its historical minimum in October 2000 (USD 0.825) and its historical maximum in July 2008 (USD 1.599), when the US banking crisis started.

During the financial crisis, the euro-dollar exchange rate has displayed large swings 1. In spite of these swings, the euro-dollar exchange rate has averaged USD 1.22 between its inception in 1999 and the start of the financial crisis (October 2008) and USD 1.34 between October 2008 and today. Overall, the euro has experienced a relative appreciation versus the dollar since its birth and, in particular, over the last 6 years.

3. EMPIRICAL EVIDENCE ON THE INTEREST RATE PARITY CONDITION

Meese and Rogoff (2003) have tested the forecasting accuracy of various structural and time series exchange rate models and found that "random walk" models perform as well as any estimated model at one to twelve month horizons for different exchange rates: the dollar-mark exchange rate, the dollar-pound exchange rate, dollar-yen exchange rate as well as the trade-weighted dollar exchange rate.

Chinn and Frankel (2005) have tried to find out, first, if a "world interest rate" exists and second, if the European Monetary Union (EMU) has influenced the traditional links between US and euro area policy interest rates. They did find that US nominal interest rates tend to drive euro area rates both at the short term and at the long term and the relationship is still far from symmetric, despite the creation of EMU. They also find that real US interest rates have a large influence on euro area rates and that neither German bond rates nor euro area rates appear to have a similar effect upon US rates. However, this US dominance is attenuating as EMU becomes deeper and stronger.

Another research on the same topic by Ehrmann, Fratszcher and Rigobon (2005) looks also at the financial transmission mechanism between the two largest economies and the two largest financial markets in the world: the US and the euro area.

The authors find that US short-term rates react mainly to developments in the US equity markets, with an increase in equity returns leading to higher short-term interest rates. In the euro area, by contrast, there is no significant relationship between equity markets and short-term interest rates. According to the authors this reflects the fact that US monetary policy is more responsive to financial market developments than the ECB monetary policy.

Furthermore, they find evidence of a much larger response of stock markets prices to changes in monetary policy in the euro area than in the US. Their evidence shows that a 100 basis points increase in domestic short rates leads to a fall in equity prices by around 0.75 percent in the US and by more than 2.0 percent in the euro area.

They find also evidence that a 100 basis points increase in US short term rates leads to 1.7 percent appreciation of the US dollar, whereas an equal increase in euro area short term rates produces a much larger appreciation, 5.7 per cent, in the euro-dollar exchange rate. One possible explanation is that the euro area is a more open economy compared to the US. Still, the difference in the point estimate is striking.

The authors also look at the international transmission of interest rates and find the importance of international spillovers, both within asset classes and across financial markets: shocks to US short-term interest rates exert a substantial influence on euro area bond yields and equity markets, affecting as much as 10% of overall euro area bond market. But the transmission of shocks also runs in the opposite direction, with short-term interest rates of the euro area having an impact, although not as large, on US bond and equity markets.

In sum, on average, about 26% of movements in the euro area financial assets are attributable to developments in the US financial markets, while only about 8% of US financial markets shifts are attributable to euro area financial market developments.

Short-term interest rates for the last 12 years have been, on average, the same in the euro area and the US (2.6%) but with some large yearly differences. Long-term interest rate for the same period have been, on average, slightly higher in the US than in the euro area (4.06% versus 3.87%).

4. EMPIRICAL EVIDENCE ON THE CURRENT ACCOUNT POSITION

Marcel Fratzscher (2007) has analyzed how US shocks are transmitted to the rest of the world and to Europe. His empirical findings show that the financial channel and the similarity in the business cycle are key factors, while the trade channel looks less important. Mainly, countries which hold, internationally, a relatively large size of portfolio-investment over GDP, both in equity and debt securities, see their exchange rates react more strongly to US shocks than those with little financial exposure.

There is a remarkably high degree of country-heterogeneity in the effects of US macroeconomic shocks on currencies. For instance, the Canadian dollar and the Mexican peso are found to be largely unresponsive to US shocks, while the euro and the Swiss franc are the currencies more affected by US shocks, showing the increasing importance of the euro. Due to its large size portfolio investment over GDP, both in equities and debt securities, the level of the euro is very sensitive to US shocks. According to Fratzscher, exchange rate movements may do little to adjust existing current account (im)balances, as about half of US trade is with countries which have inflexible exchange rate regimes (such as China) or are not highly integrated financially.

Marcel Fratzscher and Roland Straub (2010) analyze also the relationship between asset prices and current account positions estimating a Bayesian VAR for a set of 42 industrialized and emerging countries. They find that, after a 10% shock to domestic equity prices vis-à-vis the rest of the world, the US trade balance will worsen by only 1 percentage point, much less than most other economies, including the euro area.

The fact is that the US and the euro area are relatively closed economies: US (euro area) exports only account for 16% (13.2%) of GDP, while US (euro area) imports accounts for only 16.2% of US (euro area) GDP. By contrast, the US (non banking) financial market is much larger than that of the euro area: banks in the euro area account for almost 80% of the total financial market intermediation, compare to only 40% in the US.

Current account developments have generally favored the appreciation of the euro versus the dollar: Between 1995 until 2014 the euro area has displayed a current account surplus in all years except in 2000 and 2008. The euro area average surplus in the last 20 years has been 0.7% of GDP but the largest surpluses have taken place in the last three years with of 2.4% of GDP, mainly as a result of the large German current account surplus. By contrast, the US economy has displayed a current account deficit in every year since 1982, with particularly large current account deficits between 1995 to 2014, averaging 3.4% of GDP.

