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Does EMU require CMU?

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Summary: Every initiative that potentially increases the effectiveness of monetary policy is welcome. The European Union's Capital Markets Union (CMU) project is potentially a point in case, even though monetary policy is not a policy target of CMU. Increasingly developed capital markets in the EU are neither sufficient nor necessary conditions for the effective conduct of monetary policy. Credibility of the central bank, a well-functioning and flexible operational framework, as well as appropriate, targeted instruments compatible with the respective financing structures are more important. Still, more efficient pricing, risk-sharing, and more independence from the banking sector could increase the effectiveness of monetary policy in the euro area, possibly easing potential technical restrictions in crisis times and in an environment of very low interest rates. Moreover, the indirect benefits from more diversified funding sources in general, and capital markets-based funding in particular, also speak in favor of promoting the CMU from a monetary policy perspective.

Zusammenfassung: Jede Initiative, die die Wirksamkeit der Geldpolitik erhöht, ist grundsätzlich begrüßenswert. Das Projekt Kapitalmarktunion (Capital Markets Union, CMU) der Europäischen Union ist potenziell eine solche Initiative, wenngleich Geldpolitik kein Ziel der CMU ist. Zunehmend entwickelte Kapitalmärkte in der EU sind weder hinreichende noch notwendige Bedingungen für eine wirksame Durchführung der Geldpolitik im Eurowährungsgebiet. Die Glaubwürdigkeit der Zentralbank, ein funktionierender und flexibler operativer Rahmen sowie geeignete, zielgerichtete Instrumente, die mit den jeweiligen Finanzierungsstrukturen kompatibel sind, sind weitaus wichtiger. Dennoch könnten effizientere Preisgestaltung, Risikoteilung und eine höhere Unabhängigkeit vom Bankensektor die Wirksamkeit der Geldpolitik im Euroraum erhöhen und es erleichtern, mögliche technische Einschränkungen in Krisenzeiten sowie in einem Umfeld sehr niedriger Zinsen zu überwinden. Darüber hinaus sprechen die indirekten Vorteile diversifizierter Finanzierungsquellen im Allgemeinen und kapitalmarktbasierter Finanzierung im Besonderen für die Förderung der CMU auch aus einer geldpolitischen Perspektive.

→ JEL Classification: E, F, G

→ Keywords: Monetary policy, Capital Markets Union, euro area

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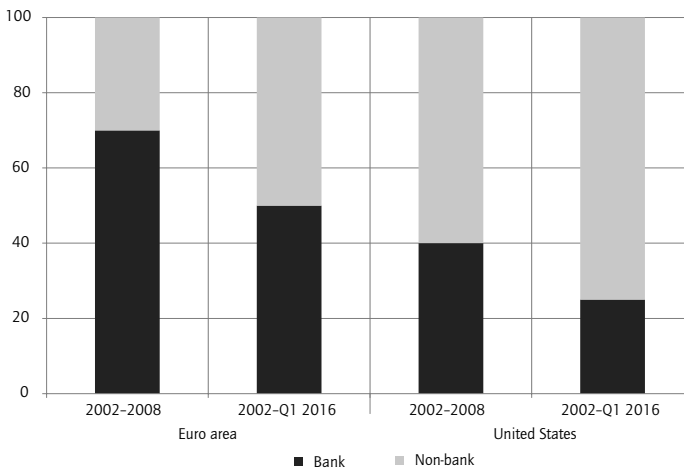
I Introduction

In September 2015 the European Commission launched the Capital Markets Union (CMU) project. It aims to establish a true single market for capital across all its member states and is part of the Commission's priority to create jobs, accelerate growth, and investment across the EU. To this end, the CMU strives to overcome investment shortages by increasing and diversifying the funding sources for firms and long-term projects, in particular to tackle the barriers for cross-border investments in the EU. In particular, securitization markets should be revived.

Figure 1

Share of bank and non-bank financing in total non-financial corporation financing in the euro area and the United States

Cumulated transactions, percentages



Source: ECB, ECB calculations.

The promotion of alternative sources of finance, such as bonds, venture capital, and crowdfunding, etc. should complement, not replace the prevailing bank-financing of the real economy for which continental Europe is known. Securitization—as a hybrid involving both bank loans and capital markets instruments—can potentially promote bank-based financing as it reduces banks' funding costs and increases balance sheet capacity by freeing-up capital.

Indeed, while financial systems in the U.S. and the UK have traditionally been mainly market-based (i. e., relying on issuing of debt and equity in primary markets), in the euro area, 80 percent of non-financial firms' liabilities prior to the crisis were bank loans (Draghi 2014).

Obviously, the CMU is a project worth pursuing on the basis of its own merits and objectives. From a central bank's perspective, the question is if, and how, monetary policy can benefit from a

more diversified financing regime in the euro area in general and whether a more capital-market-based system could more specifically increase the effectiveness of monetary policy. Although the CMU has a much broader scope, I will focus on the financial structure in this context. To do so, I will first recall how the transmission mechanisms of monetary policy function, before discussing the impact of moving towards more capital markets financing on the effectiveness on monetary policy in different environments, i. e. before, during and after the financial crisis and in a low interest rate environment. Thereafter, I will discuss some of the indirect consequences of a CMU on monetary policy in the euro area.

2 **Illuminating the black box: transmission channel of monetary policies**

Monetary policy impacts price developments and the real economy (at least in the short run). It is a complex process involving numerous channels. As information asymmetries, market imperfections, time lags, and temporary disturbances have amplifying, but also dampening effects on the transmission of monetary impulses, a proper understanding of this black box of monetary policy is an important, but challenging, task (Bernanke and Gertler 1995). How exactly the monetary impulse, be it accommodating or restrictive, is passed on, is still an open question with its own field of economic research. For the purpose of this paper, a summary of the different transmission channels should be sufficient.

