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Divergent monetary policies of the US Federal Reserve and the ECB: Implications for the euro area

IN-DEPTH ANALYSIS

Abstract

The monetary policies of the US Federal Reserve and the European Central Bank are likely to diverge substantially over the next several years. The Fed expects to normalize its policy and increase the monetary policy rate to approximately 3% over the next 2-3 years. Meanwhile, the ECB is likely to keep the rate close to zero and implement non-standard policy measures. The resulting interest rate differential is likely to weaken the euro and make euro area exports more competitive, thereby supporting economic activity and reducing deflationary risks. However, this positive effect may be limited if the Fed's monetary policy normalization increases financial instability in emerging market economies and if this normalization proceeds at a slower than expected pace.

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EXECUTIVE SUMMARY

- The US monetary policy is expected to normalize. According to the Fed, monetary policy interest rates will increase by approximately 1 p.p. in 2016 and will continue to gradually increase to approximately 3-3.5% in 2018 and beyond. Meanwhile, the ECB plans to continue asset purchases at least until March 2017 and is likely to keep policy interest rates near zero. As a result, the monetary policy of these two major central banks will diverge over the next few years. When we consider the so-called shadow rates, the divergence in monetary policy stances is likely to be sizeable even from a historical perspective.
- The international spillovers of US monetary policy are known to be sizeable, strongly affecting the euro area as well as emerging markets.
- The normalization of US monetary policy is likely to help the euro area strengthen its economic activity and decrease deflationary risks. The interest rate differential between the US and the euro area monetary policy rate is likely to make European exports more competitive via a weaker euro. A weaker euro would also contribute to higher import prices and would therefore reduce deflationary risks. All these effects depend on whether or not they are already fully priced in by the markets.
- On the other hand, the competitiveness gain for the euro area may be limited if the normalization of the Fed's monetary policy has a negative impact on financial stability in emerging markets. Dollar-denominated debt in emerging markets is often sizeable and, coupled with sudden capital outflows, makes these markets vulnerable. This vulnerability may have a negative effect on the global economy, including the euro area. The Fed hikes have been associated with financial turbulence in emerging markets in the 1980s and 1990s. In addition, a strong dollar may be one of the causes of the current low oil prices. Oil is priced in USD. In such a case, a weak euro may not help reduce deflationary risks because oil prices tend to fall at the same time.
- The recent economic-financial developments in China pose the risk that the normalization of the US Fed monetary policy will be slower than expected during the last monetary policy meeting of the Fed in December 2015. Normalization can also be slower if commodity prices are lower than expected. Slower than expected normalization of US monetary policy can even temporarily appreciate the value of the euro vis-à-vis the US dollar.

1. INTRODUCTION

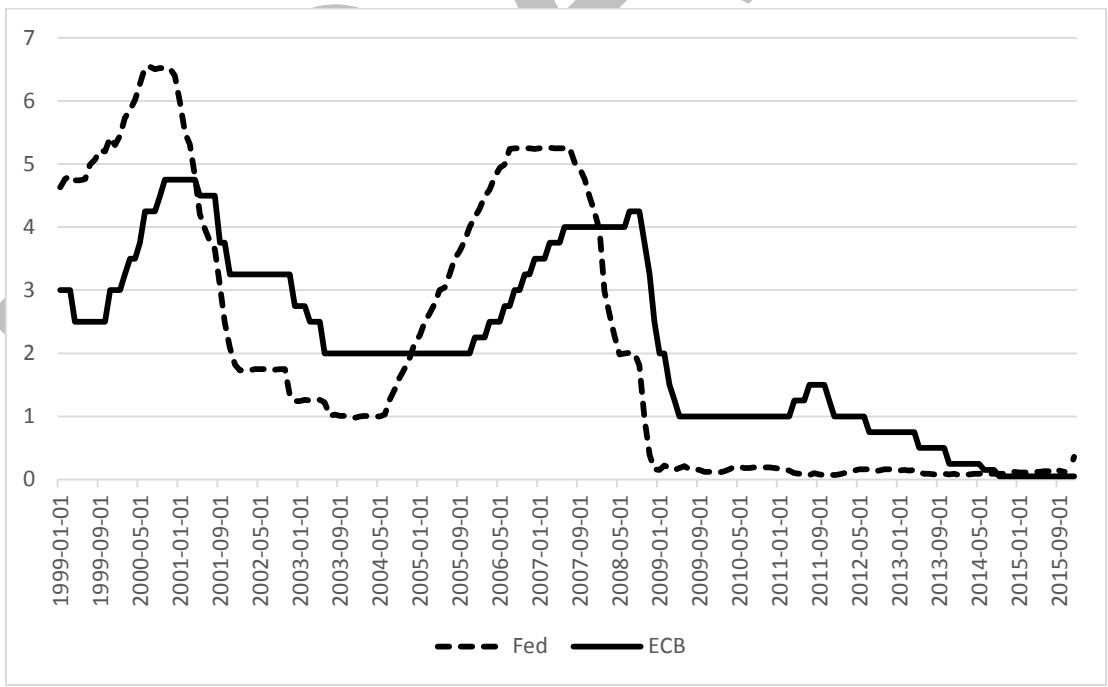
Following the outburst of the global financial crisis, central banks in developed countries decreased their monetary policy rates to zero or even to slightly negative territory. With rates close to a lower bound, central banks adopted various non-standard policy measures to help restore macroeconomic and financial stability.

