"Exit strategies and their impact on the Euro area – a model based view"

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Ansgar Belke (Germany)

Exit strategies and their impact on the Euro area – a model based view

Abstract

This paper elaborates and assesses the pros and cons of central banks' exit strategies from their previously taken specific policy paths. The focus is on the impact on the Euro area economy of the exit from unconventional monetary policies (UMP) by the Fed which is the first central bank to lay out an exit path. The methodology used consists of a wide array of methods, ranging from anecdotical evidence to analyzing the econometric results of large-scale IMF spillover models.

As an answer to the first research question, it derives the optimal degree of policy coordination between different important central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments of unconventional monetary policies. The second research question relates to an identification of the risks of a premature versus a delayed exit. In particular, the paper carves out in detail the risk associated to spillover effects from UMP exit and the different shapes of exit paths. As an answer to its third research question, it also analyzes exit strategies in a wider context and the associated financial stability risks, and as an innovation, with a specific focus on the role of uncertainty. To add some meat to its theoretical conclusions the paper summarizes model-based estimates of the impact of the Fed's exit from UMP in 2014 on the Euro area economy which are derived from new and innovative global IMF models. Finally, in the framework of a fourth research question specific policy options to minimize exit risks are derived from the above and compared.

The most important implication is that adequate communication seems to be an important tool to contain instability during the exiting process. However, it is likely that this normalization will take longer than originally envisaged. So, there is the danger that UMP will become the "new normality" – in spite of all theoretical considerations presented in this paper.

Keywords: federal funds rate, exit strategies, global spillovers, international policy coordination, sudden stop.
JEL Classification: G01, G12, E58, H12.

Introduction

This paper comments on the pros and cons of central banks' exit strategies from a certain policy path – with a specific focus on the impacts of the exit from unconventional monetary policies (UMP) by the Fed, which, if at all, appears to be the first central bank to move on the Euro area economy.

In this context, it first discusses the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments of exit from unconventional monetary policies. From a market economy perspective, it is clearly desirable to have international policy coordination in place, which ensures that *non-pecuniary* cross-border policy spillovers are appropriately *internalized*. However, induced *exchange rate changes* are part of the *necessary portfolio adjustment* to the new global equilibrium, accompanying the unilateral exit. Accordingly, they should be classified as pecuniary effects and cannot serve as a justification of coordination.

In the following, this contribution assesses the risks of a premature or delayed exit. To be more specific, we try to gauge the risks posed by the exit from unconventional monetary policies and a turning of the interest rate cycle both for the exiting countries and for other regions in the world due to financial spillover

effects. This is done precisely because any impact on the latter (the non-UMP countries) has an impact on the former (the UMP economies), via repercussion effects. Whereas many domestic risks stemming from a withdrawal of UMP in the exiting economies such as the Euro area have been discussed extensively in my previous Briefing papers, the focus of this paper is on the risks of a premature or delayed exit for non-UMP economies, and the feedback effects on other countries. Whenever we talk about exit strategies and their impact on the euro area economy, we have to analyze spillover effects. Hence, we start by examining the risk associated to spillover effects and then look at different potential shapes of exit paths. We also analyze exit strategies in a wider context. We first classify types of UMP and exit strategies. We then investigate the financial stability risks associated with the exit, with a specific focus on the role played by uncertainty in the process. Empirical evidence is consistent with *increased volatility in long-term rates* triggered by exit. There is a lot of uncertainty around exit decisions and their impact both on policy instruments (e.g. interest rate volatility) and targets (e.g. debt sustainability), which must be taken into account by policymakers when designing an exit strategy.

Based on new and innovative global IMF models, this paper reports estimates of the impact of the Fed's exit from UMP in 2014 on the Euro area economy. To this purpose, three different possible modes of exit are distinguished: (a) a "smooth growth-driven exit", (b) a "growth-driven exit with complications" and

(c) an "exit without growth". The exit is assumed to start via endogenous or exogenous tightening in the third quarter of 2014. However, the different scenarios allow for *different ways of phasing out* from the UMPs. More specifically, the impact of the U.S. exit on the Euro area is estimated to be a 0.0 to 0.5 percent deviation of output from baseline in 2015 under scenario (a), -1.25 to -0.5 percent deviation of output from baseline in 2015 according to scenario (b) and -1.00 to -0.75 percent deviation of output from its baseline prevailing in 2015 according to scenario (c). However, the IMF closely follows conceptual considerations but does not attach any probabilities to the different scenarios. Given these accentuations, the choice of the title of the paper "Exit strategies and their impact on the Euro area – a model based view" becomes quite obvious.

Adequate communication seems to be an important tool to contain instability during the exiting process. However, it is likely that this normalization will take longer than originally envisaged, at least if one subscribes to Lawrence Summers' thesis of "secular stagnation" which he recently presented at the 2013 Annual IMF Research Conference. So, there is the danger that UMP will become the "new normality" – inspite of all theoretical considerations presented in this paper.

In a nutshell, this paper comments on the pros and cons of exit strategies with a specific focus on the impacts of the Fed's exit on the Euro area economy[1]. In this context, it first discusses the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments as a consequence of unconventional monetary policies (Section 1). The risks of a premature versus a delayed exit are also assessed (Section 2). Here we look at the risk contained in spillovers from exit and at different potential shapes of exit paths. We also analyze the wider context of exit strategies and investigate the financial stability risks emanating from the exit, with a specific focus on the role of uncertainty. Based on new and innovative global IMF models, Section 3 presents some estimates of the impact of the Fed's exit from UMP in 2014 on the Euro area economy. Finally, policy options beyond international policy coordination to minimize exit risks are discussed (Section 4).

What is presented here is essentially a mixture of model-based evidence on exit spillover effects as along the lines of recent IMF analysis as well as research outlined in the author's previous papers on exit strategies and unconventional monetary policies (e.g. Belke, 2009, 2013). Most importantly, the paper shows that the potential impacts of exit strategies are not the symmetric counterpart of implemented unconventional monetary policies.

1. Policy coordination of exit between central banks in the light of substantial potential spillover effects

International policy *coordination* on exit strategies from unconventional monetary policies is generally regarded as *welfare improving* under certain conditions[2]. The case becomes even stronger in view of the risks of premature or delayed exit. Given the currently high degree of integration among economies and financial markets, spillover effects are unavoidable and the case of policy coordination becomes even stronger in view of the risks of premature and delayed exit (see Section 2). There are *positive* and *negative* spillovers associated to the establishment of UMPs as well as to any exit from unconventional monetary policies (UMPs). Let us first turn to the *negative* ones resulting from existing UMPs.

UMPs and maybe also the exit from these policies generate negative externalities in countries adopting conventional monetary policies; the latter are likely to adopt policy measures to counter these externalities and, thus, generating losses in both sets of countries and a suboptimal outcome (for details see Belke, 2013). This is exactly the constellation in which international policy coordination on existing UMPs and the exit from them has the potential to raise Pareto improvements in economic outcomes on a global level.