Asset price channel

The impact on financing conditions in the economy and on market expectations triggered by monetary policy actions (as well as their expected evolution) may lead to adjustments in asset prices. Higher or lower prices of shares e. g. impact the wealth of households and firms, influencing their scope for consumption and investments. Moreover, these affect their ability to take out loans: as the value of collateral changes, borrowers get larger/smaller loans as the risk premia demanded by lenders are reduced or increased commensurately with changing collateral values.

Interest rate channel

Higher interest rates increase the risk of borrowers being unable to pay back their loans. Given asymmetric information, they also come with adverse selection issues. Thus, banks may cut back on the amount of funds they lend. Changes in policy rates can affect banks' marginal cost for obtaining external finance differentially, depending on the level of a bank's own resources, or bank capital.

Credit channel

A restrictive monetary policy reduces banks' reserves and deposits. This impacts the banks' capacity to supply loans. As a consequence, bank-dependent borrowers will be particularly affected. Having reduced access to funds, this implies lower capital expenditures.

Bank capital channel

The level of a bank's capital can affect the supply of bank loans. Banks with higher capital, hence assessed as more resilient, have easier access to finance, thus allowing them to grant more loans. Banks with weak capital bases are more strongly affected by a tightening of monetary policy, as this increases their marginal cost of lending.

Risk-taking channel

The risk-taking channel feeds through two mechanisms. First, as already mentioned, low interest rates increase asset and collateral values. If economic agents think that this increase is sustainable, both borrowers and lenders are willing to take higher risks. Second, low interest rates make riskier assets more attractive. Agents search for higher yields. In the case of banks, these two effects typically translate into a relaxation of credit standards, which can boost the supply of loans.

Exchange rate channel

Changes in exchange rates affect not just the relative prices of goods and services, but also household wealth if some assets are held in foreign currencies. An appreciation of the exchange rate makes imported goods and services relatively cheaper; hence putting pressure on import-competing sectors. It also means that exports become less price-competitive. Both imply shrinking net exports. Conversely, depreciation makes exports cheaper to foreigners. Likewise, with depreciation, imports become more expensive compared to goods produced domestically.

Expectations channel

Expectations of future official interest-rate changes affect medium and long-term interest rates via the yield curve. In particular, longer-term interest rates depend in part on market expectations about the future course of short-term rates. Monetary policy can also guide economic agents' expectations of future inflation, thus influencing price developments through the behavior of wage and price setters.

Assessment of the various transmission channels from a financial market structure perspective

Both the banking system and capital markets play an important role in the process. This is particularly true as an either-or system cannot be found in reality.

In principle, the transmission of monetary policy requires an operational framework and instruments¹ tailored towards the financial structure. Regarding the speed at which the monetary stimulus reaches the real economy, two observations can be made.

First, capital markets tend to react more quickly to changes in monetary policy stances than banks do in adjusting their lending rates. Banks are also slower in adjusting terms and conditions, thus influencing the adjustment lag. However, this advantage of a capital markets-based financial system comes at the cost of higher volatility. Moreover, investors, i. e. the providers of funds, also retrench more rapidly in times of turmoil. Likewise, also non-financial factors of course play a substantial role, e. g. the structure of the real economy as rigidities in labor and product markets slow down the adjustment of wages and prices.

Second, most of the aforementioned channels are frontloaded via the expectation channel. Market participants, households and firms—including banks—adjust their behavior once the central bank has made its decision public with regard to intended changes in its monetary stance. This signaling effect—a sub-category of the expectations channel—becomes effective well ahead of the actual implementation. This effect can be so pronounced that at the time of actual implementation of a measure, no significant reaction can be observed. However, this requires a proven track

1 For a thorough analysis of operational frameworks see Bindseil 2016.

record of effective implementation of previous measures. Thus, the credibility of the central bank is a pivotal prerequisite for the successful management of expectations in this respect.

3 **How the financing systems impacts monetary policy**

Honey moon years: The euro experience prior to the Financial Crisis

The first years of the euro area were marked by moderate inflation and solid growth. The introduction of the common currency was tantamount to the abolishing of national currencies. This also implied, inevitably, the end of nominal exchange rates amongst EMU member states. Concurrently, a central bank with a clear and explicit mandate to maintain price stability as its primary objective was established. An integrated money market, a single yield curve, solidly anchored inflation expectations, and the absence of major financial upheaval improved financing conditions for the real economy.

From 1999 to mid-2007, the average inflation rate in the euro area was 2.04 percent. As the quantitative definition of price stability, according to the understanding of the Governing Council, is “below but close to 2 percent,” the ECB monetary policy was generally effective in honoring its primary mandate.

Prior to the crisis, monetary policy was transmitted to the real economy mainly via the interest channel within the mainly bank-financed system. As examined by the work of the euro system research network (Angeloni et al. 2003), established in 1999 to study the transmission channels of monetary policy, a tighter monetary policy stance led to a—temporary—decrease in output 12 to 24 months after the change in the stance. Prices also reacted in a textbook manner, i.e. inflation decelerated after a tightening move, but they did so more gradually and slowly compared to the reaction of output.

All in all, in view of the satisfactory outcomes in terms of inflation and output during the honeymoon years of the euro area, the effectiveness of monetary policy was clearly not negatively affected by the dominance of bank-based finance.