5. EMPIRICAL EVIDENCE ON THE PURCHASING POWER PARITY CONDITION

This historical increase in the value of euro-dollar exchange rate between 1999 and 2014 can be mostly explained in terms of purchasing power parity (PPP) relationship (Jean-Luc Proutat, 2013). Since 1999, the euro-dollar average value has tended to rise. At its introduction, the 1st of January 1999 the euro was worth 1.17 dollars and in May 2014

1.395 dollars. Since the first quarter of 1999, the US GDP deflator has been growing at an average pace of 1.9% per year, while the euro area GDP deflator has been growing at an average pace of 1.4% per year. Similarly, US consumer price index has risen 6.4 pps. faster than the euro area consumer price index. Accordingly, the PPP exchange rate equilibrium of the euro would be 1.21 dollars.

If US prices go up faster than euro area prices, euro area demand for US goods and services, i.e. the demand for dollars against euros, will tend to fall (in relative terms), leading to a fall in the relative value of the dollar vis-à-vis the euro.

That notwithstanding, the euro rebound in the last two years has much less to do with inflation differentials and more with investors realizing that the euro crisis was being dealt effectively, in particular that the ECB was successfully acting to avoid a Euro break up chiefly with the announcement of its Outright Monetary Transactions (OMT) programme.

Accordingly, euro-area government bonds returns have been falling steadily, mainly in the peripheral member states, while foreigners have started to buy euro area securities again. The reduction of risk aversion has then made possible the return of portfolio investment.

By contrast, the US Fed has not done much to prevent the fall in the dollar, maintaining interest rates close to zero lower bound and continuing its Quantitative Easing (QE) policy. Moreover, over the long term, the PPP argues for further increases in the euro-dollar exchange rates, because the monetary and fiscal-policy mix of the US is more inflationary-prone than that of the euro area.

6. THE ECB'S BAZOOKA

The recent important decisions taken by the ECB on June 5 2014 have contributed to weaken the Euro, from 1.395 to 1.353, as expected. The Main Refinancing Operation (MRO) rate has been lowered from 0.25% to 0.15% and the ECB has confirmed its "full allotment" procedure until 2016. Through the "interest rate corridor", the effect of the lower MRO rate has brought down the Deposit Facility (DF) from 0% to a negative -0.1%. The Marginal Lending Facility (MLF) rate has been cut from 0.75% to 0.40%. The end of the SMP sterilization programme is going to free as much as €165 billion of liquidity.

The creation of a Targeted Longer-Term Refinancing Operations (TLTROs) will inject another €400 billion into the financial market through an "Asset-Backed Securities (ABS) purchases program" to support lending to non-financial corporations and households.

The reaction to these ECB decisions had been anticipated by financial markets. However, financial markets did not expect the move to negative deposit rate and an ABS programme of that large size.

Illes and Lombardi (2013) have shown that, after all unconventional and exceptionally accommodative policy measures taken by the US, the euro area and Japan, the lower policy rates have not been fully transmitted to lending rates for households and non-financial firms. That is, the "interest rate pass-through" has been (still is?) largely impaired in the aftermath of the Great Recession: they show that in 2013 the difference between lending rates to the non-financial corporate sector and policy rates was close to pre-crisis levels in the United States and Germany, but remained much higher in peripheral euro area member states.

Hopefully, the new massive TLTRO will succeed in reducing lending rates further and boosting credit to SME's, in particular in the euro area periphery, thereby spurring growth. The combined effect of extremely low policy rates and massive liquidity injections are likely to weaken the euro and, therefore, also help the recovery via the export channel.

7. THE LEADING ROLE OF THE DOLLAR

Another important factor driving the exchange rate of the euro and the dollar is their international role. Investors, including central banks and sovereign wealth funds (SWF), not surprisingly hold large shares of their assets in world-leading currencies, to be used also currency hedges during financial crises.

While this strengthens the relative value of a currency, at the same time it hampers the country's competitiveness. According to Menzie Chinn and Jeffery Frankel (2008), the euro shall have overtaken the dollar as a leading international reserve currency as early as 2015. While this did not happen (mainly because of the financial crisis), dollar's role as an international currency has been declining since 1976: In 2013, the role of the dollar as a currency to hold foreign exchange reserves, to be used in financial transactions and as a vehicle for foreign exchange transactions was significantly lower than during the heyday of the Bretton Woods conference.

According to Frankel, this stems mainly from US large budget deficit and current account deficits and ensuing money creation since the Vietnam War. As a result the dollar has lost value in terms of other major currencies. Between 1992 and 2000 the downward trend was resumed and the dollar recovered to account for about 70% of foreign exchange reserves of central banks (up from 46%). But during the last decade, the share of international reserves held by central banks in dollars has come down from about 70% to 60%. In the foreign exchange market, the dollar share has also declined from 90% to 85%.

By contrast, the euro accounted for 28% of central bank reserves in 2009. Since then, the euro-share came down to about 24%. Nevertheless, the euro increased its weight in total foreign exchange reserves from 0 in 1999 to 37.9% in 2011 and currently stands at 33.4% (2013).

Attaining sound fiscal positions, making progress towards a political union and expanding the EU further both towards north and the east seem essential ingredients for the euro to increase its role as key currency in the world, going forward. In order to become a world leading currency, size and stability remain the dominant forces (de la Dehesa, 2008).

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