So-called *pecuniary* external effects, such as trivial cross-border spillovers for example exchange rate changes or changes of other (relative) prices, are *neither necessary nor sufficient* to make the case for international policy coordination. This is the case for exchange rate changes as a reaction to a unilateral exit from UMPs in, let's say, the U.S. which by definition have an impact also on the partner countries such as the Euro area. Admittedly, this may stifle the old debate about exchange rate coordination or even "currency wars" again (Cooper, 1984), and incentives for an early exit from UMP in order to prevent bubbles dwindle because of the accompanying appreciation of the home currency

[2] We do not deal explicitly with the difference between coordination and cooperation in this paper.

(see Section 3 of this paper). However, these induced *exchange rate changes* have to be understood as part of the *necessary portfolio adjustment* to the new global equilibrium accompanying the unilateral exit. They cannot serve, thus as a justification for coordination. Instead, there must be a clear indication of the true externalities that have an impact on economic welfare (Belke et al., 2002; Laffont, 2008) in order to justify coordination[1]. Establishing the case for international policy coordination requires empirical evidence which supports the existence of an appropriate pattern of externalities. Moreover, policymakers must be able to identify and measure them. Finally, problems due to incomplete or asymmetric information across countries must be solved (IMF, 2013; Ostry and Ghosh, 2013; and Ostry, Ghosh and Korinek, 2012).

From a market economy perspective, it is clearly desirable to have international policy coordination in place, which ensures that *non-pecuniary* cross-border policy spillovers are appropriately *internalized*. This view applies to spillovers of existing UMPs and to the exit from them. Let us now turn to *positive* spillover effects.

Academic analyses in this field often find that unconventional monetary policies targeted at smoothening market functioning and financial intermediation tend to imply short-run *positive* externalities across the borders. This is especially so if these policies are a reaction to immediate and acute shocks (Belke and Klose, 2013; Belke, Beckmann and Czudaj, 2013). According to the IMF (2013), countries which have not deployed non-unconventional monetary policies themselves unambiguously benefited from the UMPs because they made the markets function again and stabilized the financial system. In the context of this paper, it matters whether these positive externalities are abolished by exit (i.e. whether exit comes too early). Of course, they are not, as soon as the UMPs have reached their goal[2]. Hence, the exit from such policies, as soon as their purpose has been fulfilled, does not necessarily imply negative externalities (IMF, 2013).

Unconventional monetary policies targeted at enhancing aggregate demand at the zero lower bound have been helpful in stimulating global growth (Belke and Klose, 2013). However, the other side of

the coin is that they may have induced *negative* externalities as well. There are indications that show they have caused financial distortions and contributed to the emergence of macroeconomic and financial stability risks. The main transmission channel has been excessive capital flows to countries employing non-unconventional monetary policies (see in detail Belke, 2013). Again, it is exactly these kind of cases in which policy coordination on conducting UMPs as well on the exit from them is highly indicated (IMF, 2013).

But nevertheless, it seems fair to admit from an academic view that things have not settled yet on these important questions. Instead, there are widely diverging perceptions among academics, policymakers as well as across countries. The *size and the sign of the externalities* of exiting, from various unconventional monetary policies and the international repercussions via capital controls etc. are still rather *ambiguous*. Ostry, Ghosh and Korinek (2012) show that the multilateral effects of capital controls tend to be constrained, except in case of "pervasive" controls (see also IMF, 2011). Above all, there is huge uncertainty about the "break even" point, at which the beneficial impact of UMPs on worldwide growth is offset by financial stability risks triggered by the same UMPs (Belke, 2013; IMF, 2013).

It is not clear at this stage *which different policy mix* would make short-run support through UMPs sustainable in the medium to long run. Finally and possibly most importantly, the *political will* to change this policy mix *will be lacking*. As discussed in my former Briefing papers for the European Parliament with reference to the ECB's announced OMTs, the relative accomplishment of unconventional monetary policies in fostering growth in the short run has diminished the policymakers' incentives to use the input of monetary policy, delaying or even interrupting the implementation of structural reforms (IMF, 2013). Policy coordination within a two-handed approach among national or (in case of a smaller country) international monetary policy and national reform effort does not appear to work even on a national level. It does *not* seem easy to think of a global institutional arrangement which lets policymakers *realise* these *bilateral gains* (for the mechanics of this type of policy coordination dilemma see Belke, 2002).

If coordination appears to be warranted and, hence, is implemented, it may come in *different forms*. Economies running unconventional monetary policies would be pressured into a change of their internal policy mix (see Section 3). Whereas this kind of action is most likely not taking much pressure off the central banks to provide accommodative monetary policies, the implementation of the urgently

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[1] A pecuniary externality denotes an externality that takes effects through prices rather than by means of real resource impacts.

[2] But there is always the issue of what the counterfactual has been and still is: how would the world have looked like if the UMPs would have been absent? Answers to this question are highly speculative, extremely difficult to quantify in empirical terms and thus inherently controversial. Nevertheless, in spite of this important open flank, the majority of policymakers try to convey the impression that the implementation of UMPs have saved the world from depression. The latter is then implemented as the main ingredient of cost-benefit analyses of coordination.

needed structural, fiscal and banking sector reforms would certainly give policymakers ample room to unwind their unconventional monetary policies earlier rather than later. Coordination would imply the implementation of reforms also in those countries, which do not employ unconventional monetary policies in order to support rebalancing and to improve on necessary conditions for sustaining medium-run growth. Overall, the reforms conducted in both types of countries would turn out to be beneficial for global growth (IMF, 2013a).

But one should also not forget that coordination would also cover a larger degree of collaboration in issues related to the adoption of regulatory and macroprudential policies "designed not to solve a problem at home but help others to deal with a problem they cause" (IMF, 2013). What is more, the IMF (2013) argues that collaboration would be highly indicated when "preparing the terrain for exit". For instance, foreign exchange swap lines could be set up and other central banks may provide with sufficient early warning on exit probabilities (Belke et al., 2002; IMF, 2013). But, again, coordination in the area of structural reforms unfortunately does not rank high on the agenda of international policy coordination.

Due to the coordination dilemma derived above, bringing about coordination on UMPs and the exit from them requires *adequate incentives*. Because governments are accountable to their electorate, they will need to be able to envisage clear medium-term net gains emerging from coordination. Hence, unconventional monetary policies should be conditioned on the implementation of other urgent reforms. However, I do not see both types of incentives sufficiently implemented in the current setting. As the IMF (2013) puts it: "There is notably little prospect that central banks might seek to impose conditions for their liquidity assistance on governments, except for possibly OMT". But even with respect to the OMTs there are doubts: simply stating that the announcement of OMTs gives enough leeway for reforms is not enough because it is not at all clear that this leeway will be used de facto. This is at least the result of a bulk of literature on the political economy of reforms (Belke, Herz and Vogel, 2006). However, central banks are able to impose conditions on commercial banks to at least advance reforms in the financial sector, i.e. bank balance sheet repair and reform (IMF, 2013). This is exactly the area where we generally see the largest impact of monetary policies on reform effort across OECD countries (Belke, Herz and Vogel, 2006).