Still, it is worth considering two major developments that took place during this period; both having an indirect impact on the monetary policy transmission mechanism:

First, continued structural reforms to both the labor and product markets helped to overcome wage rigidities and price adjustments. This reduction of nominal rigidities had a positive impact on the conduct of monetary policy insofar as changes in the monetary policy stance were transmitted more quickly to the price level—the central bank’s object of desire (Christoffel, Kuester, and Linzert 2009, ECB monthly bulletin: May 2010).

Second, financial innovations gained traction in an ever more integrated financial market (ECB monthly bulletin, “securitization”, February 2008). In particular, securitization was introduced and, subsequently, its use grew rapidly. Securitization is the issuing of fixed-income securities backed by a pool of bank loans. Indeed, the diffusion of securitization weighed on the effectiveness of monetary policy. The increase in securitized bank loans facilitated banks’ access to additional funds. Consequently, this reduced one important liability-side constraint to the exten-

sion of bank loans. Moreover, securitization allowed moving risks off balance sheet (which eases economic and regulatory capital constraints) via other financial innovations (e. g. credit default swaps). This further stimulated the provision of credit and made the bank lending channel of monetary policy, *ceteris paribus*, less effective (ECB monthly bulletin, May 2010, Altunbas, Gambacorta, and Marquez-Ibanez 2009, Loutskina, and Strahan 2006: 861–922).

Ironically, one of the expected advantages of more securitization turned into a threat. Intended to decrease the reliance of banks on deposits as major funding source, making the sector more resilient against potential funding constraints, it became more exposed to financial markets risks: more precisely, to roll-over or funding liquidity risk. Thus, the shock absorbing potential of a wide spread use of securitization turned, in the aggregate, into a fire accelerant when the Great Financial Crisis erupted.

With the benefit of hindsight, one can distinguish between different types and characteristics of securitization, some the root cause of the GFC, others harmless or stability enhancing. Since then, initiatives aiming to revive securitization markets clearly intend to build on the lessons learned from the U.S. sub-prime crisis and to support only safe, simple, and transparent Asset Backed Securities with a direct link to the real economy. The joint initiative of the Bank of England and the ECB is a point in case (Bank of England, ECB 2014). The CMU builds on this understanding as the forthcoming framework to identify simple, transparent and standardized (STS) securitizations shows.

4 **Monetary policy transmission in times of financial distress**

Things changed with the outbreak of the financial crisis and the continued challenges in the aftermath. For a more comprehensive assessment of the interplay between monetary policy and the financing structure (and hence the potential consequences of CMU), the analysis should not just be restricted to “normal times,” but also take into account how challenges for monetary policy are managed during times of financial distress.

Three phases of the financial crisis can be distinguished for the euro area: the actual financial crisis, the sovereign debt crisis, and the challenge of very low inflation given the (zero) lower bound of monetary policy. With similarities regarding the overall impact on output and inflation, the root causes of these crises were different and so were the remedies the ECB implemented. I discuss each of those phases in turn.

Tensions in the interbank markets in the summer of 2007 were the first signs of the approaching global financial crisis that broke out in September 2008 when the Lehman Brothers investment bank went bust. Subsequently, all unsecured lending basically came to a halt.

To prevent a complete meltdown of the financial system and to stop the potential freefall of economic activity, central banks worldwide had to address the tensions in the money market and systemic stress in the banking sector. Moreover, they slashed interest rates to unprecedented levels.

While the task of lowering the policy interest rates was basically the same in all jurisdictions (technically, business as usual), the major central banks faced different challenges in unclog-

ging the transmission channels in light of the different operational frameworks and financing systems.

To ensure banks continued access to liquidity, the ECB changed its mode of refinancing operations from auctions with banks to so-called fixed-rate, full-allotment in all maturities. Under fixed-rate, full-allotment counterparties have their needs fully satisfied as long as they can pledge adequate collateral. The fixed-rate, full-allotment policy was complemented with longer term operations. These operations (6-month and 12-month in this phase of the crisis), by reducing uncertainty, further alleviated the funding constraints faced by the banking system over a longer time horizon. The ultimate purpose was, of course, to support lending to the 'real' economy.

Many central banks extended their respective eligible collateral lists, lowered their minimum rating requirements of existing eligible collateral, or relaxed their haircut standards. This included the ECB and the euro system. As the euro area collateral framework already accepted a wide range of collateral before the crisis, the euro system only had to make relatively minor adjustments to its collateral framework compared to other central banks. Admittedly, although this wide and flexible list of eligible collateral was the result of the original need to accommodate a very diverse financial system, when the euro was introduced, it ended up being a critical crisis-mitigation tool.

Beyond the provision of credit to banks and maybe on the more innovative side, the ECB started to purchase covered bonds. The first Covered Bond Purchase Programme (CBPP1), which started in July 2009, had four objectives: first, reducing money market term rates; second, easing funding conditions for banks and enterprises; third, encouraging credit institutions to maintain or expand their lending to households and enterprises; and, fourth, improving market liquidity in important segments of private debt securities markets (González-Páramo 2011).

The Federal Reserve also had to stabilize the transition of its monetary policy stance (Bernanke 2009). It did this differently from the ECB, given its different background conditions, i.e. the bigger role financial markets play in the U.S. This reflects a fundamentally different operational framework of monetary policy. Before the crisis, the Federal Reserve adjusted the liquidity it provided to the banking system through daily operations with a relatively small set of primary broker-dealers against a narrow set of collateral, mainly Treasury and agency securities.

In the advent of and during the actual crisis, the Fed strived to fulfil its traditional role as the lender of last resort for the banking sector, first, by providing short-term liquidity to banks, depository institutions, and other financial intermediaries. The discount window, the crisis-related Term Auction Facility (TAF), Primary Dealer Credit Facility (PDCF), and Term Securities Lending Facility (TSLF) are examples.

