



DIRECTORATE-GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT **A**  
ECONOMIC AND SCIENTIFIC POLICY



Financial Market Fragmentation in the Euro-area: State of Play - MD September 2016

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## Financial Market Fragmentation in the Euro-area: State of Play

Monetary Dialogue  
September 2016

In-Depth Analysis





DIRECTORATE GENERAL FOR INTERNAL POLICIES  
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

# Financial market fragmentation in the euro area: state of play

Monetary Dialogue 26 September 2016

## COMPILATION OF NOTES

### **Abstract**

The notes in this compilation assess the implications and risks stemming from persistent fragmentation of euro area financial markets for the transmission of monetary policy and discuss feasible policy options which may be effective in reducing this fragmentation. The papers prepared by the members of the Monetary Expert Panel have been requested by the Committee on Economic and Monetary Affairs as an input for the September 2016 session of the Monetary Dialogue.

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

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## INTRODUCTION

The sovereign bond crisis which started in 2010 caused a major disruption in euro area financial markets. The rise of credit risk led banks from the core to stop lending to the periphery. Only the huge liquidity support by the ECB through its unconventional policy measures alleviated divergent financing conditions across the euro area.

The ECB has so far succeeded in preserving a fairly equal access to credit. But fragmentation of euro area financial markets has not disappeared despite progress on the banking union project and ECB (conventional and unconventional) monetary policy is thus increasingly challenged.

The notes in this compilation assess the implications and risks stemming from persistent fragmentation of euro area financial markets for the transmission of monetary policy and discuss feasible policy options which may be effective in reducing this fragmentation. The contributions papers prepared by the members of the Monetary Expert Panel have been requested by the Committee on Economic and Monetary Affairs as an input for the September 2016 session of the Monetary Dialogue. The main conclusions and policy options are summarised below.

The contribution of **Paul Berenberg-Gossler** *et al.*, (DIW Berlin) provides a summary account of financial market integration in the euro area. It looks at the aggregate level as well as in the interbank, sovereign debt, corporate debt and retail markets.

Two key aspects are emphasised:

- The euro area is particularly prone to deleveraging due to foreign risk exposure and denomination risks. This is mainly due to the absence of a European risk-sharing mechanism, which could prevent the bank/sovereign nexus.
- Partial guarantees can mitigate this nexus, but as long as there is no real risk-sharing (eg via a common deposit insurance mechanism and/or common resolution funding and/or common backstop), default risk in both banks and sovereigns can give rise to self-fulfilling speculative attacks.

In order to deal with the risks linked to financial market fragmentation, the authors call for a continuing risk reduction on the national level in order to enhance the banking union project. Further risk reduction is a necessary condition for further risk sharing on the European level. As long as national insurance schemes are tied to the solvency of their governments, banking crises have still the potential to threaten governments. To counter capital flight to safe havens, the authors present proposals for risk sharing among European deposit insurances such as a re-insurance mechanism or even well-designed lending arrangement between national schemes.

The paper by **Salomon Fiedler** *et al.*, (Kiel Institute) takes stock of the current evidence on fragmentation in financial markets in the euro area and discusses policy options to facilitate further integration. The authors find that the situation in money, bond, equity and banking markets has generally improved, with remaining signs of divergence in bond and banking markets potentially explained by differences in fundamentals rather than fragmentation. With respect to policy, it is argued that breaking the bank-sovereign nexus is paramount and existing initiatives to weaken this link should be supplemented by further measures, which could include exposure limits for government bonds, a carefully designed joint deposit insurance scheme and implementing the proposed Capital Market Union.

According to **Christophe Blot** *et al.*, (OFCE), empirical analysis shows that fragmentation has increased since the financial crisis. It remains, though, that differences in cross-border

financial flows have been strong across Euro area member states since the creation of the Euro, at least.

According to the results of the analysis the transmission of conventional and unconventional ECB policies to the interest rates on loans to non-financial corporations is quite uneven in the euro area: the pass-through is much stronger in the periphery than in the core since the Global financial crisis. Consequently, the ECB is able to reduce the spread between the periphery and the core. The authors argue that the part of the spread that the ECB is able to reduce is not structural. The ECB does not distort market forces.

The authors also show that the monetary policy transmission to NFC rates is stronger when fragmentation is low. Limiting fragmentation is thus crucial in order to improve the interest-rate channel in the euro area.