One potential *institutional framework* which is clearly able *to strengthen international coordination* and also includes the emerging markets with their close trade and financial linkages to many Euro area member countries is offered by the International Monetary Fund. The Fund may second the implementation of entry into and exit from unconventional monetary policies by contributing to a global perspective on exit policies through *surveillance* and *policy buffers* to get rid of possible negative side effects and a *model-based* and, hence, hopefully more "neutral" *analysis*. The IMF's new surveillance framework gives ample room for an increasingly integrated analysis of global spillovers of complex policies such as the exit from UMP. Finally, the innovative IMF reports on spillovers and on External Sector Assessments deliver an additional assessment of the effects of unconventional monetary policies and try to reconcile the bilateral with the multilateral perspective (IMF, 2013).

Furthermore, *IMF lending facilities* such as the Flexible Credit Line and technical assistance supporting domestic policy initiatives in the area of macro-prudential policies, may serve as a means to *moderate* or even to *prevent* some of the *risks* from unconventional monetary policies as well (IMF, 2013). Finally, the Fund analysis may "help oil the wheels of economic cooperation and coordination" (IMF, 2013) by contributing a global perspective to other forums for international policy coordination such as the G-20 Mutual Assessment Process.

2. Risks of premature versus delayed exit

In the following chapter, we assess what the risks of a premature exit or delayed exit may be. To be more specific, we try to gauge the risks posed by the exit from unconventional monetary policies and a turning of the interest rate cycle for the exiting countries and financially integrated regions. This is done precisely because any impact on the latter has an impact on the former and the euro area can be on either side, depending on whether one considers the Fed or the ECB exiting first.

2.1. Risk contained in spillovers. Both academic literature and empirical evidence support the view that sustained capital inflows and cheap foreign financing represents a threat for financial stability in the recipient countries (see Belke, 2013; IMF, 2013; and Rajan, 2013). This pattern is broadly confirmed by both unconventional and conventional monetary policies. In the context of this paper, it is important to recognize that the spillovers of entry into and exit from UMPs of the most important industrialized countries to emerging economies, may have important repercussions on the Euro area itself. For instance, US-Fed tapering may redirect global financial liquidity flows from emerging markets to the U.S. and might make the exit more costly or even impossible (Belke, Bordon and Volz, 2012; Belke, Beckmann and Czudaj, 2013). Feedback effects from emerging markets hit by industrialized coun-

tries' exit may also occur through the trade and investment channel.

Lower rates in advanced economies tend to induce capital flows to economies offering higher returns, independently of whether the cut in rates came about through unconventional monetary policies. Under the UMP regime, interest rates have been credibly low for a particularly long period, a fact that has most probably amplified the impact of interest rate differentials on capital flows. What is more, the conduct of bond purchases as an additional policy measure may have increased capital outflows beyond that level purely justified by lower interest rates. In this context, *portfolio rebalancing effects* are the driving force which let investors substitute their own sovereign bond holdings by corresponding assets in economies not engaged in unconventional monetary policies[1] (Belke, 2010; IMF, 2013).

If one wants to conduct a deeper analysis of the *spillovers* induced by exit in non-UMP economies, one has to take into account that the excessive capital flows created by ultra-lax monetary policies, combined with an increase in global risk appetite, stimulated some valuable rebalancing of global demand but have also created new policy challenges in recipient countries (IMF, 2013a, 2013c and 2013f). The problem with exit is that it may hit the non-UMP economies at a certain point when they are still facing these challenges.

So what exactly are the challenges those policymakers should bear in mind when they are assessing their exit plans? In case of thin markets, inflows of capital may lead to massive and rapid appreciation of the recipient countries currency which – once the exchange rate pain threshold is passed – may prove to be harmful for the countries' export sectors (Belke, Goecke and Guenther, 2013). Unconventional monetary policies may, through global liquidity spillovers, also lead to rapid credit expansion, asset price bubbles, and an overall higher leverage (above all in foreign currency) and thus may raise financial instability. In both cases, exit in UMP countries might contribute to a reversal of these negative developments in non-UMP economies. This is different if the capital inflows are replaced at a later stage by sudden flow reversals ("runs") induced by exit in UMP economies (IMF, 2013).

As already emphasized above, policymakers should, as a principle, *allow exchange rates to respond to changes in fundamentals,* such as the exit from UMP. However, they may need to make provision against risks of disorderly adjustment. This is be-

cause exchange rate volatility not caused by fundamentals may be harmful for growth and employment (Belke, Goecke and Guenther, 2013; IMF, 2013). Let us now turn to the questions of what is the shape and what are the consequences of exit from UMPs.

2.2. What is the wider context of exit strategies? Policymakers do not stop to argue that monetary normalization is at the current stage only a relevant consideration for the US, as the narrowing of the output gap is not yet foreseen for the Euro area, Japan, the United Kingdom and China. With an eye on the persistently weak growth and short-run negative impulses from fiscal consolidation and still segmented credit markets, for instance, the IMF (2013d) recommends for the Euro area that the ECB should conduct even more unconventional monetary policy (Angeloni, Faia and Winkler, 2011). However, in its December meeting the ECB Governing Council did not announce further expansionary measures like another interest rate cut or quantitative easing. The exit pattern derived further below should characterize the potential Quantitative Easing (QE) normalization in the "Systemic five" (S5) – China, Euro area, Japan, United Kingdom, United States. However, one has to keep in mind that research in this area is still very preliminary (Gerlach, 2013; IMF 2013a).

2.3. What would an exit from UMP probably look like? In order to avoid ambiguities and to put the debate on the impacts of exit on a sound basis, a sound *classification scheme* of potential UMP and exit types is of the highest priority (Thornton, 2013).

Exit risks will differ with respect to the specific *varieties* of unconventional monetary policies (UMPs) employed. There are *two types* of UMPs. The first one embraces those UMPs that have been implemented to restore the functioning of markets and bank intermediation. UMPs which have served to support activity at the zero lower bound represent the second variant (Belke and Klose, 2013).

In case of the first type, policymakers can withdraw their unconventional monetary policy instruments as soon as stabilization of the financial sector is achieved. In the second case, exit is triggered by broader economic conditions, above all by inflation and financial stability. Independent on the specific scenario, central banks are principally endowed with a *toolbox to smoothen the impact of exit*, although even the IMF admits that one cannot fully anticipate, or even control, market reactions of the markets (IMF, 2013).