Second, the Federal Reserve created a range of emergency liquidity facilities to meet the funding needs of important non-banks, including primary securities dealers, money market mutual funds, and other short-term funding markets, including purchasers of securitized loans (Kohn: 2010). This category includes the Commercial Paper Funding Facility (CPFF), Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), Money Market Investor Funding Facility (MMIFF), and the Term Asset-Backed Securities Loan Facility (TALF). These provided a backstop to a funding system close to unravelling.

Both the ECB and Federal Reserve faced major challenges ensuring the pass through of their monetary policy easing. They used and implemented different instruments and measures because of the differences in the respective operational frameworks and their interplay with the banking system and financial markets. The measures needed to be targeted and tailor-made, i. e. compatible with the financing system, in order to be effective. Some of the instruments were hybrids, hence not fitting into a dichotomist assessment, e. g. covered bonds and ABS purchasing programs involve both the banking sector and capital markets.

However, there is no evidence that the dominance of the banking system (euro area) or market-based system (USA.) proved superior, as ultimately both jurisdictions rely on a combination of the two.

5 **The unique European challenge: sovereign debt crisis**

Unlike other challenging periods following the demise of Lehman Brothers, the euro area confronted a unique problem at the end of 2009. When the actual size of the Greek deficit was disclosed, markets became aware of the real dimension of the debt burden there, thus beginning the European sovereign debt crisis. Additionally other euro member states had difficulties refinancing their sovereign debt or bailing out their banks without external financial aid.

The close link and interdependence between banks and sovereigns in the euro area triggered a vicious circle. Sovereigns and their national banking systems are intertwined through many channels. These include bank claims on sovereigns, the resultant correlation between sovereign and bank credit ratings, public backstops, collateral in banks' operations, and the effects of fiscal distress on the overall economy—and, consequently, the quality of bank loans. Thus, problems in the banking sector can trigger downward spirals in which increased sovereign risk, banking system difficulties, and the deteriorating economic situation spill over and feed on each other. A similar negative spiral can be triggered by problems of the sovereign (as in the case of Greece).

Investors were panicking and speculation targeted the fiscally weakest member states, with contagion spreading throughout the so-called periphery. This wave casted doubts about the sustainability of the respective debt levels and even the euro area as such.

In the then absence of a crisis resolution mechanism, a federal fiscal counterpart, a single banking sector and a (monetary) lender of last resort for sovereigns the transmission of monetary policy became severely impaired. The effective interest rates on bank loans (and other means of external financing) differed substantially from country to country. The notion of a single monetary policy has become a fantasy.

The apparent shortcomings of the institutional set-up of the euro were tackled by the political leaders. To regain credibility for the long-term sustainability of public finances, despite soaring deficits during the crisis, overhauled fiscal rules were introduced (two-pack, six-pack, fiscal compact). Moreover, to detect future fiscal stress earlier, the monitoring of imbalances in the real economy was introduced (macro-economic imbalance procedure). To make the banking sector as such more resilient, to break the doom-loop between sovereigns and banks, as well as to protect taxpayers from the costs of banking crises, new financial rules were introduced (CRR, CRD IV;

BRRD) and institutions established (the single supervisory mechanism, SSM, the single resolution mechanism, SRM). Likewise, and independent of the Banking Union, the European Stability Mechanism, ESM, was established.

The banking union is still incomplete. Single supervision and resolution are being established, although the latter still lacks a common backstop. However the European Deposit Insurance Scheme, EDIS, is yet to be added to first two pillars.

Although the painfully disclosed institutional shortcomings were political in nature, monetary policy had to act in the meantime to honour its obligation to ensure price stability while respecting its binding legal constraints.

Apart from the already mentioned instruments, two main new ones were introduced to cope with this challenge.

First, the Securities Markets Program, SMP, an asset purchasing program, was the Euro system's attempt to ensure depth and liquidity in dysfunctional market segments (sovereign bonds and related ones). The objective was to restore an appropriate monetary policy transmission mechanism. SMP helped to avoid, for some time, an uncontrolled increase in sovereign bond yields and, thereby, financing costs in general for the economy with adverse implications for price stability. It helped to narrow spread between sovereign yield curves in the Euro Area where an unjustified re-denomination premium was requested by investors.

Second, the Outright Monetary Transactions Program, OMT, was aimed at safeguarding appropriate monetary policy transmission. The OMT program allows for the outright purchases of bonds issued by eurozone member-states in secondary bond markets, conditional on the participation in a European Financial Stability Facility/European Stability Mechanism (EFSF/ESM) program. Although it was never implemented and was unsuccessfully challenged in both European and national courts, its availability proved highly effective and compensated for the perceived lack of a monetary backstop for sovereigns. With the announcement of OMT, the SMP program was terminated.

Could this particular phase have been prevented or would the monetary policy crisis intervention have been more effective had there been a more developed and deeper capital market in the euro area? The answer is not straightforward. The national banking sectors clearly were restricted in their ability to lend depending on the health of the public finances of their home countries. Likewise, to a large extent, the spread on sovereign bonds determined the interest rates that companies had to pay for bank loans. This speaks for moving away from bank to more capital markets finance. However, the link between a security's price and its country of origin credit standing is not necessarily weaker than the bank-loan-sovereign loop.

For instance, credit rating agencies, which assess, evaluate, and quantify the credit risk of securities, apply a rating ceiling on securities derived from the sovereign of issuance, i. e. the rating of a particular corporate bond normally does not exceed the rating of its country of origin. Until 1997, e. g. Standard & Poor's (S&P) never granted credit ratings to private companies higher than the ratings given to the debt issues by the sovereign, the 'sovereign ceiling' (Borensztein, Cowan, and Valenzuela 2013). According to the rationale of a rating agency, bank ratings are, in particular, constrained by the sovereign rating as it reflects the government's wide-ranging powers in areas

such as taxation, employment, business activity, exchange rates, and capital controls. Moreover, government regulations can directly impact not just banks, but also the financial position of the bank's customers, i.e. corporations.