Both the ECB and the Fed kept their monetary policy rates at very low levels during the financial crisis, as Figure 1 illustrates. As a result, their monetary policy rates moved closely in sync with each other. However, already in mid-2013, the Fed announced it would be "tapering" its unconventional policies (quantitative easing) and it made tapering conditional primarily on the performance of labour markets. The tapering ended in October 2014 and after a year of interest rate stability, it was followed by the federal funds rate hike in mid-December 2015.

On the other hand, on December 3rd, 2015, the ECB announced an extension of the ECB's asset purchases until at least March 2017 at the current rate of EUR 60bn a month as well a 10bp cut to its deposit rate.

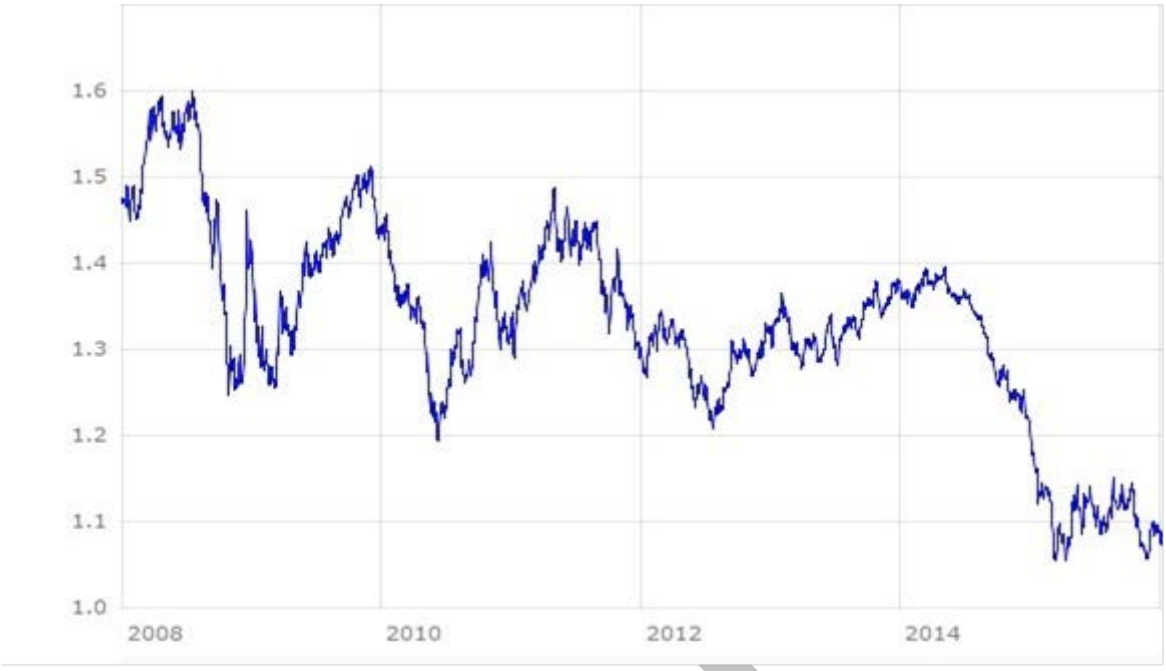
As a result, we observe a divergence in monetary policies between these two major central banks. Although this divergence is not distinguishable from Figure 1 yet, it is important to note that 1) Figure 1 does not include the forecast of monetary policy rates and 2) the official monetary policy rate in the zero lower bound environment does not capture the monetary policy stance appropriately (the official rate should be "adjusted" for non-standard policy measures). Once we consider these two aforementioned issues, the divergence between monetary policy stances is likely to become sizeable even from a historical perspective.

Figure 1: Monetary policy rates in the US and Euro Area



***Source*:** US Fed and ECB. Effective fed funds rate for the US. ECB main refinancing operations rate for the euro area.

Figure 2: EUR vs. USD exchange rate, January 2008-December 2015



Source: ECB (daily observations).