There are *two ways* in which an *exit* from unconventional monetary policies to restore market functioning and intermediation can be initiated: either exit will be *driven by the markets* or it will necessi-

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[1] See IMF (2013f) and the sources cited therein for empirical evidence on the latter channel.

tate *active policy decisions* (for this crucial distinction see already Belke, 2010, paper accidentally titled "Driven by the Markets?"). Examples in which the *markets* determine the timing of exit are those measures employed to counteract acute market dysfunctioning. They were typically characterized by pricing structures and also "optionality", which triggered counterparties to withdraw from the facilities as soon as they have won access again to less expensive market funding. This category embraces a couple of measures used by the U.S. Fed from 2007 to 2008 (see IMF, 2013h, for more details). It also contains the ECB's LTROs at full allotment with ECB overnight market rates still quoted below the policy rate which may be an indication that banks' demand drives aggregate liquidity volumes in the Euro area (IMF, 2013; Marquez, Morse and Schlusche, 2013).

On the contrary, central banks will have to actively decide on the exit date faced with measures taken to strengthen financial intermediation (IMF, 2013). In case of exit, a few solvent banks which are still relying on liquidity facilities such as the ECB's emergency lending assistance (ELA) facility or the Bank of England's "Funding for Lending Scheme" (FLS) are forced to look for funding elsewhere or to contract their balance sheets[1].

The central bank's decision to start the exit from unconventional monetary policies in order to stifle economic activity at the zero lower bound should be designed in a way that is *conditionally dependent on economic performance* over time (Belke and Klose, 2013). The standard recommendation is to start with the exit and begin to tighten monetary policy when justified by the inflation forecast and the output gap and only if any concern of financial stability is absent. However, the fact that the *Phillips curve* is estimated to be *flatter* under current conditions may lead one to attach more weight to the output gap, of course under the condition of stable inflation expectations (IMF, 2013, Figure 2; and IMF, 2013e, Chapter 3).

What is more, if policymakers take into account *financial stability considerations*, the exit mechanics including issues like the timing of exit unavoidably become more complex. Earlier exit than indicated by the inflation and the output gap criterion can appear justified if the ultra-expansionary monetary policy stance risks endangering financial stability and/or the effectiveness of micro- or macro-prudential policy gets increasingly smaller (Belke, 2013). For instance, interest rates may stay on a very low level for a while whereas central banks' asset sales could be started in a smooth fashion (Belke, 2009; IMF, 2013).

There is an incentive for policymakers to *defer exit* and to shift some of its unavoidable consequences such as increasing sovereign financing costs far into the future. This expresses the high degree of *fiscal dominance* currently prevailing. The degree of dominance will even increase further, if more troubled state's sovereign bonds will be taken during future QE programs on board the balance sheets of the central banks, or if policymakers delay the exit in order to prevent further deterioration in the quality of commercial banks' assets. This is an expression of financial dominance, but any delay probably comes at a cost such as the anticipation of higher inflation setting for later on (IMF, 2013).

But anyway, the exit from UMPs will entail several gradual phases. In spite of the potential perspective of a secular stagnation (see Section 4), the main aim is to get back to conventional monetary policy. Important aspects, which render the *exit from unconventional monetary policies more demanding than the consecutive tightening of previous low rate periods*, are related to the significant excess reserves on central banks' balance sheets resulting from asset purchases in some countries, and the imponderables connected with assets sales. As a consequence, exit is faced with a lot of uncertainty about the response of market agents and the economy's reaction to tightening financial conditions (Foerster, 2011; Thornton, 2013).

The process of exit itself is operationally complex, but will, generally speaking, obey a specific sequence of events (IMF, 2013)[2]. Firstly, the *forward guidance* on the future trajectories of official interest rates and asset purchases will have to be *adjusted*[3]. As the next step, *asset purchases* will be *gradually reduced,* a process frequently called "*tapering*". The timing of changes to forward guidance is not as easy as it seems. Banks will have to be aware that undercutting their original guidance of persistently lower rates may be risky (IMF, 2013). Second, official interest rates will increase either in parallel with or even before a significant share of excess reserves have been eroded. Over this potentially multi-annual transition period, the central bank's overnight deposit rate will be guiding the markets (Bech and Klee, 2009; IMF, 2013). As a consequence, the central bank *balance sheet* will *shrink* with the positive side effect that it also cuts excess reserves (Belke and Polleit, 2010; IMF, 2013, Box 4).

Looking at this sequence of exit substeps is important in cases where the exit strategies of central

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[1] The IMF (2013b) assesses potential drawbacks from ending market support too early, or too late.

[2] Marquez, Morse and Schlusche (2013) are the first to disclose an empirical check of the FOMC's principles of the exit strategy.
[3] Note that Mario Draghi has again emphasized at the occasion of the ECB press conference on 5 December 2013 that official ECB rates will stay low for a longer time period. Taking this as a reference point, much time will probably elapse until the forward guidance rhetoric will change (current ECB projections for the inflation rate until 2015 amount to only 1.3 per cent). Hence, the focus of this paper is on the Fed's and not on the ECB's tapering.

banks, such as the Fed, and their impact on economies including the Euro area have to be evaluated with scrutiny (Thornton, 2013). Each substep will have its own effects. Moreover, there will be interactive effects. The most systematic way to enact such an assessment is to employ an empirical model and enact some simulation. In the following, the IMF model-based assessment of the impacts of exit on different regions of the world, including the Euro area, is described briefly.

2.4. Financial stability risks emanating from the exit. Any assessment of the risks of exit from MP-plus – as the IMF calls the combination of exceptionally low policy interest rates and unconventional policy measures – to financial stability must differentiate between two elements of unconventional monetary policies. The first element is the exit from ultra-low policy interest rates and the second, the central banks' sale of their accumulated bulk of assets, among them mostly debt securities (see IMF, 2013b, Box 3.1).

As regularly conducted also in the past, central banks will have to raise rates sooner or (as it seems to be actually the case) later to safeguard price stability also in the current rate setting cycle (for details see Belke, 2010). However, any requirement to sell assets to tighten monetary policy turns out to be "less evident" than for the other ingredient of MP-plus. This is because, arguably, central banks could simply sit on them until maturity and could, instead, employ other monetary policy tools (but this does not come without side-effects, see Belke, 2009). However, as the IMF itself admits, political considerations potentially still require the sale of assets (IMF, 2013b).

Seen on the whole, the risks and the challenges of both variants of exit policies will have to be assessed and managed, with an eye on the fact that the implementation and application of MP-plus policies is, as so often expressed by ECB President Mario Draghi, "unchartered territory", containing different kinds of risks for monetary policy decision makers[1].

One of the major risks of exit for financial stability is an interest rate increase which comes in an *unexpected* fashion or has at least *materialized more rapidly* than expected, i.e. if the previous forward guidance was insufficient. The implications from this potential imperfection are of course larger for the longer end of the yield curve. It immediately follows that, as soon as the decision has been triggered to exit by tightening policies, central banks should engage in an anticipated and gradual in-

crease in interest rates at the benefit of markets, which would then have sufficient time to adjust. The main aim should be to avoid a disorderly increase in interest rates or even an interest rate overshooting (combined with an exchange rate overshooting) having the potential to lead to shifts in market sentiment. The latter may exacerbate any adjustment to the new macroeconomic and financial environment, even amplifying the risks elaborated upon further below (IMF, 2013b).