To break this link, a true single capital market would be required, i. e. detaching the respective security from sovereign risk and/or a pooling of assets from different jurisdiction in a "federal financial product" in case of securitization. Thus, for the CMU, it is crucial to overcome the national dimension in securities markets and not only concentrate on the mere deepening of national capital markets. In order to do so, the CMU should promote the creation of supra-national and cross/border assets.

6 The thread of deflation: overcoming the zero lower bound

Although the root causes of this third phase are still disputed among scholars,² all major currency areas have faced the danger of falling into a deflationary abyss and combating very low inflation rates while having hit the zero lower bound of monetary policy.

In an environment of very low interest rates, the conduct of monetary policy indeed becomes more difficult. Its traditional instrument—the policy interest rate—runs into a limit at the zero lower bound: people will simply hoard cash rather than allow their bank deposits to be depleted. Since cash is a zero-coupon bond with infinite maturity, it is more attractive than holding assets with negative nominal yields.

However, holding cash is entirely cost free only in theory. Storing a large amount of cash requires not just high-security storage but also insurance and other maintenance costs. These specific costs of cash explain why the effective lower bound on interest rates is below zero (Coeuré 2016), allowing central banks to dive into negative interest rate territory.

To overcome this technical restriction, all major central banks embarked into some sort of Quantitative Easing (QE). Simply put, QE is an unconventional monetary policy measure in which a central bank purchases government bonds and/or other securities from the market. The resulting increase in asset prices leads to lower yields, thus easing credit conditions. Borrowing costs for firms and households decline and, consequently, stimulate investment and spending. Some—like the ECB and the Bank of Japan—combined their outright purchase programs with negative interest rates to increase the effectiveness.

It is still too early to judge the effectiveness of the respective programs. In the euro area, the program is still ongoing. The U.S. is further advanced in the economic cycle and recovery, but although the Fed has stopped purchasing assets and has started to increase the federal funds rate, the final step of ending QE is yet to come. This entails shrinking the central bank's balance sheet

² The debate on secular stagnation was triggered by Larry Summers (Summers: 2014). In reference to the works of Alvin Hansen in the late 1930s, Summers argues that the industrial world faces an imbalance of an increasing propensity to save and a decreasing propensity to invest. The result is that excessive savings drag on demand, reducing growth and inflation, while the imbalance between savings and investment pulls down real interest rates – even to negative territory. His hypothesis and arguments are not uncontroversial. An overview about the academic dispute can be found at: <http://voxeu.org/article/larry-summers-secular-stagnation>

to pre-crisis levels (or, alternatively to decide to keep the balance sheet significantly above what was normal before the crisis).

Not only because of a yet to come well-managed exit, already a preliminary assessment of the effectiveness of the non-standard measures (NSM) faces additional challenges. Amid the measures being simultaneously implemented, the absence of counterfactual developments, and a number of external factors, like changes in regulation, the evaluation of the effects is a rather complex undertaking.

Technically speaking, there is an important difference between conventional monetary policy measures and NSM. While the first encompass instruments designed to control the operational target, i.e. in normal times the short term interest rates, the latter addresses segments of the financial markets that are closely linked to the real economy and, hence, could help the transmission of monetary policy e.g. term, liquidity, and credit spreads (or long term risk free rates as an equivalent alternative); or financial stability by unclogging the monetary policy transmission mechanism (see Bindseil 2016: 6).

The ultimate objective of the NSM package was to achieve price stability, at times even to prevent the risk of a deflationary spiral. Accordingly, its effect on the inflation rate has to be gauged—without addressing the problem of the missing counterfactual. In January 2015—the month of APP announcement—headline inflation in the euro area stood at -0.6 percent. In May 2017, it was 1.4 percent.

However, for the purpose of this paper, it is more interesting to assess the direct effects of NSM on financial markets and bank funding conditions via particular implicit operational targets.

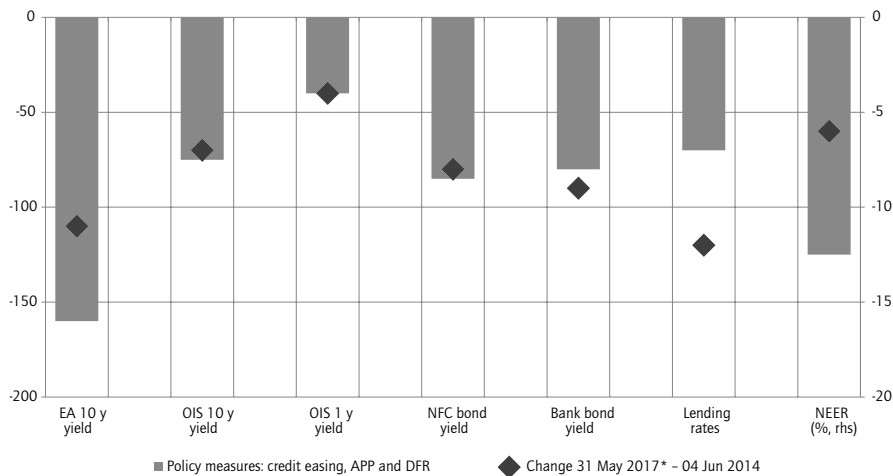
In the euro area, short-term money market rates (e.g. EONIA) are the operational target in normal times. Monitoring and controlling of these are rather established tasks with relatively low complexity. The combination of increased (perceived) counterparty risk and abundant liquidity provision meant that unsecured money market activity has decreased significantly. Likewise, the information content of these rates has decreased.