In view of the results, the paper argues that the (relatively) new features of ECB policies, like negative rates, TLTRO II (target longer-term refinancing operations), and QE (quantitative easing), should be targeted towards peripheral countries in order to limit euro area fragmentation. Beyond monetary policymaking, the authors argue that institutional improvements to make banking systems more homogenous across euro area should be advocated: in large countries, like Germany and France, bank systems remain highly auto-centric as far as cross-border financial flows within the euro area are concerned. More euro-area-liberalisation of banking flows would enhance capital allocation and the effectiveness of ECB policies at impacting private rates. Euro-area-liberalisation may accelerate with the implementation of the Single Supervisory Mechanism and the application of the Single Resolution Mechanism as part of the provisions of the Banking Union.

The paper by **Roman Horváth** (CASE) finds that financial market fragmentation increased markedly during the financial crisis. Euro area financial markets were the most fragmented during 2011-2012. Fragmentation decreased afterwards partially due to the unconventional monetary policy measures (of massive scale) implemented by the ECB. Nevertheless, euro area financial markets are still more fragmented now than before the outbreak of the global financial crisis in 2007. The author finds that although financial market fragmentation decreased after 2012, there are still some warning signs, such as the significant decrease in turnover in money markets or the cross-country divergence in housing prices in the euro area.

Financial market fragmentation in the euro area reduced the effectiveness of monetary policy transmission. Bank interest rates in some euro area countries did not fall following the interest rate cuts by the ECB. According to the paper, this low interest rate pass-through was primarily caused by the increase in mark-ups due to higher perceived risks. A lesser reaction of bank interest rates to monetary policy shocks occurred as well, but its importance was likely less as compared to the increase in the mark-ups.

The paper discusses a number of policy initiatives to improve the effectiveness of the monetary policy transmission mechanism. In general, these initiatives should promote the smooth functioning of financial markets in the euro area. Some measures, such as unconventional monetary policy, have already shown that they are able to reduce financial market fragmentation in the euro area. However, the magnitude of unconventional policies will become more limited once inflation risks re-appear in the euro area, and other measures, such as sovereign debt restructuring, coordination of macro prudential policies, or a properly executed Banking Union, can be the key to reducing financial market fragmentation and to promoting a well-functioning monetary transmission mechanism in the euro area.

The paper by **Corrado Macchiarelli** *et al.*, (LSE) acknowledges the positive developments in financial integration in the euro area since the crisis. In particular, significant measures have been taken towards the limitation of solvency issues and moral hazards, with the establishment of the first steps of the Banking Union. However, the profitability of the banks does not seem to be substantially affected by these developments as it continued to decrease. This is because the current “incomplete” approach to a Banking Union would not help reduce the observed “home bias” in the bond market segment, nor it destroys the “deadly embrace” between sovereign and banks debt that characterized the sovereign debt crisis.

One way to reduce the observed home bias would be through regulation, in particular, setting incentives on risk weight on the banks holding of different euro area bonds. Alternatively, this could be achieved by fully transitioning to a Banking Union. It will thus be important to accelerate the Banking Union or anyway leave as little uncertainty as possible during the transition.

On top of the Banking Union, another reform acting in the direction of strengthening and incentivising private risk sharing mechanisms through credit and capital markets would be the Capital Markets Union, as proposed by the Five Presidents' Report. The latter is expected to reduce fragmentation, enabling “safe” platforms for risk sharing.

According to the authors, the ECB could take further actions to support access to liquidity by weak banks with a targeted review of existing collateral policies, including lower haircuts on certain assets.

The ECB should continue, together with its asset purchases, Targeted longer-term refinancing operations (TLTROs) contingent on the provision of new lending to SMEs, directly supporting credit to this sector and improving the quality of banks' assets. For this to prove effective, the costs to access the scheme must be less than alternative funding costs. Given funding costs are falling quite slowly in the periphery, lower haircuts (discussed above) could be considered at the same time.

Quantitative easing (QE) would give countries a window of opportunity to do the necessary investment and reforms, but it could not as a substitute for them. Given the little fiscal space left in many “vulnerable” economies, however, this should happen within a joint monetary-fiscal stimulus, where – in recognizing the existing asymmetries – the ECB's support could create the needed room for reforms.



**DIRECTORATE GENERAL FOR INTERNAL POLICIES**  
**POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY**

# **Financial market fragmentation in the euro area: state of play**

**Paul BERENBERG-GOSSLER, Henrik ENDERLEIN**

## **IN-DEPTH ANALYSIS**

### **Abstract**

We describe differing degrees of financial market integration in the euro area, identifying a clear pattern of disintegration on the aggregate level, as well as in the most important financial markets, after the euro area crisis. We show that fragmentation has declined since 2012 but the situation is still fragile. We further identify the main factors for financial fragmentation and close with some policy proposals, necessary for completing the European economic and monetary Union.