Many MP-plus policies implemented during the crisis have been unprecedented and activated now for a comparatively long period. Two preconditions are therefore more binding in the context of exit than during usual rate tightening cycles. First, exit strategies must be extremely well communicated to the relevant audience which above all consists of the financial markets and other central banks, but also of the general public in order to avoid conflicts within, for instance, the Euro area between winners and losers from exit (Belke, 2013a). The risks derived below underscore the overwhelming significance of measures to restore the soundness of commercial banks and market liquidity as quick as possible to minimize negative side effects of an exit on financial stability (IMF, 2013b).

Let us now first compile the specific risks stemming from *increasing interest rates* (IMF, 2013b).

First, rate hikes will immediately impose capital losses on fixed-rate securities hold by commercial banks and other financial institutions. These losses have to be set against increasing net interest margins for banks which, in turn, will improve their profitability over time. Whereas banks which are only weakly capitalized could be hit, financial institutions with long-term liabilities, such as pension funds and other insurers, may profit. This is because a decrease in the net present value of their liabilities may offset the incurred capital losses (Belke, 2013).

Second, commercial banks may well perceive higher credit risk after the rate increase, because loan performance may become weaker. This is especially valid, if the rise will have been triggered by increase in inflation expectations instead of improved economic perspectives (Foerster, 2011).

Third, there may be external spillovers to other countries or markets, even in case of a one-time rate hike, if expectations of the path of future interest rates are shifted by this decision. The latter have the potential to trigger sudden and sometimes even disruptive financial flows among markets and countries (Foerster, 2011). The exact degree of disruption depends on, for instance, how strong the timing of the tightening process differs across central banks.

But there are risks emerging from *asset sales* as well (IMF, 2013b).

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[1] See IMF (2010a) for a description of the principles underlying exit strategies.

The first that comes to mind is the risk that these sales lead to "breaks" in market sentiments. In this case yields might increase sharply. If there is uncertainty surrounding the question of whether central banks are really willing to sell their huge government bonds (Belke, 2010) or other asset portfolios, this could lead to sudden jumps and, thus, more volatility in market sentiments as soon as the central bank actually sells its assets.

Secondly, imprecise policy timing – choosing the time of exit too early, say, before the prevailing financial market vulnerabilities are addressed, or too late – has the clear potential to disrupt the markets and enable dysfunction to resurface. This kind of risk is more virulent if central banks played the role of a market-maker or hold a large share of outstanding securities. However, this kind of argument is only valid if there has been market dysfunction during the financial crisis (Belke, 2010) and it is underlined only if persistent market malfunctioning is now veneered by central bank intervention (IMF, 2013b).

Thirdly, asset sales by central banks may also lead to funding challenges for commercial banks since a decline in banks' excess reserves typically represents the counterpart of the central bank's asset sales (Belke and Polleit, 2010). During the crisis the central banks disintermediated interbank liquidity through asset purchases and by this increasing banks' excess reserves. After an exit, this method of disintermediation must be compensated by revived private interbank markets. However, the assumption that these are fully restored by now is critical. Exactly for this reason, a couple of banks may be confronted with funding challenges as a consequence of the exit.

But what picture is emerging from estimated or calibrated empirical models? If only *simple* restrictions are imposed the model solution delivers a sequence of long-term interest rates which would follow only a one-time jump (Foerster, 2011; IMF, 2013). Simple restrictions imply that markets anticipate the timing of exit correctly, the central bank has clearly conveyed the future path of short-term rates to the public which assesses it compatible with the inflation target, and that the path of asset sales is deemed to be credible by the markets.

Looking at these rather simple models, simulating exit does not imply any significant increase in the volatility but only one-time jump of long-term rates. Of course, a small amount of volatility would remain simply because central banks are unable to signal or commit to specific short-term rate beyond a certain horizon (IMF, 2013).

2.5. Bumpy ways to exit – the role of uncertainty. However, with the benefit of hindsight from other historical exit episodes, there is a couple of arguments indicating *increased volatility in long-term rates* triggered by exit in practice (IMF, 2013, Box 5). There is a lot of uncertainty around exit decisions and their consequences – in several dimensions (Belke, Goecke and Guenther, 2013). These uncertainties should certainly play a role for Euro area policymakers when designing their reactions to the potential tapering by the Fed.

First, *forward guidance may be limited* which in turn adds *uncertainty to the subsequent policy rate path*. A reference to the old problem of time inconsistency of monetary policy announcements and its application to the uncertainty about the central bankers' future UMP plans are extremely helpful here (Kydland and Prescott, 1977). According to a typical pattern derived by this theoretical approach, central banks can be expected to keep interest rates lower for a longer than usual time span[1] and then consecutively strive to reach the usual interest rate path through tightening much quicker than in past cycles. One example supporting this view is the uncertainty prevailing in the markets in May and June 2013 after the announcements by Ben Bernanke on tapering. Although changes in forward guidance were completely absent, there was a sudden significant hike in expectations of short-term bond rates. Finally, concerns about the timing of exit themselves from institutions such as the IMF contribute to what econometricians call "noise" around short rate expectations (IMF, 2013).

Second, there is some *uncertainty* surrounding the *central bank's capability to absolutely control short-term market rates* throughout the whole exit phase. This is especially so with an eye on limited competition for funding in an environment of significant excess liquidity (IMF, 2013, Box 4). Although the IMF, for instance, hopes that monetary policy stays effective at the cost of being less predictable, this calls for parallel deployment of liquidity absorbing instruments. However, if the latter prove to be insufficient, central banks must start with their asset sales earlier (IMF, 2013).

Third, the *impact of asset sales on prices* is *ambiguous* and technically *complex,* partly because there are announcement and sale effects. At least, this was one of the important lessons from the Securities Market Program and the OMTs (Belke, 2010; Belke and Polleit, 2010). This directly leads U.S. to the recommendation that central bank communication should focus on an interest rate path instead of a specified quantity of sales (IMF, 2013).

A fourth issue is closely intertwined with the first three problems, may *reinforce them* and is related to

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[1] Remember that this has originally been a central argument coined in favor of the introduction of unconventional monetary policies.

recent reductions in structural market liquidity. As it is well-known from the theory of finance, price discovery is more difficult in such an environment. This in turn may result in a higher degree of market fragmentation and an increase in costs for credit because credit intermediation is reduced and financial conditions are tightened (IMF, 2013). Another consequence may be changes in the leverage and duration exposure of bond investors which in turn would reinforce the impact of higher interest rates and volatility[1].

2.6. Risks from spillovers to non-UMP economies – some specifics. As stated above, it seems fair to expect a certain degree of capital flow reversal towards the exiting UMP economy, and also an increase in borrowing costs of the non-UMP country to a certain extent. However, we might see additional volatility in the wake of an exit. Whether the exit is well-managed by the unconventional monetary policy countries or not, does not play an overly large role here. Instead, it is the degree of market imperfections which matters and tends to be large in emerging market economies which have received a significant amount of capital inflows in the more recent past. These imperfections could amplify the rebalancing of portfolios away from countries abstaining from UMP caused by higher bond rates (Belke, 2013; Carstens, 2013).