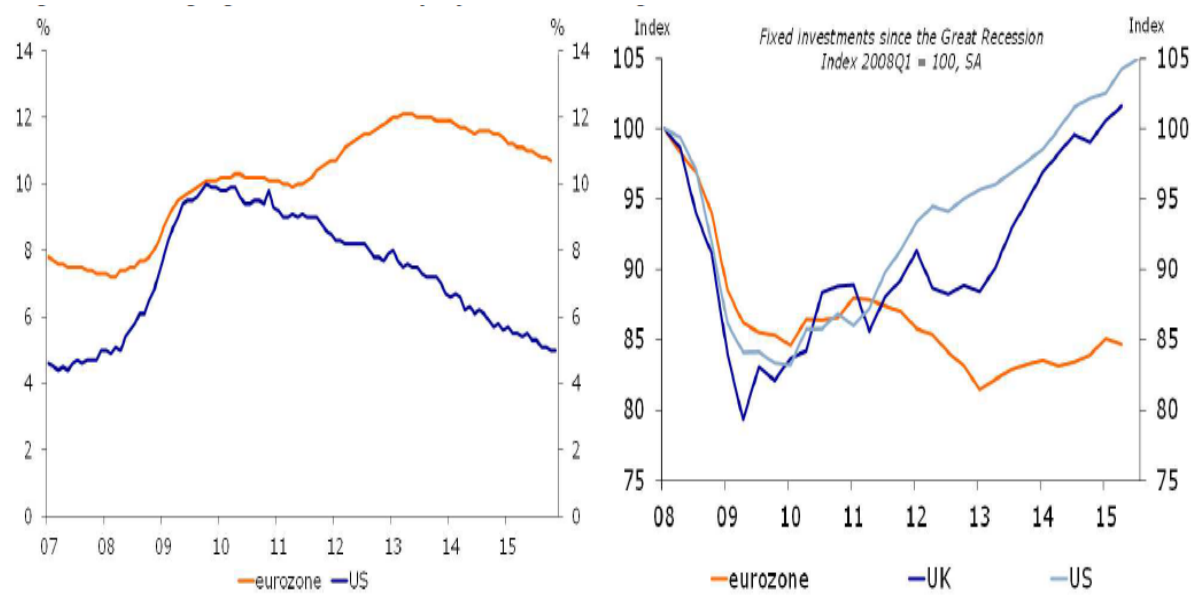
The exchange rate movements may also shed some light on monetary policy divergence. Figure 2 presents the USD/EUR exchange rate since the beginning of the global financial crisis. We observe a strong appreciation of the US dollar since March 2014, which has been primarily driven by pricing in the expectations about the US monetary policy normalization.

Why do we observe a monetary policy divergence between the Fed and the ECB? As Figure 3 illustrates, the divergence seems to largely reflect the differences in macroeconomic fundamentals. We choose two important indicators – unemployment and investments. The unemployment rate in the US has been falling since 2011 and is currently close to its pre-crisis level in 2007. On the other hand, the unemployment rate in the euro area has shown only weak improvement and remains higher than 10%. US investments also improved significantly, while the euro area investment activity has largely stagnated.

In addition, inflation rates in the US and the euro area have also diverged. While deflationary risks in the euro are not non-negligible with the HICP inflation rate close to zero, the PCE inflation rate in the US is positive and according to the Fed, it is expected to increase in 2016 well above 1%.

Figure 3: Diverging trends in the US and Euro Area fundamentals

Unemployment Investments



***Source*:** Eurostat. US BEA. Rabobank.

This report argues that the normalization of the Fed's monetary policy is likely to help the euro area strengthen economic activity and decrease deflationary risks. The interest rate differential between the US and the euro area monetary policy rate is likely to make European exports more competitive because of a weaker euro. A weaker euro contributes to higher import prices in the short-run and therefore, reduces deflationary risks (obviously, improved economic activity in the euro area over the medium-term may generate inflation as well). All these effects depend on whether or not they are already fully priced in by the markets.

On the other hand, the competitiveness gain for the euro area can be limited in case the normalization of the Fed's monetary policy has a negative impact on financial stability in emerging markets. Dollar-denominated debt in emerging markets is sizeable and makes these markets vulnerable, which may have a negative effect on the euro area economy.

The recent economic-financial developments in China increase the risk that the normalization of the Fed's monetary policy will be slower than expected in December 2015, i.e. at the time of the last monetary policy meeting of the Fed. Normalization may also be slower if commodity prices are lower than expected. Slower than expected normalization of US monetary policy can even temporarily appreciate the value of the euro. In addition, some argue that a strong dollar causes low oil prices. In such a case, deflationary risks in the euro area will not be reduced by a strong dollar.

