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**THE IMPACT OF THE NORMALIZATION
OF THE ECB'S MONETARY POLICY**

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Abstract

After a decade of historically unprecedented low interest rates and an extraordinarily accommodative monetary policy, recent developments point towards a normalisation of the monetary policy in the euro area. Even though a rate hike, which would markedly enlarge the ECB's monetary policy leeway, is unlikely to materialise before Q3 2019, Q4 2018 will see the ECB tapering its asset purchase programmes, which, at the time of writing, amounted to roughly two and a half trillion euros. Following an analysis of the status quo, this paper seeks to analyse the impact the forthcoming normalisation ECB's monetary policy could have on the monetary union's equity, fixed income and foreign exchange markets, among others.

Key Words: monetary policy, normalization, tapering, quantitative easing, inflation

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1. Introduction: Tentative Signals of a Normalization

In September 2008, investment bank Lehman Brothers collapsed as a result of the US subprime crisis. Global financial markets were hit by spill over effects in an unprecedented manner. In the Eurozone, bailouts of several banks favoured the outbreak of the European sovereign debt crisis, whose impact on (fixed income and foreign exchange) markets still is clearly visible today. Merely one year later, in 2009, the Eurozone entered recession: gross domestic product (GDP) shrank by 4.50% in 2009 compared to the previous year. The European Central Bank (ECB) reacted to this development with an unprecedented cut in its main refinancing rate from 4.25% in July 2008 to initially 1.00% in May 2009. Since March 2016, the main refinancing rate has firmly remained at 0.00%. Real and nominal interest rates have reacted accordingly (Fig. 1).

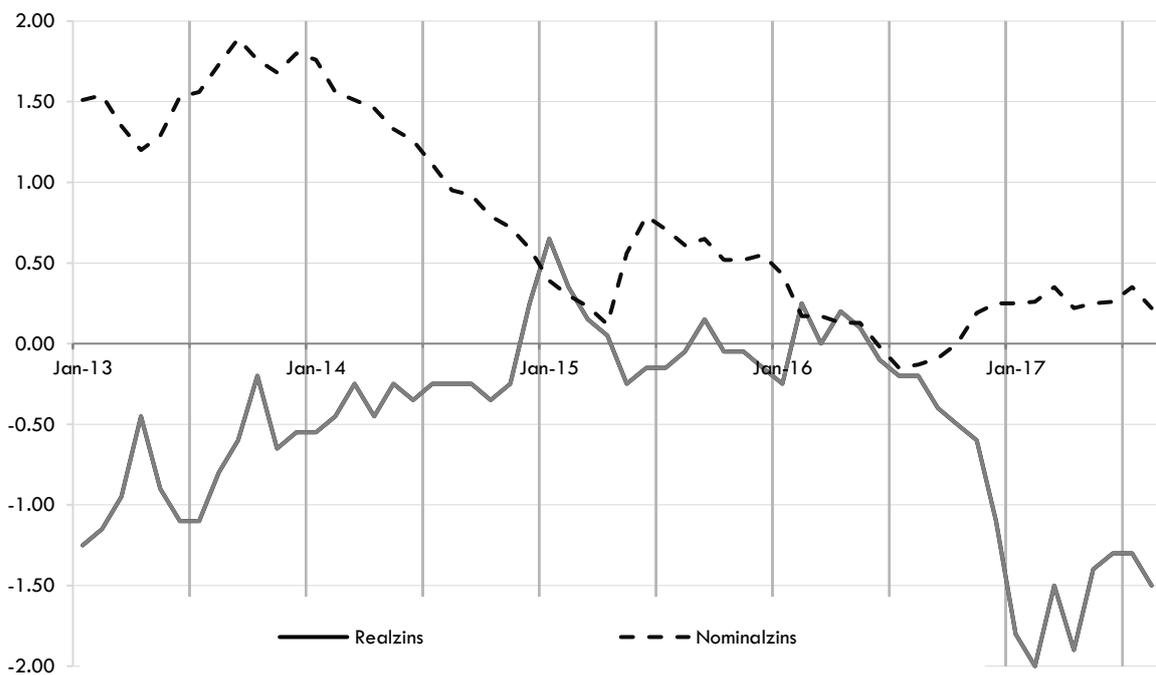


Figure 1: Real and nominal interest rates in the Eurozone

Source: Deutsche Bundesbank, 2018

Now, after nearly a decade of historically low interest rates and an exceptionally expansionary monetary policy, signs of a normalization of the monetary policy in the Eurozone seem to be punting. Yet, any such development remains subject to considerable uncertainty.