If a repricing of risk takes place, this could lead to a run by those investors which hold speculative positions. Under the condition that these investors use short-term funding to be highly leveraged, these effects are even amplified. In addition, thin markets as typical of some emerging markets are catalysts for movements in prices. Moreover, they may trigger sale spirals. Finally, movements of asset prices may be reinforced if there is high foreign exchange exposure, since investors are keen on deleveraging and closing positions (IMF, 2013).

The financial system is an additional catalyst with an eye on the fact that during exit, non-performing loans may tend to rise, the capital buffers may thaw away and funding disappears. This, in turn, endangers financial stability. What is more, investors contemporaneously flee from emerging markets which may cause contagion effects which in turn reinforce asset price movements and capital outflows (Forbes and Rigobon, 2002). In this context a robust *asymmetry* in the degree of comovement in capital flows is striking: comovement was higher as a reaction to the Fed's recent tapering indications than in the wake of earlier announcements of asset purchases (for details see IMF,

2013f). This kind of asymmetry is a common property of stretched markets[2].

It is the *exposure* and *resilience* of those economies that do not run non-unconventional monetary policies which will be determining the effects of tapering in reality. The probability of capital outflows and thus market volatility, which set in once exit has started in those economies with unconventional monetary policies, is driven by the country exposure to shocks. A country's capability to cope with market volatility and the outflow of capital is equivalent to resilience in this context (2013, Box 7).

In order to determine which non-UMP countries appear more vulnerable than others (and would implement retaliation measures which in turn may hit the Eurozone), one should look at the country-specific realisations of the exposure and resilience indicators or – even better – at the combination of both (IMF, 2013f). As a stylized fact, countries such as Australia with its higher resilience and Canada and Korea with their lower exposure – all more developed countries – and also some emerging markets are supposed to deal with an U.S. exit in an orderly fashion without being impacted too much (Carstens, 2013; and IMF, 2013). We now turn to sound numerical assessments of the impact of the Fed's exit from UMP in 2014 on the Euro area economy.

3. Spillover effects from monetary policy normalization to the Euro area – IMF simulations

The starting point of the simulation exercise is that U.S. monetary policy should become more restrictive, as soon as the U.S. economy is back on track – which is assumed to be the case in the 3rd quarter of 2014. Both items trigger capital flows into the U.S. and an increase in interest rates across the world, which per se slows down world economic activity. But higher U.S. growth and exchange rate depreciation vis-à-vis the U.S. dollar let other countries profit, especially countries such as the Euro area with significant export to the U.S. and equity markets which move upwards in close correlation with U.S. equities. Hence, the relative significance of each transmission channel and some idiosyncratic country conditions determine the net outcome for an economy such as the Euro area (IMF, 2013a).

The IMF makes use of *two sorts of macroeconomic models*. First, it produces simulations that are based on their G35-S model, a *structural macroeconometric model* of the world economy. G35 means that the global economy is disaggregated into

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[1] The IMF (2013g) and Stein (2013) investigate the pattern of market dynamics, especially in the bond market, in the exit process as well.

[2] IMF (2013), Box 6, demonstrates shock amplification caused by exit using a non-linear DSGE model. Policymakers also in the Euro area should be aware of an exit-generated bust more abrupt than the original boom which has generated the financial instability.

35 separate economies (Vitek, 2013). It catches temporary transmission of shocks via real and financial spillovers. However, this model cannot grasp the spillover effects emanating from persistent changes in key macroeconomic variables. Second, the IMF makes use of the Global Integrated Monetary and Fiscal Model (GIMF)[1] and the Flexible System of Global Models (FSGM) which are capable to do this. However, they exclude financial spillovers stemming from high correlation among risk premia and asset prices and, hence, tend to come up with a lower order of estimates of spillovers. Of course, the well-known caveats about impact analysis based on empirical models also apply here. In any case, one should distinguish three different possible modes of exit (IMF, 2013a; IMF, 2013c, pp. 161ff.)[2]: a) a "smooth growth-driven exit", b) a "growth-driven exit with complications" and c) an "exit without growth". The exit is assumed to start via endogenous or exogenous tightening in all three model variants in the third quarter of 2014. However, the different scenarios allow for *different ways of phasing out* from the UMPs.

Let us now first turn to the scenario (a) of an endogenous "*smooth growth-driven exit*" (IMF, 2013a): a rise in short-term Fed interest rates by 100 basis points which comes faster and earlier than in the baseline scenario lets the standard expectations theory determine the long-term interest rate increase, because the shape of tightening is well anticipated by market agents. This enhances global output beyond the baseline (Fig. 1). Exit by the Fed lets all countries *benefit to a larger extent from additional growth than they are hit by a stricter monetary policy stance* (IMF, 2013a)[3]. More specifically, the impact of U.S. exit on the Euro area is 0.0 to 0.5 per cent deviation of output from baseline in 2015 (Fig. 1).
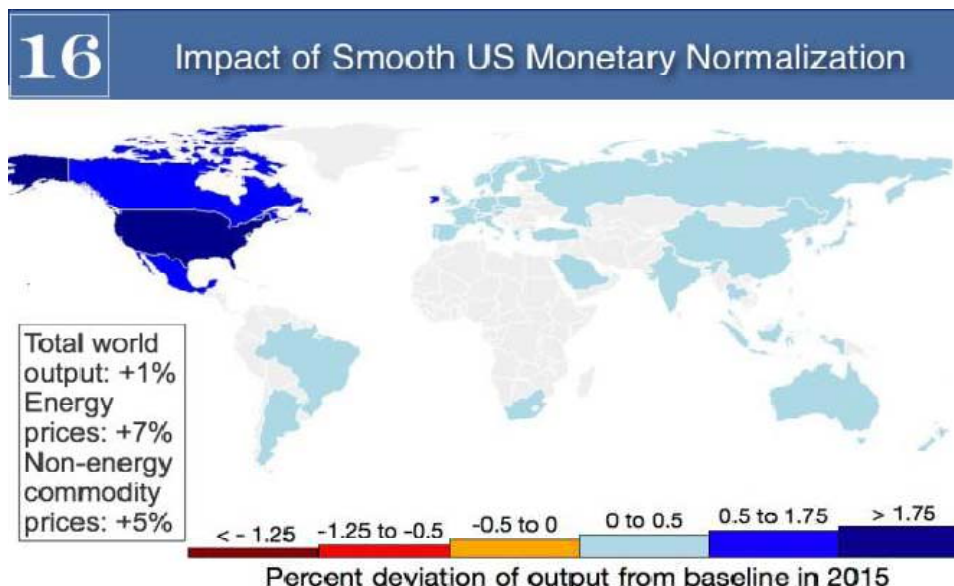
Notes: Based on simulations with the G35-S model. The short-term market interest rate is assumed to rise by 100 basis points over 2014: Q3 – 2016: Q2.
Source: IMF (2013a), p. 14.