Ideally, measuring the contribution of each instrument would be needed to optimize the deployment of the policy toolkit in unconventional monetary policy times. To measure the marginal contribution of each instrument, however, is a complicated undertaking (Praet 2017). Moreover, the broad range of different NSM targeted variables beyond money markets, are addressing both banking sector and financial market intermediation. This obviously makes the evaluation process even more complex, i. e. the NSM requires assessing a variety of indicators (Figure 2).

Last, but not least, a very effective, but intangible and, thus, unmeasurable, element of the overall package is the ECB's forward guidance. Since July 2013, the ECB's Governing Council has provided integrated conditional statements about the future path of the policy interest rates and asset purchases (Praet 2017).

Figure 2

Key financial indicators since June 2014 and impact of policy measures



Sources: Bloomberg, ECB, ECB calculations.

The expanded asset purchase programme (APP) includes all purchase programmes under which private sector securities and public sector securities are purchased to address the risks of a too prolonged period of low inflation.³

The NSM also includes targeted longer-term refinancing operations (TLTROs). These are operations that provide financing to banks for up to four years at attractive conditions in order to further ease private sector credit conditions and stimulate bank lending to the real economy.

Overall, these measures have been effective. They relaxed the financing conditions for the real economy. In particular, they induced a broad-based easing that spread across a variety of asset classes, including bank lending rates for firms and households, which have fallen by more than 100 basis points since mid-2014 (Praet 2017)⁴.

3 The following elements constitute the APP: Third Covered Bond Purchase Programme (CBPP3), Asset-Backed Securities Purchase Programme (ABSPP), Public Sector Purchase Programme (PSPP), and the Corporate Sector Purchase Programme (CSPP).

4 The impact of credit easing is estimated on the basis of an event-study methodology focusing on the announcement effects of the June-September package; see the EB article "The transmission of the ECB's recent non-standard monetary policy measures" (Issue 7/2015). The impact of the DFR cut rests on the announcement effects of the September 2014 DFR cut. APP encompasses the effects of January 2015, December 2015, March 2016, and December 2016 measures. The January 2015 APP impact is estimated on the basis of two event-studies exercises by considering a broad set of events that, starting from September 2014, have affected market expectations about the programme (Altavilla, Carboni, and Motto 2015; and De Santis 2015). The quantification of the impact of the December 2015 policy package on asset prices rests on a broad-based assessment comprising event studies and model-based counterfactual exercises. The impact of the March 2016 measures and the impact of the December 2016 measures are assessed via model-based counterfactual exercises. The response of long-term yields to a conventional 100bps monetary policy shock (memo item) is computed over a sample spanning January 2005 to June 2014 by (i) regressing the daily change in sovereign yields on the policy surprise, which is identified as the change in the 2y OIS instrumented with its intra-daily change around Governing Council policy meetings; and (ii) re-scaling the policy shock to

Ultimately, a deflationary spiral has been prevented and inflation is—albeit slowly and timidly—recovering, too.

To assess the effectiveness⁵ of the NSM properly, it is advisable to descend into the engine room of monetary policy, i. e. to have a closer look how markets and market-based variables—potential implicit operational targets—reacted. Here, the picture becomes a bit more blurred.

While the NSM package achieved the intended positive effects on prices and interest rates, the impact on quantities is more ambiguous. Even though covered bond issuance was higher between mid-2015 and 2016, net issuance remained on average negative, probably because of ongoing balance sheet deleveraging. Similarly unsecured bank bond issuance remained subdued, not the least because of regulatory factors and credit risk considerations. Gross corporate bond issuance has increased during the first months since the announcement of the CSPP; likewise net issuance seems to have amplified.

In the CMU context, some operational challenges of capital market related NSM seem worth discussing. The ECB had defined ambitious target volumes in its asset purchase programs. Starting with a volume of 60 billion euro per month, the Governing Council enlarged the amount to 80 billion euro per month until March 2017, to reduce it again to a monthly volume of 60 billion euro until at least until the end of 2017.

In particular, the EUR 80bn generated some feasibility concerns in the public debate. For instance, the required volume for the PSPP is uncertain, as the size of ABSPP, CBPP₃, and CSPP depend on primary issuance, market liquidity conditions, and other factors, including due diligence for ABS. Likewise, the PSPP purchasable universe may decrease over time, as it depends on new issuance and, until December 2016 levels of sovereign bond yields relative to the ECB deposit rate. However, the ECB's governing council tackled this issue by removing the deposit rate threshold; i. e. since then bonds yielding below the deposit rate have become eligible.

Moreover, the theoretically available universe may not be fully purchasable in practice, in particular with respect to illiquid off-the-run sovereign issues and bonds from regional and local governments.

In the ongoing APP, the euro system has managed to address the growing scarcity challenges. Likewise, if scarcity of eligible assets hampered the implementation of the program, further amendments of the perimeters could be envisaged.

100bps. Lending rates refer to rates to NFCs. Changes in lending rates are based on monthly data, the reference period for which is May 2014 to April 2017. Latest observation: 31 May 2017.

5 Obviously, there are also critical voices on the underlying rationale that lower interest rates would stimulate lending for investment projects. Some argue that in a "balance sheet recession," i. e. a deep recession after a national asset price bubble has burst, monetary policy becomes a blunt tool, because lower costs of external financing would not compensate for the lack of borrowers with impaired balance sheets or negative equity (Koo 2011) who would not borrow at any rate. Others refer to the works of Modigliani and Miller according to which it is the average cost of debt and equity capital that determines investment decisions, i. e. although lower interest rates might lead to increased debt financing but the resulting higher leverage would raise the risk premium of equity financing and keep overall costs of capital constant (Gehring and Mayer 2017). This discussion is, however, beyond the scope of this paper.