Nonetheless, in mid-June 2018, the ECB announced that “The Governing Council anticipates that, after September 2018, subject to incoming data confirming the Governing Council’s medium-term inflation outlook, the monthly pace of the net asset purchases will be reduced to €15 billion until the end of December 2018 and that net purchases will then end.”

Even though a tapering of the ECB’s Quantitative Easing (QE) policy is thus set to commence in the months ahead, this should not be mistaken for a complete normalization of monetary policy.

2. Tapering Ahead

The introductory remarks of the ECB’s press conference on June 14th, 2018 stated: “the Governing Council decided that the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 0.00%, 0.25% and -0.40% respectively. The Governing Council expects the key ECB interest rates to remain at their present levels **at least through the summer of 2019** and in any case for as long as necessary to ensure that the evolution of inflation remains aligned with the current expectations of a sustained adjustment path” (see ECB, 2018).

In other words, as long as HICP inflation in the Eurozone, i.e. the development of the Harmonized Index of Consumer Prices, is not in line with the ECB’s target of “below, but close to, 2.00% over the medium term” (see ECB, 2017b), it cannot be taken for granted that its ultra-accommodative monetary policy will be terminated. Whereas, in May 2018, the latest date for which data were available, HICP inflation increased by 1.90% compared to the same month last year, core inflation, i.e. inflation, which is adjusted for goods that are subject to strong, spontaneous price fluctuations (typically food and energy, see Deutsche Bundesbank, 2000), increased by merely 1.10% (Fig. 2).

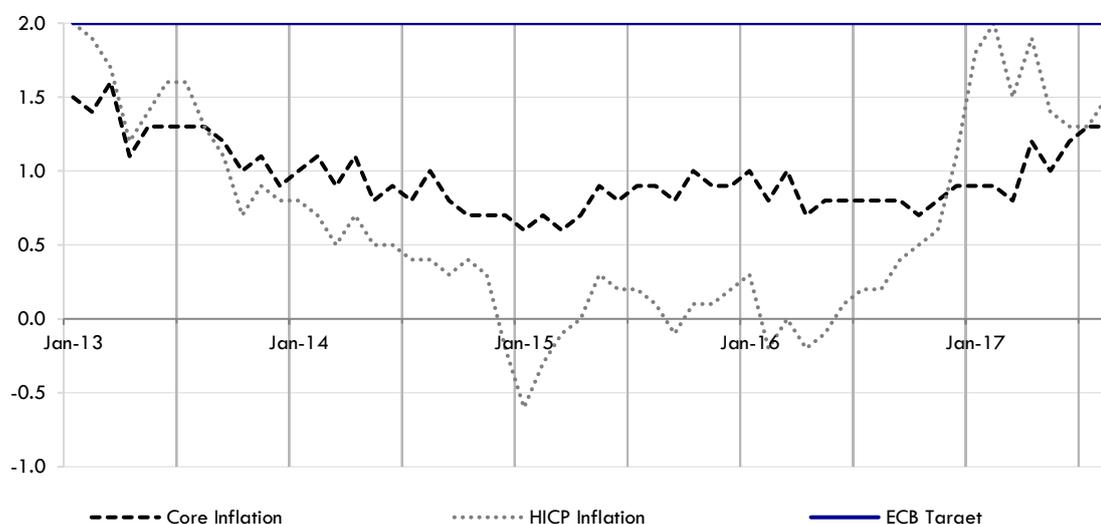




Figure 2: Annualised Eurozone core and HICP-inflation (in %)

Source: Eurostat, 2018

However, should HICP inflation stabilize near its "below, but close to, 2.00% over the medium term" target over the coming months, and should economic recovery in the Eurozone gain further momentum, the ECB is poised to end its asset purchase programs, APP, which at the end of May 2018 totalled as much as € 2,432 bn (see ECB, 2018c). This would be a first step towards normalizing monetary policy.