Fig. 1. Impact of smooth U.S. monetary normalization

We now consider the scenario (b) of a "*growth-driven exit with complications*" (IMF, 2013a). Now, long-term interest rates in the U.S. are not well anchored anymore and like the uncertainty indicator and "investors' fear gauge" VIX based on S&P 500 index options leap up as monetary policy is tightened. The fact that rates keep their level for quite a while, amplifies capital outflows from the remaining countries. However, these effects relate primarily to high risk countries. Except for countries with very strong trade linkages with the U.S., the outcome in terms of output would worsen.

Estimates of the impacts of Fed exit on the rest of the world including the Euro area employing a G35-S simulation assume an identical short-term interest rate tightening as in the previous exercise, but additionally incorporating a shock consisting of an add on to long-term rates of 100 basis points for one year in the U.S. As a result, global growth turns out to be comparable to baseline growth (Fig. 2). However, for the economies whose trade is not as closely linked to the U.S.,

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[1] GIMF denotes a multi-country dynamic structural general equilibrium model including optimizing agents and a full inter-temporal stock-flow accounting. See Anderson et al. (2012) and Kumhof et al. (2010) and, as a point of reference, also Angeloni, Faia and Winkler (2011).

[2] For technical details see IMF (2013c), section IX. 25 and 26.
[3] This pattern corresponds with the IMF (2013e) FSGM simulation.

the exit-cost dominates the demand push from the U.S. and leads to an output fall below baseline. This is also valid for the Euro area (Figure 2). The impact of U.S. exit on the Euro area turns out to be -1.25 to -0.5 percent deviation of output from baseline in 2015. These orders of magnitude are corroborated by additional estimates gained from FSGM simulations (IMF, 2013a).
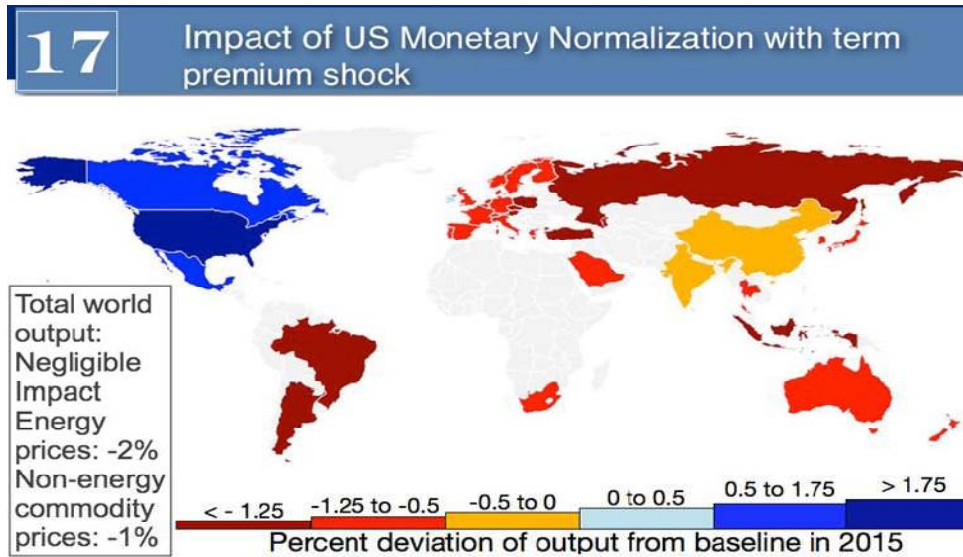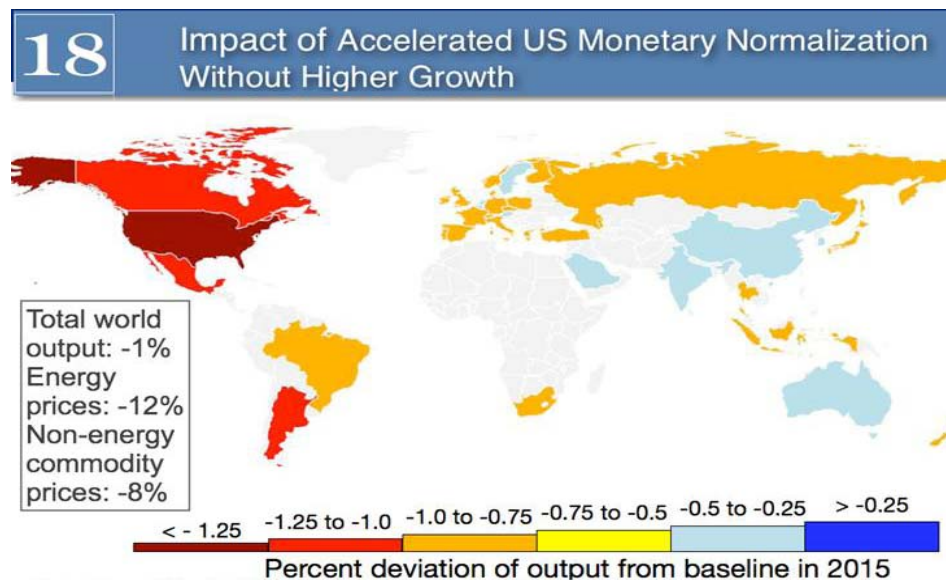

Notes: Based on simulations with the G35-S model. The short-term and long-term market interest rates are assumed to rise by 100 basis points over 2014: Q3 – 2016: Q2 and 2014: Q3 – 2015: Q2 respectively.
Source: IMF (2013a), p. 15.

Fig. 2. Impact of U.S. monetary normalization with term premium shock

Let us finally consider the scenario "*exit without growth*" (IMF, 2013a). This is a scenario where any growth momentum is absent and exit is conducted prematurely, with an eye on increasingly pressing financial risks. In this case, the tapering effects on output turn out to be negative on a worldwide scale. However, the IMF admits that these effects are less unpalatable than granting bubbles to emerge and then burst thereafter (IMF, 2013a, p. 16). Simula-tions using the IMF's G35-S model come up with the very bad scenario that the U.S. and the rest of the world suffer at an order of magnitude of several percentage points of growth. Figure 3 shows the world map of results of Fed exit for short- and long-term rates peaking at 50 basis points above the baseline for one year. The impact of U.S. exit on the Euro area turns out to be -1.00 to -0.75 percent deviation of output from its baseline prevailing in 2015.

Notes: Based on simulations with the G35-S model. The short-term and long-term market interest rates are assumed to rise by 100 basis points over 2014: Q3 – 2016: Q2 and 2014: Q3 – 2015: Q2 respectively.
Source: IMF (2013a), p. 15.

Fig. 3. Impact of accelerated U.S. monetary normalization without higher growth

It is important to note that the IMF closely follows conceptual considerations but does not attach any probabilities to the different scenarios. But if one looks at the results under scenario c) it appears to be only a preliminary exercise because the Fed would not accept increasing unemployment figures after exit has started (Gerlach, 2013).