The rest of this report is organized as follows. Section 2 is a survey of relevant literature examining the international spillovers of the US and the EC's monetary policies. The US monetary policy outlook is discussed in Section 3 and the implications of US monetary policy normalization for the euro area are examined in Section 4. Section 5 concludes.

2. WHAT DO WE KNOW ABOUT INTERNATIONAL SPILLOVERS OF MONETARY POLICY?

This section offers a brief overview of the existing empirical evidence on the international spillovers of monetary policy, with a focus on the international spillovers of US monetary policy but several studies examining the international spillovers of ECB monetary policy are also mentioned. All relevant studies are not covered; rather, some representative studies are used to illustrate the likely nature of international spillovers of monetary policy.

2.1. International spillovers of the US Fed monetary policy

There is extensive empirical evidence suggesting that the international spillovers of the Fed's monetary policy are sizeable (see, for example, Georgiadis, 2015, for a recent contribution). Earlier empirical evidence has focused on examining the effects of conventional US Fed monetary policy (the term conventional means the policy conducted through changing the fed funds rate and not through the non-standard policy measures such as quantitative easing) as described in Kim (2001), Mackowiak (2006) or Neri and Nobili (2010). As the US Fed introduced unconventional monetary policy, such as the aforementioned quantitative easing, during the global financial crisis, new empirical literature emerged examining the international spillovers of both conventional and unconventional monetary policy [(Fratzscher et al. (2013), Bauer and Neely (2014), Chen et al. (2015), Neely (2015)] . Since the primary focus of this report is examining the effect of the normalization of US monetary policy on the euro area, it looks at the international spillovers of conventional US monetary policy and refers to the above references on the international spillovers of unconventional US monetary policy.

This stream of empirical research typically employs some kind of vector autoregression (VAR) model. The VAR models are useful because they can jointly analyse the interdependence among economic series and examine the nature of how one economic series reacts to a surprise (shock or unexpected change) in the other series. Therefore, one can obtain estimates of how strongly and how long it takes for one series to affect the other series. There are several types of VAR models such as block-restriction VAR or global VAR, which are typically applied to examine the economic interactions among countries.

Kim (2001) examines the international effects of US monetary policy shocks and finds that US monetary expansion typically has a positive spillover effect on real GDP and industrial production in developed countries with a lag of approximately 1-2 years.

Neri and Nobili (2010) investigated the effects of US monetary policy on the euro area economy using the two-country structural VAR model with data from 1982-2007. Their results suggest that an unexpected increase in the fed funds rates depreciates the value of the euro relatively quickly. Economic activity in the euro area is strengthened after the Fed implements monetary tightening, with the maximum reaction taking place approximately one year after the shock.

Obviously, empirical research does not focus solely on the international spillovers of the Fed's monetary policy on macroeconomic fluctuations. There is also research examining the international effects of US monetary policy on asset prices. Ehrmann and Fratzscher (2009) offered an important contribution. They assessed to what extent the Fed tightening affects stock markets around the globe. Not surprisingly, their results suggest that the reaction of stock markets is quite heterogeneous across countries. Overall, the results indicate that a tightening of monetary policy by the Fed by 1 p.p. is associated with a 2.7% fall in stock markets outside of the US.

2.2. International spillovers of the ECB monetary policy

In the literature, there is (somewhat limited) evidence on the international spillovers of ECB conventional and unconventional monetary policy.

Horvath and Rusnak (2009) examined the effect of ECB monetary policy on Slovakia in 1999-2007. They used the data from the period prior to Slovakia entering the euro area and estimated the block-restriction VAR model. They documented very strong spillovers of ECB monetary policy on Slovak economic activity and prices. The maximum reaction of Slovak prices to changes in ECB monetary policy rates occurs with a lag of approximately 6 months. The reaction of Slovak output to ECB monetary policy is somewhat slower and occurs with a lag of approximately 1 year. The reaction of Slovak prices is economically stronger than the reaction of output. The results suggest that ECB monetary policy caused about 20% of the variation in prices in Slovakia (before Slovakia adopted the euro) and approximately 5% of the variation in output. The authors hypothesize that the weaker effect on output was caused by the reforms undertaken in Slovakia during that period, i.e. high Slovak growth was largely driven by domestic factors.

Once the ECB introduced non-standard policy measures during the crisis, a large volume of research appeared examining the effect of ECB measures on the euro area economy or European financial markets. However, there is somewhat limited research on the international spillovers of ECB unconventional monetary policy.