Nevertheless, the monetary policy decisions of the ECB provide for a high degree of flexibility. "If the outlook deteriorates or if financing conditions are no longer consistent with further progress towards a sustainable correction in inflation, the Governing Council is ready to expand the program in terms of size and / or duration "(See ECB, 2017a). So an end to the ultra-accommodative monetary policy should not be taken for granted - especially if inflation expectations in the Eurozone continue to surprise on the downside and remain (well below) the ECB's expectations in the coming months.

From the point of view of many market participants, a reduction in asset purchases is as inevitable as it is overdue (see Financial Times, 2016). The ECB would otherwise face regulatory hurdles when it comes to buying additional government bonds, most notably Bunds. From mid-2018 onwards, it could come up against its own limit on purchases (usually not more than 33% of issuer bonds issued) (see ECB, 2017d). In addition, there already has been a noticeable decline in the liquidity of Eurozone fixed income markets for quite some time (see Financial Times, 2016); affecting trade to a noticeable extent.

Further supporting the notion of a tentative normalization of the ECB's monetary policy can be derived from the development of the Euro Overnight Index Average (EONIA), i.e. the average interest rate for overnight money in the euro interbank market calculated on the basis of actual transactions. Before the ECB's Governing Council's mid-June 2018 meeting, numbers suggested that market participants had expected two increases of 10bp each in the ECB's deposit rate to -0.2% from -0.4% for 2018 (see Financial Times, 2018). Although this might initially appear to be of little more than secondary importance, it features a high relevance especially for commercial banks based in the Eurozone, as any such would effectively halve the "penalty", which is currently payable on overnight money. In other words: banks would no longer need to pay 40bp for their short-term deposits (overnight deposits) with the ECB, but only 20bp. However, speculation that this has led to a lasting change in bank lending is premature. And



even if a gradual adjustment of the deposit facility is a step in the right direction, it remains too early to speak of a normalization of the monetary policy of the ECB.

3. High Inflation Rates as Relict of the Past?

Among the targets envisaged by the ECB's very accommodative monetary policy is to bring the inflation rate in the Eurozone to "below, but close to, 2.00% over the medium term" (see ECB, 2017b). From a strictly Monetarist perspective, however, this is only a matter of time: the sharp increase in the money stock (measured by the monetary aggregate M3, for example) will inevitably stimulate an increase in inflation. According to the Monetarist view, inflation is always and everywhere a purely monetary phenomenon: "It (inflation) is and can only be produced by a faster increase in quantity of money than in output" (Friedman, 1970). However, the above statement cannot be (fully) verified empirically by current Eurozone developments. The correlation coefficient between M3 growth and Eurozone HICP in between 2015 and today (both in per cent) amounts to merely 0.22 (see Fig. 3).