It is a valid assumption that a fully established CMU would lead to a larger universe of purchasable assets. In a long-term perspective, the adjustment of parameters might, therefore, become less important if the amount of, in particular, private assets increases significantly. Although the bulk of the purchases have been public sector assets and the respective programmes do not necessarily follow the same logic and time frames,⁶ planning and implementation of such programmes should be, in principle, smoothened as explained earlier. These are however operational rather than conceptual considerations.

7 **Collateral benefits: indirect consequences of CMU for monetary policy**

Up to now, I have discussed the direct relationship between the financial structure and the effectiveness of monetary policy. However, there are other areas that could benefit from a shift to more capital markets-based financing system, which in turn could be indirectly beneficial for monetary policy. The first is financial stability and the second an increased growth potential for the real economy via better access to finance and lower funding cost.

Increasing the resilience of the system

Having more diversified sources of funding can increase the resilience of the financial system, reduces the impact of asymmetric shocks, and mitigates the impact of potential problems in the banking sector on companies and their access to finance.

A diversified financing system can increase the resistance of the economy against the negative effects from financial stress or a full-fledged crisis. As De Fiore and Uhlig showed the possibility of substituting among instruments of external finance helps shielding firms from the adverse effects of a financial crisis on investment and output (De Fiore and Uhlig 2015). Though, of course, given ‘liabilities of size’ as well as information asymmetries, this is not an option for smaller firms. It is here, where securitization might prove beneficial.

Concurrently, well-established long-term lending relationships between banks and, in particular, small and medium-sized enterprises mitigate constraints in access to finance in economic downturns. Deeper insights and confidence of the bank into the borrower’s solvency might lead to the granting of credit lines in times of temporary liquidity constraints (Beck, Degryse, and van Horen 2017).

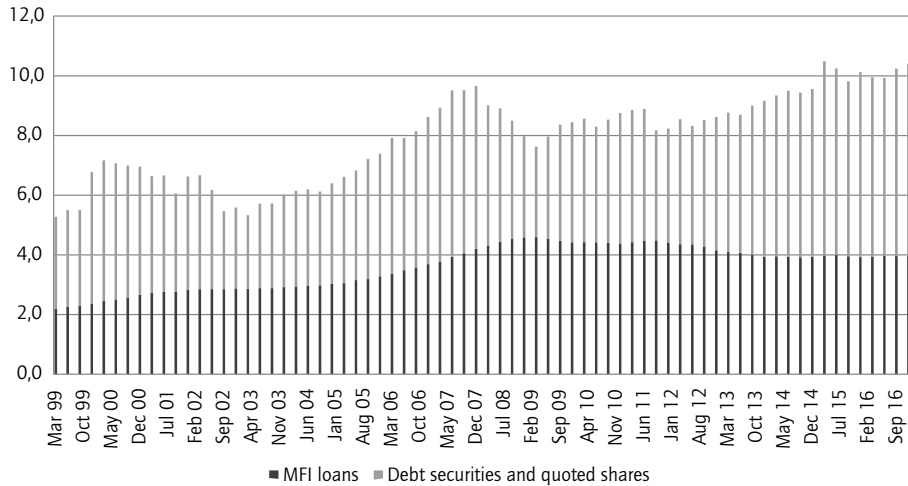
Experience in the euro area shows that the protracted weakness in bank lending—contraction in 2009 and 2010, and again between 2012 and 2014—was partially compensated for by increased bond issuance by (large) firms, rising importance of non-bank-intermediation, and increased recourse to trade credit and intra-sectoral loans.

⁶ From a traditional Quantitative Easing logic, it is mainly the size of the CB’s balance sheet that matters as it primarily targets bank reserves. The Credit Easing approach, which often also leads to an augmented size of the balance sheet, focuses explicitly on the composition of the asset side of the CB’s balance sheet; i. e. the mix of loans and securities to ease credit conditions and boost liquidity in a particular market segment (see e.g. Bernanke 2009).

Figure 3

Non financial corporations' liabilities

Outstanding amounts in trillion euro



Source: ECB, ECB calculations.

Comparing the levels of bank credit (MFI loans) with level of market financing (debt securities and quoted shares) of non-financial corporations draws a similar picture. The standstill in MFI loan provision and deleveraging of the banking sector could be offset by debt issuance and to a lesser extent equity financing. One has to be aware, however, that debt securities and, in particular, shares are continuously subject to valuation changes—obviously an in-built feature of market instruments. Still, similar conclusions can be drawn from the development of flows at the very beginning of this paper.

However, as already pointed out, mainly larger companies with capital market access benefited from these alternatives. Small and medium-sized enterprises still, by and large, have relied on bank credit as the major source of external financing (ECB Economic Bulletin, Issue 5/2016: 29–32). Although the situation has continuously improved, SMEs suffered from restricted access to finance during the height of the crisis (ECB 2017a/b).

Whether these developments are cyclical or structural is yet to be seen.

A higher degree of risk-sharing reduces the vulnerability of the economy. When borrowers take financial risks directly via capital markets instruments, without the intermediation of a normally highly leveraged banking sector, potential damage is decentralized and far less concentrated. Risks are distributed across more shoulders. Additionally, reducing risks within the banking sector is also beneficial, as historically crises in the banking sector are more damaging than those in specific asset classes (with the exception of mortgages) because of the systemic nature of the banking sector and its tendency to leverage-up risk.

A more resilient banking sector obviously reduces the potential need for central banking interventions, including non-standard measures.