To our knowledge, the first study examining the international spillovers of ECB unconventional monetary policy was by Kucharcukova et al. (2014). The authors investigated the effects of ECB policy on the Central European countries (the Czech Republic, Hungary and Poland), which did not adopt the euro as their official currency, and three euro “opt-out” countries (Denmark, Sweden and the UK). Kucharcukova et al. (2014) developed a monetary conditions index for the ECB, which they dinto a conventional monetary policy component and an unconventional monetary policy component. They estimated VAR models for each country individually. Their results suggest that conventional ECB monetary policy has a systematic effect on economic activity and prices in the Central European and “euro opt-out” countries. Regarding the international effects of unconventional ECB monetary policy, the results are somewhat mixed. There is a clear effect on the exchange rate following the ECB unconventional monetary policy shock. Output reacts in some countries but prices remain largely unaffected.

Halova and Horvath (2015) also examined the international spillovers of ECB unconventional monetary policy. They used the ECB shadow policy rate from Wu and Xia (2016) and central bank assets to assess the intensity of ECB unconventional monetary policy. Unlike Kucharcukova et al. (2014), they estimated the panel VAR model (including all the countries jointly in the regression model) and they focused on a wider set of Central and Eastern European countries (Croatia, the Czech Republic, Hungary, Poland and Romania). Their results suggest that, overall, the output and prices in Central and Eastern Europe temporarily increase following the implementation of an expansionary unconventional monetary policy by the ECB. This implies that the ECB monetary policy has also been beneficial for countries outside the euro area, as it has helped improve economic activity and reduce deflationary risks. The reaction of Central and Eastern European countries to the changes in ECB unconventional monetary policy is more sizeable for output than for prices. Their results indicate that ECB unconventional monetary policy explains approximately 10% of output fluctuations in the five aforementioned Central and Eastern European countries and the maximum reaction occurs approximately one year after the ECB unconventional monetary policy shock. The reaction of prices is economically small.

Overall, empirical research examining the international effects of the US Fed or the ECB suggests that international spillovers of monetary policy are strong among countries which are integrated financially and by trade. On average, empirical research suggests that once the Fed or the ECB undertake some changes in their monetary policies (such as the unexpected increase in their monetary policy rates), the maximum impact on other countries' output and prices is approximately with a lag of one year.

3. US MONETARY POLICY OUTLOOK

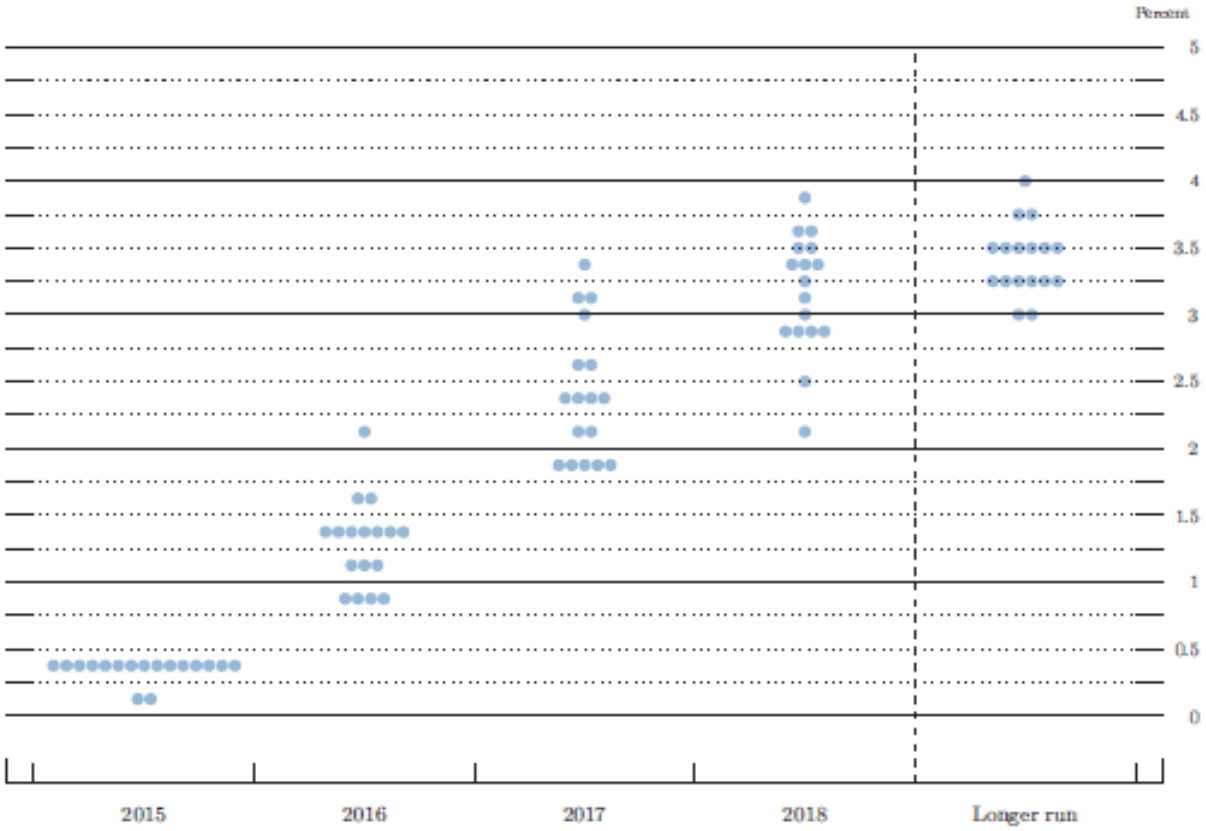
On December 16th, 2015, the Federal Open Market Committee (FOMC) decided to increase the target range for the federal funds rate by ¼ p.p., thereby raising the target range for the federal funds rate to ¼-½ percent. The increase in monetary policy rates was expected, to a large extent, since the Fed had been communicating for several months that the era of "zero" policy interest rates was coming to an end. As a result, the EUR/USD rate practically did not change following the announcement of the US Fed interest rate hike.