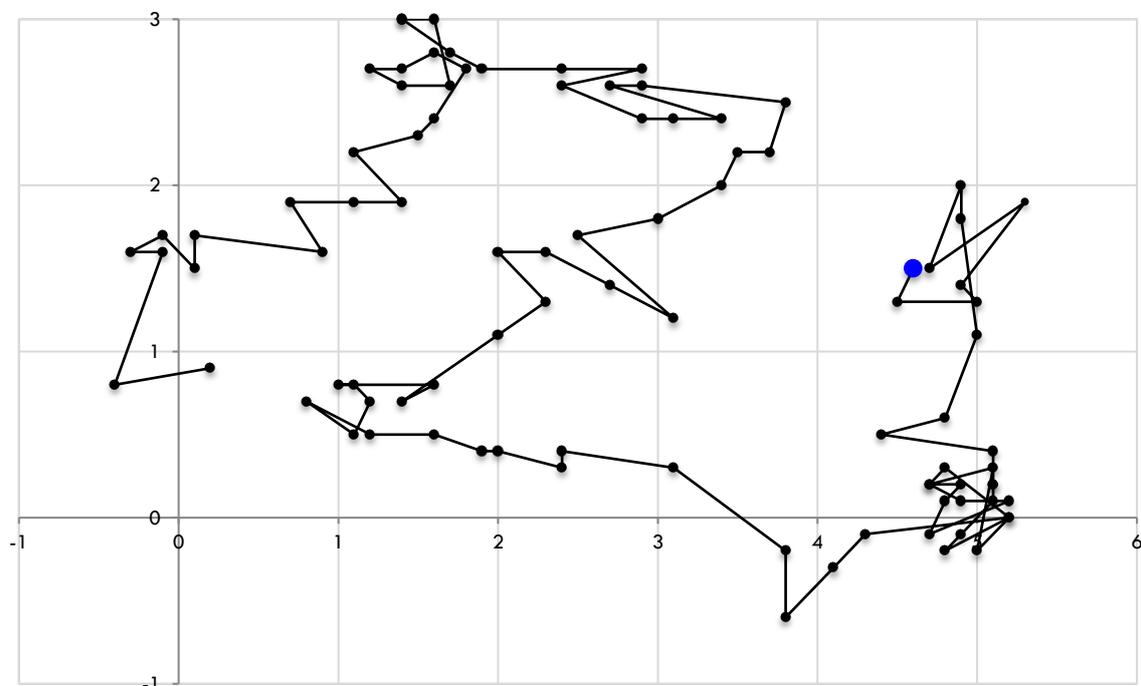


Figure 3: Correlation between Eurozone M3-growth (x-axis) and HICP-inflation (2015-2018)

Source: author's own



Considering the global economic situation, research indicates that a return to significantly higher inflation rates (in the Eurozone) is unlikely, at least in the medium term. There are several reasons for this: First, driven by the economic recovery in Germany, unemployment has markedly decreased. In April 2018, the latest date for which data were available, the unemployment rate stood at a record low of only 3.4% (see Federal Employment Agency, 2018). In other Eurozone member states, unemployment rates stood at 8.5%, instead (see Eurostat, 2018). *Ceteris paribus*, any such a development is typically accompanied by higher wage demands, which, according to the wage-price spiral, will translate into a higher inflation rate in the medium term. This wage-price spiral is " a mutually reinforcing process of wage and price increases. Higher wages and the attendant increase in production costs lead to higher sales prices, which in turn give rise to wage increases. This distributional struggle between wage bargaining partners is one possible cause of inflation" (Deutsche Bundesbank, 2018). However, despite the significant decline in the unemployment rate in recent years, wage growth in the euro area, most notably in Germany, remains subdued. In Q4 2016, the latest date for which data were available, saw price adjusted wages increase at a pace of no more than 1.6% γ/γ . This value is well below the historical average and far too low to sustainably stimulate inflation in the Eurozone. In other words, as long as the collective bargaining parties are exercising wage moderation (as is currently the case), inflationary pressure will remain subdued. Further, an increase in labour productivity, spurred by the ongoing digitalization, seems to be dampening inflationary pressures. Yet, whereas Eurozone labour productivity still increased by an average of 1.70% p.a. in between 1996 and 2006, its growth rate dropped to only 0.70% p.a. in the period between 2006 and 2016.

4. Impact on Equity Markets

Irrespective of the large number of different valuation methods available, a rise in the key interest rate is *ceteris paribus* accompanied by a correction on stock markets.

For example, in case of a stock (or company) valuation being based on a so-called discounted cash flow (DCF) model, under which future cash flows, including interest on the company's debt, are discounted with the firm's weighted average cost of capital (WACC), it is easy to see that a higher interest rate, i.e. a higher discount factor, reduces the present value (and thus the price of the share) (see Perridon et al., 2012). However, in light of the remarkably high market valuations, this risk appears to have been priced in only incompletely; suggesting that market



participants consider the likelihood of an actual rate hike in the Eurozone to still be relatively low (see Financial Times, 2017).

Further, as a result of higher interest rates, the (re-) financing of companies becomes more expensive. This reduces their profitability. If a number of interest rate hikes occurs consecutively (i.e. a rate hike cycle as observed in the US), the relative attractiveness of equities compared with (newly issued) fixed-interest securities declines. This would inevitably entail a reallocation of investors' portfolios: stocks will be sold in favour of newly issued corporate and sovereign bonds.