4. Policy options to minimize exit risk

Policymakers dealing with non-unconventional monetary policies can choose between several policy options to cope with spillovers from (large) countries exiting from UMP. In section 1, this paper has assessed international policy coordination as a necessary, but not sufficient tool to minimize the following elements. A sufficient policy mix should also contain following elements.

The best proactive measures which can be taken by exit-affected economies such as the Euro area, are further progress to *strengthen the euro's fundamentals* as, above all, debt sustainability to make the Euro area weatherproof and to enlarge room for maneuver later when also the ECB will exit from its UMP (IMF, 2013).

Another option to cope with the risk of exit also considered by the IMF is *tactical* outright *asset purchases*. Only recently, the U.S. Federal Reserve has indicated the possibility of tactical asset purchases if the volatility and overshooting in bond yields were severe and prices were departing too much from their fundamentals. However, the effectiveness of such an intervention to smoothen exit is known to be very low, unless yields are substantially misaligned, which can simply not be empirically corroborated in an unambiguous way as the current unresolved scientific debate about the OMTs demonstrates (Belke, 2009, 2010; IMF, 2013). In addition, there may not be a free lunch: costs of heavy and continuous interventions can be assumed to be high (Belke, 2010). Finally, tactical asset purchases bear the risk to confuse markets, in particular if the respective central bank in charge for exit is simultaneously lowering short-term rates and purchasing assets to suppress long-term yields.

As shown in section 2, exit periods are typically characterized by weakening or even reverting capital flows. Under these severe circumstances it is of utmost importance that central banks in exiting economies as well as in the non-exiting ones demonstrate credibility and excellent communication skills to convince markets that they strictly stick to low target inflation and financial stability. This would be of decisive importance to attenuate the "flight to quality" and the increases in risk premia going along with it (Belke, 2009; IMF, 2013). What is more, as stated in section 2, emphasis should be laid on letting exchange rates react to changes according to fundamentals.

As things stand, it seems as if the tool of choice to contain instability during the process of exit is *communication*. Forward guidance, understood as a clarification of the actual Taylor reaction function of a central bank to the public, may be one important component of a successful communication strategy. The latter should also contain guiding principles for asset sales and explicitly discuss the risks to global recovery and stability from a too late exit versus exiting too early. As shown above, too much communication is less of a problem than insufficient communication, leading to shock-type surprises on the markets (IMF, 2013). According to the current economic outlook, it seems as if these principles will most probably be applied first to the Fed, but later on also for the ECB.

However, there is a non-zero probability that this normalization will take longer than originally envisaged, at least if one follows Lawrence Summers' thesis of "secular stagnation". So there is the danger that UMP will become the "new normality" – in spite of all theoretical considerations presented in this paper. After all, one could observe a parallel negative trend in interest and inflation rates in the previous decades. As a consequence, it is quite natural that in times of crisis one arrives at the lower zero bound. Further research may also focus even more on the interactions between fiscal and monetary policy exit (Belke, 2009; and Angeloni, Faia and Winkler, 2011) and their impact on the Euro area.

Concluding remarks

This paper comments on the pros and cons of exit strategies with a specific focus on the impacts of the exit from unconventional monetary policies (UMP) by the Fed, which, if at all, appears to be the first central bank to move on the Euro area economy.

In this context, it first discusses the issue of policy coordination between central banks in the light of the substantial potential spillover effects via capital flows and exchange rate adjustments of exit from unconventional monetary policies. From a market economy perspective, it is clearly desirable to have international policy coordination in place, which ensures that *non-pecuniary* cross-border policy spillovers are appropriately *internalized*. However, induced *exchange rate changes* are part of the *necessary portfolio adjustment* to the new global equilibrium, accompanying the unilateral exit. Accordingly, they should be classified as pecuniary effects and cannot serve as a justification of coordination.

In the following, we assess the risks of a premature or delayed exit. To be more specific, we try to gauge the risks posed by the exit from unconventional monetary policies and a turning of the interest rate cycle both for the exiting countries and for other

regions in the world due financial spillover effects. This is done precisely because any impact on the latter (the non-UMP countries) has an impact on the former (the UMP economies), via repercussion effects. Whereas many domestic risks stemming from a withdrawal of UMP in the exiting economies such as the Euro area have been discussed extensively in my previous papers, the focus of this paper is on the risks of a premature or delayed exit for non-UMP economies, and the feedback effects on other countries. Whenever we talk about exit strategies and their impact on the Euro area economy, we have to analyze spillover effects. Hence, we start by examining the risk associated to spillover effects and then look at different potential shapes of exit paths. We also analyze exit strategies in a wider context. We first classify types of UMP and exit strategies. We then investigate the financial stability risks associated with the exit, with a specific focus on the role played by uncertainty in the process. Empirical evidence is consistent with *increased volatility in long-term rates* triggered by exit. There is a lot of uncertainty around exit decisions and their impact both on policy instruments (e.g. interest rate volatility) and targets (e.g. debt sustainability), which must be taken into account by policymakers when designing an exit strategy.

Based on new and innovative global IMF models, this paper reports estimates of the impact of the Fed's exit from UMP in 2014 on the Euro area economy. To this purpose, three different possible modes of exit are distinguished: (a) a "smooth growth-driven exit", (b) a "growth-driven exit with complications" and (c) an "exit without growth". The exit is assumed to start via endogenous or exogenous tightening in the third quarter of 2014. However, the different scenarios allow for *different ways of phasing out* from the UMPs. More specifically, the impact of the U.S. exit on the Euro area is estimated to be a 0.0 to 0.5 percent deviation of output from baseline in 2015 under scenario (a), -1.25 to -0.5 percent deviation of output from baseline in 2015 according to scenario (b) and -1.00 to -0.75 percent deviation of output from its baseline prevailing in 2015 according to scenario (c). However, the IMF closely follows conceptual considerations but does not attach any probabilities to the different scenarios.

The main implication to be drawn from the rich set of considerations conducted in this paper is that adequate communication seems to be an important tool to contain instability during the exiting process. However, it is likely that this normalization will take longer than originally envisaged, at least if one subscribes to Lawrence Summers' thesis of "secular stagnation" which he recently presented at the 2013 Annual IMF Research Conference. So, there is the danger that UMP will become the "new normality" – in spite of all theoretical considerations presented in this paper.

The main limitations of the latter are, on the one hand, directly related to the qualitative character of the main recommendation of "good communication" of the Fed's exit which cannot at all be easily operationalized and covered by reliable rules. On the other hand, the IMF spillover models focused on in this paper contain a lot of rather specific and idiosyncratic assumptions about international interest rate transmission and the reaction of the external value of other countries' currencies to the Fed's exit. As far as the latter is concerned, we have seen developments of the external value of the euro in the more recent past – a "too strong euro" – which does not seem to be compatible with the mainstream assumptions about impacts of fundamentals employed in the IMF models. To develop competing models of global liquidity spillovers is certainly an important area of further research (Belke, Beckmann and Czudaj, 2013, 2014).

Acknowledgement

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