In addition, the Fed communicated that they expected a gradual increase in the monetary policy rate in future. According to their expectations, this gradual increase is consistent with bringing the inflation rate to the 2% objective over the medium term. The main argument to gradually increase monetary policy interest rates to the "normal" level is a significant improvement in US labour market conditions (with a strong job growth in late 2015). The Fed currently expects the US unemployment rate to stay below 5% for the upcoming years, accompanied by solid economic activity (real GDP is expected to grow at 2-2.5% on average in 2016-2018). Additionally, the Fed expects US inflation (personal consumption expenditures inflation) will gradually increase from close to zero to the 2% objective. The Fed expects the US inflation rate to be 1.7% in 2016.

Figure 3 displays the expected US monetary policy rates for 2016, 2017, 2018 and beyond. The figure is based on the assessment of appropriate monetary policy by the individual Federal Open Market Committee (FOMC) members. The figure was released on December, 16th, 2015 during the last US Fed monetary policy meeting. It is worth noting that vis-à-vis the previous monetary policy meeting, which took place in September 2015, the Fed's expectations about monetary policy normalization remained largely unchanged. Interestingly, according to Figure 3, the Fed is much more hawkish in terms of tightening their monetary policy which is what the markets expect. The implied fed funds rate (based on Fed funds futures) is much lower that what is portrayed in Figure 3. According to the markets, the implied rate is below 2%, therefore, the markets expect a slower pace of tightening than the Fed.

Figure 3: Expected federal funds rate:

Assessment of individual FOMC Members



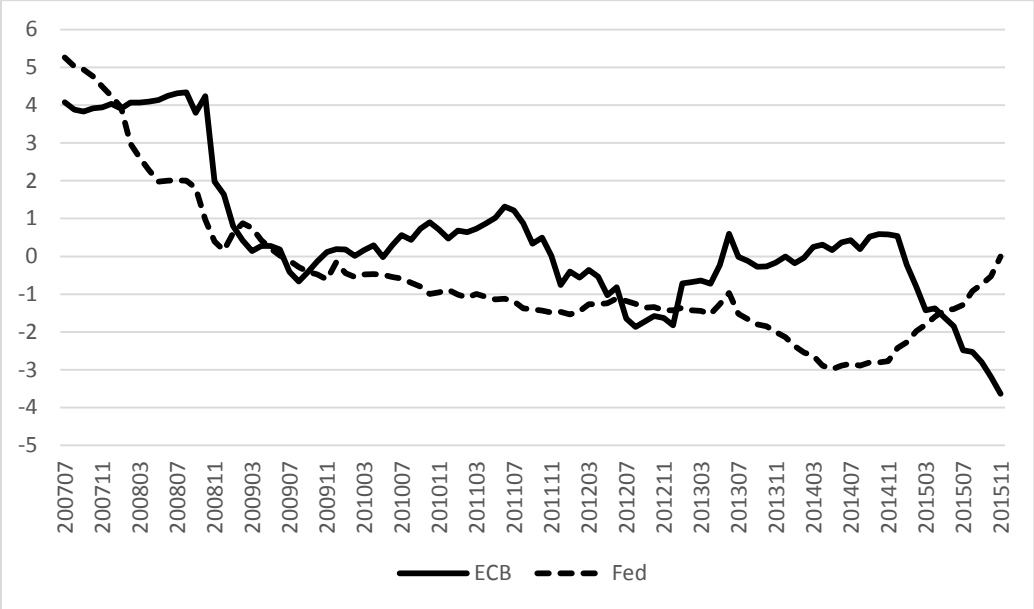
***Source*:** US Fed. FOMC members' assessment of appropriate future monetary policy in the US. Midpoint of target range or target level for federal funds rate. Expectations as of December, 16, 2015.