To the extent that the ECB is likely to reduce the volume of its asset purchase program (APP) from the late 2018 onwards, the growth rate of its monetary aggregates, e.g. M3, among others, is set to decline. Considering that, spurred by the ongoing hunt for yield, the market might experience a withdrawal of funds, which had previously been invested in relatively liquid assets, a (modest) correction on Eurozone stock markets should not be categorically excluded (see Fig. 4).



Figure 4: EuroStoxx 50 (in points)

Source: Deutsche Bundesbank, 2018

However, if inflation continues to remain (far) behind the expectations of the ECB throughout 2018, the probability of a rate hike will further decrease. By now, market participants argue



that the first rate hike in more than a decade might not materialise before Q4 2019 (Nomura, 2018). Yet, as even more cheap money were injected into markets (hence distorting valuations), the build-up of speculative bubbles might well gain further momentum.

5. Impact on Fixed Income Markets

A rate hike, or, eventually, the beginning of a rate hike cycle, will, *ceteris paribus*, initially prove detrimental to Eurozone fixed income markets. The Financial Times (2017) estimates that ECB purchases have cut yields on northern European government bonds by as much as 40bp to 60bps since March 2015 and considerably more in the case of southern European issuers. Given this scale, an abrupt phasing out of the asset purchase program - analogous to the development observed in the USA in 2013 (see above) - could lead to turbulence on the markets. In the summer of 2017, speculation on a reduction in monthly bond purchases by the ECB saw a general increase in yields (see Fig. 5).

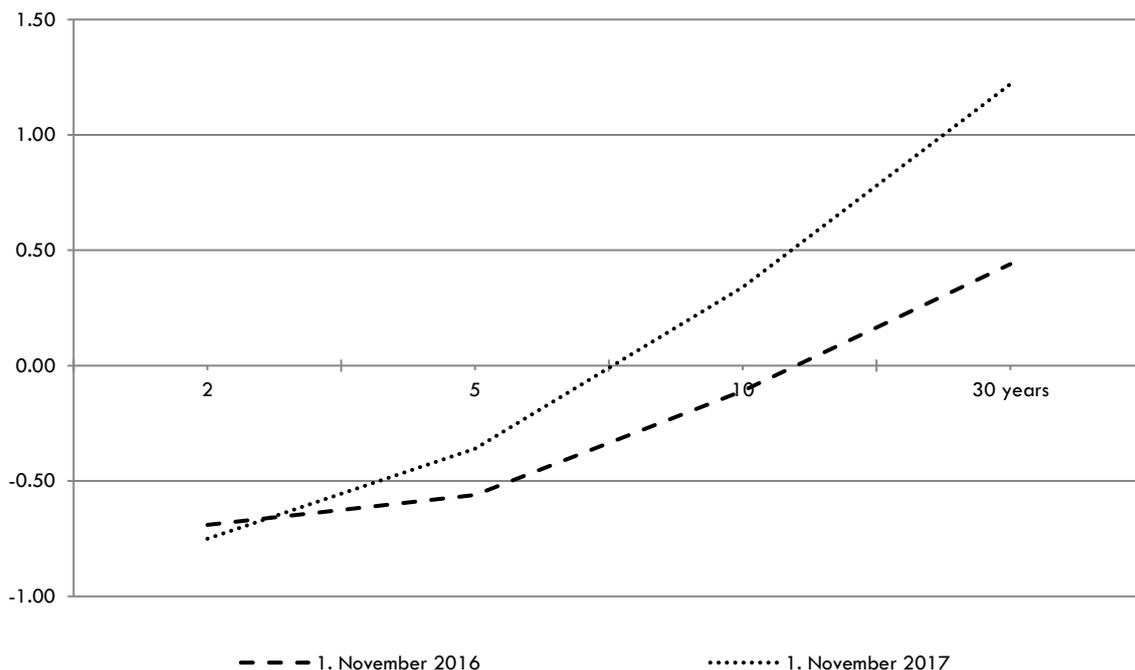


Figure 5: Term structure of German government bonds (bunds) (note: yield in %)
Source: Bloomberg, 2018