Overall, monetary unions do function better when risks are shared across regions. Well-functioning monetary, political, and economic unions are characterized by high levels of risk-sharing, including financial risks, across their regions (Constancio 2017). CMU would also support the resilience of financial integration, as cross-border flows-based on equity finance are more resilient (ECB 2016). Evidence suggests that three-quarters of shocks to the per-capita gross product of individual states in the United States are compensated through financial assets (Asdrubali, Sorensen, and Yosha 1996: 1081–1110).

On balance, these findings support the superiority of a diversified financial system rather than that of capital markets-based or a bank-based system as such.

Lifting the growth potential

Central banks in mature economies have a mandate to safeguard the purchasing power of their respective currencies. In order to do so, they attempt to keep the level of inflation low and stable. In some cases, e. g. in the euro area, there is a primary mandate, with economic growth being a subordinated goal that can only be pursued in light of the primary goal. Others, like the U.S., have double or multiple goals where growth plays a more prominent or equal role.

Independent of the actual framework, there is a broad consensus in modern central banking that economic growth and, more importantly, the medium-run potential output growth both play a pivotal role, as these are major determinants of the natural rate of interest to which, in the long run, nominal interest rates tend.⁷

The natural rate is an equilibrium real interest rate, adjusted for an (expected) inflation premium. In equilibrium, it equals potential output growth in the absence of transitory shocks to demand. Potential GDP, in turn, is defined as the level of output consistent with stable price inflation, absent transitory shocks to supply. In other words, potential output measures a country's medium-run productive capacity with stable inflation.

After the global financial crisis and the subsequent deep recession, forecasts for global economic growth have persistently been too high and recoveries timid. There has been a gradual realization that long-term trend growth potential should be revised downwards. However, empirical data show that there has been a persistent slowdown in long run growth rates since the 1970s, not a sudden decline after 2008.⁸

A lower growth potential makes the conduct of monetary policy more challenging. During an economic upswing, the speed limits calling for a more restrictive monetary policy stance are reached earlier, i. e. at a lower level. However, more problematic, in technical terms, is that in an economic downswing the zero lower bound could be also reached earlier and more frequently.

7 As Knut Wicksell famously formulated, "There is a certain rate of interest on loans which is neutral in respect to commodity prices, and tends neither to raise nor to lower them"; see Wicksell, K. (1898): *Interest and Prices*, edition of 1936 in English published by Macmillan, London, p 102.

8 See on this in particular Robert Gordon (2016).

Here, as stated before, traditional interest rate policies are less effective or even ineffective and central banks have to implement non-standard measures.

Consequently, a higher growth potential would structurally alleviate problems for the conduct of monetary policy. Thus, policy actions that aim to increase potential growth would be beneficial not only from a welfare perspective. For this reason, CMU could indirectly be beneficial to monetary policy as it explicitly aims to lift the growth potential under the premise that access to finance is a structural bottleneck on the supply side.

How would that work? In the very long-run, it is hard to prove that the U.S. has had a higher growth potential than Europe because of its capital markets-based financing system. After World War II, continental Europe grew solidly and in a comparable order of magnitude (in per capita terms) as the U.S., despite (or because of) its bank-based financial system. There are good reasons to make this case.⁹

First, capital markets financing would create better access to funding for entrepreneurs in addition to bank credit (Mersch 2014).

Second, the allocation efficiency of capital would increase. Due to its decentralized nature, capital markets financing can bring together investors and borrowers according to their individual needs and risk appetite. A pan-European capital markets would add a layer of scale and increased liquidity that would also increase allocation efficiency via this channel.

Third, equity financing and, in particular, venture capital is considered to be the most appropriate form of financing for new, innovative, firms. Start-ups normally lack sufficient assets (collateral) and, often, revenues to be attractive for banks to grant loans amid the high risks of the undertakings and a cap on the return (the interest). The return on equity financing is not restricted upwards and a well-diversified portfolio of equity investment can bear the risks of several defaulting start-up companies when there are a sufficient number of outperformers compensating for these individual losses. Venture capital has strongly developed over the last four decades in the United States, but much less so in Europe. Indeed, the rapid pace of innovation by entrepreneurial firms in the U.S. has substantially contributed to America's strong competitiveness and sustained economic growth, which can at least be partially attributed to the better access to equity finance/venture capital (Bottazzi and Da Rin 2002).

8 Conclusion

There is no clear evidence that either a more banking- or capital-markets-oriented financial system is, per se, superior from the perspective of monetary policy. The major central banks have managed to conduct monetary policy effectively in their respective environments successfully in both normal times and in times of financial upheaval. They have devised monetary strategies and instruments in line with their respective environments. Credibility of the central bank, a well-

⁹ Although it is also an explicit goal of CMU to promote long-term investment in infrastructure, which would be beneficial to a higher growth potential, the focus of this paper is to discuss the financing aspects rather than the areas where capital could be deployed.

functioning operational framework, as well as appropriate, targeted instruments compatible with the respective financing structures are more important.

Still, there are sound reasons for a well-diversified financial system. More efficient pricing and sharing of risks as well as more independence from the banking sector could increase the effectiveness of monetary policy in the euro area and might ease potential technical restriction in crisis times and in an environment of very low interest rates.

Moreover, the indirect benefits of capital markets financing should not be neglected. A more resilient financial system and a contribution to higher growth potential would be beneficial for monetary policy albeit only indirectly.

By consequence, the CMU project should have a positive impact for the euro area economy, also from a monetary policy perspective. It is pivotal, however, that the project not only strives at achieving deeper capital markets in the euro area, but also fosters a true single European capital market with a cross-border dimension and pan-European instruments.

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