4. MONETARY POLICY DIVERGENCE: IMPLICATIONS FOR THE EURO AREA

4.1. Will the monetary policy divergence be large?

It is worth discussing how large the monetary policy divergence between the Fed and the ECB is likely to be. Will the divergence be large even from a historical perspective? If we simply examine the expected difference between the Fed and ECB monetary policy rates, the difference looks sizeable (approximately 2-3p.p.) but not dramatic, considering what these central banks have experienced in the recent past.

Figure 4: Shadow rates (in %) in the US and Euro Area



***Source*:** Website of professor Cynthia Wu at http://faculty.chicagobooth.edu/jing.wu/research/data/WX.html

However, the monetary policy divergence is stronger once we consider that the ECB still employs non-standard policy measures, while the Fed no longer uses them. As a result, the difference in the monetary policy stance of the Fed and the ECB is larger than the monetary policy rates imply. Wu and Xia (2016), among others, estimate the so-called shadow rate, which assesses the monetary policy stance in an environment of zero lower bound on interest rates. The shadow rate is based on a non-linear term structure model. The benefit of the shadow rate is that it is not bound by zero. In addition, the shadow rate largely coincides with the official monetary policy rate, if this rate is above zero. The 'shadow rate' concept has become quite popular among central banks (for example, the Federal Reserve Bank of Atlanta posted and regularly updated the shadow rate for the US).

The shadow rate may illustrate the monetary policy divergence between the Fed and the ECB more accurately. I present shadow rates for the US and the euro area in Figure 4. According to the estimates, the monetary policy divergence is likely to be even larger than the official monetary policy rates. The monetary policy divergence is likely to be large in 2016-2018 even from a historical perspective, if the normalization of the Fed's monetary policy continues at the expected pace and at the same time the ECB maintains its unconventional policies.

4.2. What are the implications for the Euro Area?

The monetary policy divergence between the Fed and the ECB is likely to have temporary positive effects for the euro area in terms of improved economic activity and reduced deflationary risks. We have already observed a strong USD appreciation, especially in 2014. A weaker euro is likely to boost the competitiveness of the euro area exporters (approximately 20% of the euro area exports go to the US). A weaker euro will also increase the price of imports, thereby reducing deflationary risks in the euro area.

The positive effects for the euro area stemming from monetary tightening in the US will be weakened in the case that US monetary policy tightening will have a significantly negative effect on US economic activity. Nevertheless, most experts seem to expect that the first effect will dominate and that a weaker euro will contribute to more exports to the US and subsequently, to more solid economic activity in the euro area and to an inflation rate closer to what the ECB considers as price stability. However, this positive effect will be temporary. Most empirical research on the domestic and international transmission of monetary policy finds that the maximum impact of monetary policy surprises (shocks) occurs approximately one year after the shock (see Neri and Nobili, 2010, among others). Although we know that these transmission lags can vary across countries and over time, the average of one year seems to be reasonable.

Nevertheless, it is important to emphasize that the expectations about the future fed funds rate increases are largely priced in by the financial markets. As a result, if the Fed increases the rate at a significantly slower than expected pace, the euro may temporarily appreciate vis-à-vis the USD and competitiveness gains from a weak euro will be reaped only partially or not at all. Similarly, financial markets also form expectations about the intensity of non-standard policy measures of the ECB. If the intensity is weaker than expected, it may also result in the appreciation of the euro.

4.3. What are the risks?

The main risk for the euro area and potentially for the global economy is that the Fed's monetary policy normalization will contribute to greater financial instability in emerging market economies. Many of these economies are moderately or strongly indebted and rely on external financing, with their debt often denominated in the US dollar.

We have already observed in the past that a strong appreciation of the USD has been associated with a number of financial turbulences in emerging markets such as the Mexican peso crisis in 1994, the Asian financial crisis in 1997, the Brazilian currency crisis in 1999 and the Argentine economic crisis in the early 2000s. Typically, financial turbulence in emerging markets is spurred by (sudden) capital outflows following monetary policy rate increases in the US or other developed countries. Even though the economic fundamentals in emerging markets are in better shape nowadays than two decades ago, the current developments in the Chinese stock market suggest that the risks are pertinent. Similarly, we have also observed non-negligible capital outflows, exchange rate depreciations and stock market declines in major emerging markets at the time the Fed announced its plans to taper in 2013 (Kawai, 2015). On the other hand, the increased financial instability in emerging markets can be compensated in the medium-term by improved export dynamics from emerging markets to the US (this is due to a stronger dollar and improved economic activity in the US). Therefore, if these risks should materialize, one can expect that the financial channel will dominate in the short-term, while the trade channel may dominate in the medium-term.