In addition to the credit risk (i.e. the risk that an issuer may or may not fully service the bond) investors also bear the so-called interest rate risk when buying a bond. As an illustration: If an investor bought a bond with a coupon of 2.00% and a term-to-maturity of five years when capital market interest rates stood at 2.00%, the price of this bond was (theoretically) exactly



100ct / € or 100 %. If the investor planned to invest € 3,000, the investment would thus cost him € 3,000 * 100ct / €, ie. exactly 3,000 €. If the interest rate rose to 3.00% from 2.00%, the basis for the valuation of the bond changed: Although the future cash flow of the bond has not changed (the coupon is unchanged at 2.00%), it is now discounted with the higher interest rate of 3.00%. As a result, the price of the bond fell to 95.4ct / € from originally 100ct / € and the fair value of the investment dropped to from € 2,863 from € 3,000. This corresponds to a price loss of approximately 4.58% (see Berk and DeMarzo, 2014).

Now remember the concept of the so-called Macaulay duration (D): in the case described above, D stands at 4.80, i.e. the average duration of the bond is 4.8 years. The resulting modified duration $MD = D / (1 + i)$ indicates that a one percentage point increase in the interest rate to 3.00% from 2.00% led to a decline in the bond's value of 4.71%. In other words, an increase in the Eurozone's main refinancing rate inevitably lead - all other things being equal - to price losses and thus an increase in yields on bond markets (see Fig. 5). As a result, there would be major shifts in market participants' portfolios: since newly issued bonds must now offer a higher coupon in order to remain attractive to potential alternatives, already issued papers with a lower coupon would be less and less appealing. In anticipation of such a trend, investors are starting to shed these papers early. To find buyers for the low-yield bonds, sellers are forced to offer higher returns or to accept price losses. In short, an exit from the ECB's asset purchase program will inevitably lead to a steepening of the yield curves of Eurozone fixed income securities (Fig. 5).

Reactions from market participants (the so-called *taper tantrum*) became clear in the run-up to the exit of the US Federal Reserve (Fed) from its QE program in May 2013 (see Dierks, 2016). Hints from Ben Bernanke, then Chairman of the Board of Governors of the Federal Reserve System, that the Fed could phase out its bond-buying program, which had begun in September 2012, sooner than expected (see Bernanke, 2013), unsettled markets. The result was a global sell-off on fixed income and later on stock markets. Between May and November 2013, ten-year US Treasury yields rose more than 100bps. Market participants were in disagreement as to whether a (gradual) QE exit had a positive or negative impact. In December 2013, the Federal Open Market Committee (FOMC) finally decided to reduce the volume of monthly bond purchases by \$ 10bn per month as long as the state of the US economy continued to improve. In October 2014, the Fed finally ended its QE (see Federal Reserve Bank of New York, 2014). While it is unlikely that this will be repeated in the Eurozone, the Fed's experience clearly shows the risks related to a normalization of monetary policy.



6. Impact on Foreign Exchange Markets

The development of the exchange rate is too complex to be satisfactorily explained solely by regional interest rate differentials or the interest rate parity (see Baldwin and Wyplosz, 2015). *Ceteris paribus*, however, it can be taken for granted that an increase in the main refinancing rate in the Eurozone will trigger an appreciation of the Euro's external value vis-à-vis other currencies (see Dierks, 2016b). This development occurred in summer 2017, when the exchange rate between the Euro and the US dollar rose by over 7% in just a few weeks from 1.12 EUR / USD in July 2017 to over 1.20 EUR / USD in September 2017 (figure 6).

This development poses a challenge for the ECB as any appreciation of the Euro will have a dampening effect on the inflation rate. The Financial Times (2017) estimates that a 10% appreciation of the (trade-weighted) exchange rate alone reduces HICP inflation by 40bp per year. And as the monetary policy of the Fed and the ECB is increasingly synchronized, the EUR / USD exchange rate is likely to follow a further appreciating trend in the coming years – and will likely recover from its currently undervalued level.

An appreciation of the Euro could therefore oppose monetary tightening as it makes Eurozone exports more expensive (and imports cheaper). At first glance, this development seems advantageous for consumers since US dollar-traded imports such as crude oil should become noticeably cheaper. However, as a result of the higher price in domestic currency, demand for exports traded in Euros, e.g. cars, will decline. Against this background, the relatively weak external value of the Euro was welcome (remember that at the end of 2016 the exchange rate between the Euro and the US dollar stood at only 1.05 EUR / USD); demand for comparatively cheap exports supported economic growth in the Eurozone.

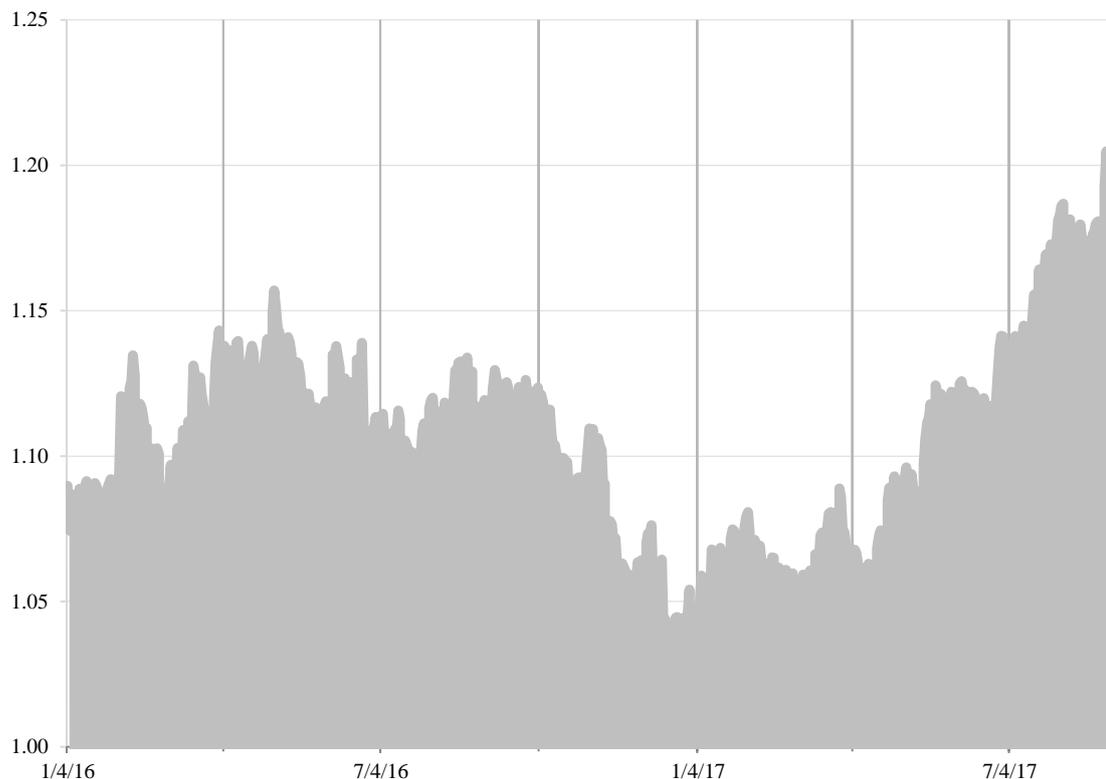


Figure 6: EUR/USD-spot rates

Source: Deutsche Bundesbank, 2018

The above development may be one of the reasons why the ECB has been reluctant to raise its main refinancing rate. Concerns that a further appreciation of the Euro endangered the economic recovery, especially in some of the Mediterranean rim states, are just too large. But as the economic recovery in the Eurozone progresses,

it will only be a matter of time before the ECB tightens its monetary policy and future fiscal stimulus must come from fiscal policy.