The MSCI Emerging Markets Index documents the expectations of a worsening of economic performance in emerging markets in late 2015 and early 2016 (see Figure 5). This stock market index covers 23 emerging markets (such as China, India, Brazil, Russia, Indonesia or South Africa). The greatest weight in the index – approximately ¼ - is formed by China, followed by South Korea, Taiwan, India, South Africa and Brazil. This stock market index illustrates how the worsening of economic and financial conditions in emerging markets is relatively dramatic. In addition, the uncertainty about future economic developments is also well illustrated by the stock market trading being recently halted several times in the Chinese stock market.

An additional risk may be related to the EUR/USD exchange rate and oil prices interactions. Oil is traded in US dollars. A strong dollar causes higher oil prices for the euro area, which may reduce demand for oil in the euro area and subsequently lower oil prices. In this scenario, a strong dollar will not help reduce the deflationary risks in the euro area (as described in the previous paragraph), as a strong dollar will be associated with low oil prices. Nevertheless, some argue that the dramatic fall in oil prices has been primarily caused by supply factors such as an unwillingness by the Organization of the Petroleum Exporting Countries to reduce the supply of oil rather than the demand factors described in this paragraph. Davig et al. (2015) provide an interesting overview of recent oil price developments and the likely causes of oil price volatility.

In addition, there is also a risk that medium and long-term rates in the euro area will increase along with the US rates such that the domestic (euro area) rate would be disproportionally sensitive to global or US conditions. Nevertheless, this "financial contagion" hypothesis is less relevant in comparison to the risk that US monetary policy normalization would result in higher financial instability in emerging markets.

Figure 5: MSCI Emerging Markets Stock Index

***Source*:** Financial Times.

More generally, the risks associated with US monetary policy normalization can be somewhat mitigated with transparent and clear central bank communication so that markets are not surprised by the timing or pace of US monetary policy normalization and therefore can gradually adjust to the new steady state without excessive volatility.

CONCLUSIONS

In this report, I analysed the monetary policy divergence between the Fed and the ECB and examined the implications of this divergence for the euro area economy.

The monetary policy stances between the Fed and the ECB already differ and are likely to differ much more in the future. The Fed is expected to normalize its monetary policy, i.e. it will not keep the fed funds rate near zero but will increase to a more "normal" long-term equilibrium level. The Fed currently expects to increase the fed funds rate by approximately 1 p.p. in 2016 and to gradually increase it to approximately 3-3.5% in 2018 and beyond. On the other hand, the ECB expects to continue asset purchases at least until March 2017 and is very likely keep policy interest rates near zero. As a result, the monetary policy rates are likely to differ sizeably.

However, to properly account for the differences in the monetary policy stance of the Fed and the ECB, one should also consider the fact that the ECB continues to apply non-standard policy measures. It is useful to compare the so-called shadow rates between the Fed and the ECB. The shadow rate largely coincides with the official monetary policy rate, if the rates are above zero and no non-standard measures are applied. The shadow rate provides a reasonable assessment of the monetary policy stance in the zero lower bound environment, as it is not bound by zero. Once we consider the empirical estimates of the shadow rates of the Fed and the ECB, we observe that monetary policy divergence is even larger as compared to the official monetary policy rates. Therefore, the monetary policy divergence between Fed and the ECB is likely to be sizeable even from a historical perspective.

As the monetary policy divergence between the Fed and the ECB is likely to be large, the question is how strongly will Fed hikes affect the euro area economy. The available empirical research suggests that the international spillovers of the Fed's monetary policy have a substantial effect on macroeconomic and financial conditions both in the euro area and in emerging markets.

The normalization of the Fed's monetary policy is likely to temporarily support the euro area economy by strengthening economic activity and reducing deflationary risks. The Fed's tightening is likely to weaken the euro, making euro area exports more competitive. A weaker euro can contribute to higher import prices and may therefore increase the probability that euro area inflation will be closer to what the ECB considers 'price stability' (i.e. the inflation rate is below but close to 2%). Obviously, the functioning of an exchange rate channel to generate positive effects for the euro area economy depends on whether they are already fully priced in by the markets. For example, an unexpected slowdown of US monetary policy normalization may well even temporarily cause the euro to appreciate.

The economic and financial difficulties in emerging markets, especially those recently observed in China, may significantly weaken the positive effects of US monetary policy normalization for the euro area economy. The Fed may slow down monetary policy normalization and simultaneously, the demand for euro area exports to emerging markets may weaken. In addition, a strong dollar may be one of the causes of low oil prices. If this is true, then a weak euro will not contribute to reduced deflationary risks because oil prices will fall at the same time.

More generally, sizeable international spillovers of domestic central bank actions and non-negligible monetary policy divergence among major central banks suggest that monetary policy coordination might be beneficial during volatile times.

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