7. Conclusion: Getting Ahead of the Curve Again

Once started, it will take some time for the ECB to entirely normalize its monetary policy, as economic developments within the Eurozone are far too heterogeneous to allow for an abrupt tightening. At the time of writing, the so-called *lift-off*, i.e. the first (in a series of) rate hike(s) was not expected until late 2019 (Nomura, 2018)



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Yet, a normalisation of the ECB's monetary policy is long overdue. Firstly, it would likely accelerate the recovery of the still vulnerable European banking sector whose profits crucially depend on interest margins, which, in turn, depend on the level of the main refinancing interest rate. Secondly, even though the current environment (still) is rather benign, an economic downturn might materialise at a later point in time. In order to mitigate its impact, the ECB needs to have some policy leeway, i.e. it needs to be able to lower its main refinancing rate in an attempt to stimulate aggregate demand. However, at a rate of nil, this is hardly possible.

Of course, it cannot and should not be taken for granted that reactions on Eurozone money and capital markets will be as concise as described above. Certainly, spill over effects will occur; blurring market reactions. Thus, it is not surprising that the ECB seeks to influence market participants' expectations as early as possible; preparing them for possible changes in its monetary policy rather earlier than later. Surprises should be avoided in order to not distort the markets' self-healing powers any further.

It is of crucial importance that the ECB succeeds in getting ahead (back) ahead of the curve as soon as possible. To conduct a successful monetary policy, central bank need to *act* - rather than to *react* to market developments.



Bibliography

- Baldwin, R. and Wyplosz, C.*, The Economics of European Integration, London, MacGraw-Hill, 5th ed., 2015.
- Berk, J. und DeMarzo, P.*, Corporate Finance, Harlow, Pearson, 3rd ed., 2014.
- Bernanke, B.*, Comments after "The Economic Outlook", Testimony before the Joint Economic Committee, U.S. Congress, Washington, DC, Mai 2013, URL: <http://www.federalreserve.gov/newsevents/testimony/bernanke20130522a.htm>
- Bundesagentur für Arbeit*, Pressemitteilung: Der Arbeitsmarkt im August 2017.
- Deutsche Bundesbank*, Kerninflationsraten als Hilfsmittel der Preisanalyse, in Monatsbericht April 2000, pgs. 49-63.
- Deutsche Bundesbank*, Glossar, URL: <https://www.bundesbank.de/Navigation/DE/Service/Glossar/glossar.html>,
- Dierks, L.H.*, Auswirkungen der US-Zinswende - Der Beginn eines neuen Zinszyklus?, in WiSt - Wirtschaftswissenschaftliches Studium, (7), (2016a), pgs. 363-368.
- Dierks, L.H.*, Abwertungswettlauf und Währungskriege, in WiSt - Wirtschaftswissenschaftliches Studium, (1) (2016b), pgs. 22-28.
- ECB* (7.9.2017), URL: <https://www.ecb.europa.eu/press/pressconf/2017/html/ecb.is170720.de.html>, 2017a.
- ECB*, The definition of price stability, URL: <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html>, 2017b.
- ECB*, Asset Purchase Programmes, URL: <https://www.ecb.europa.eu/mopo/implement/omt/html/index.en.html>, 2017c.
- ECB*, More details on the public sector purchase programme, URL: <https://www.ecb.europa.eu/mopo/implement/omt/html/pspp-qa.en.html>, 2017d.
- Eurostat*, Unemployment Statistics, URL: <http://ec.europa.eu/eurostat/de>, 2017.
- Federal Reserve Bank of New York*, Statement Regarding Purchases of Treasury Securities and Agency Mortgage-Backed Securities, October 2014, URL: http://www.ny.frb.org/markets/opolicy/operating_policy_141029a.html.
- Financial Times*, ECB to run out of bonds to buy under programme, 2.9.2016, pg. 20.
- Financial Times*, Euro rally pushes chances of ECB rate hike to lowest on record, Online im Internet: URL: <https://www.ft.com/content/82441ada-9ca7-3a1c-b889-406fcbfa1a9f>, 2017.
- Friedman, M.*, The Counter-Revolution in Monetary Theory, Institute of Economic Affairs, London, 1970.
- Nomura*, European Rates Insights, June 4th, 2018.
- Perridon, L.C., Steiner, M. und Rathgeber, A.*, Finanzwirtschaft der Unternehmung, Vahlen, München, 16th ed., 2012.