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## EXECUTIVE SUMMARY

- This paper provides a summary account of financial market integration in the Eurozone. It looks at the aggregate level as well as in the interbank, sovereign debt, corporate debt and retail markets. We describe the following process:
  - After the inception of the euro, there was a period of increasing financial integration and augmented cross-border positions from the core to the periphery. The 2008 crisis and the subsequent sovereign bond crisis in the euro area then resulted in a quick reversal of capital flows from the periphery to the core.
  - This sharp reversal of capital flows from distressed countries to the core had its origin in a quick re-nationalization of bank cross-border exposures. As investors perceived a higher risk in several countries, yield spreads widened accordingly. After the ECB announcement of the OMT in 2012 there was a gradual and often fragile decline of financial market fragmentation across all markets since 2012.
  - Today we are in an intermediate situation, where we see signs of continuing convergence in some markets, while divergence persists in others.
- During the crisis, the most important interest rate and credit channels of monetary policy were impeded. Given that European Financial Markets are more reliant on bank based financial funding than direct market funding, the result of these differences was a difference in lending rates for banks as well as corporate actors across the Euro Area. As a consequence, financing conditions varied across the euro area with some pro-cyclical implications in certain regions.
- In the discussion about financial market fragmentation, the following main aspects call for specific attention.
  - The euro-area is particularly prone to deleveraging due to foreign risk exposure and denomination risks. This is mainly due to the absence of a European risk-sharing mechanism, which could prevent the bank/sovereign nexus.
  - Partial guarantees can mitigate this nexus, but as long as there is no real risk-sharing (e.g. via a common deposit insurance mechanism and/or common resolution funding and/or common backstop), default risk in both banks and sovereigns can give rise to self-fulfilling speculative attacks.
- In order to deal with the risks linked to financial market fragmentation, we call for a continuing risk reduction on the national level in order to enhance the banking union project. Further risk reduction is a necessary condition for further risk sharing on the European level. As long as national insurance schemes are tied to the solvency of their governments, banking crises have still the potential to threaten governments. To counter capital flight to safe havens, we present proposals for risk sharing among European deposit insurances such as a re-insurance mechanism or even well-designed lending arrangement between national schemes.

## 1. INTRODUCTION

While some level of economic heterogeneity, such as diverging GDP or inflation, is deemed to be normal in a currency area, financial fragmentation can pose more fundamental problems. Indeed, if economic agents in a monetary union do not have the same kind of access to credit this can hamper central banks effectiveness in conducting an appropriate monetary policy. In the euro area financial Fragmentation can lead to an unequal transmission of the European Central Bank's (ECB) monetary policy (Cœuré, 2014; Ehrmann, M., and Fratzscher, M., 2015). Uneven credit flows can also increase the risk of perpetuating divergences inside the monetary union, and thus lead to a possible aggravation of crises for banks, governments and the real sector in the context of a sudden reversal of flows and/or deleveraging processes. While ECB President Draghi recently stated that *"while in the previous time we had observed fragmentation and we had observed very subdued credit developments, nowadays we can safely say that fragmentation is over"* (ECB Press conference, 8 September 2016, see Draghi M. 2016), the empirical evidence supporting this statement is not univocal.

This paper presents some evidence of fragmentation, assesses the implications and risks resulting from persistent fragmentation of euro area financial markets and discusses possible policy options. It is structured as follows. The second section presents a diagnosis of financial integration and disintegration in the EA. The third section discusses the relevant factors for financial fragmentation and a discussion of policy solutions follows in the fourth section.

## 2. DIAGNOSIS

Financial fragmentation is generally defined as a disintegration process. Integration in euro area financial markets is supposed to be achieved when all economic agents face identical rules and have equal access to financial instruments or services in these markets (Baele, L., et al., 2004). As an example, on the corporate bond market financial fragmentation would be defined as the differences in spreads between two securities, otherwise similar in terms of their risk characteristics (Horny, G., et al., 2016).

This section reviews the timeframe and main lessons from the euro area crisis and considers four important markets (interbank, sovereign bond, corporate debt and retail markets). It assesses the development of financial fragmentation between periphery and core countries of the EMU.

### Box 1. Why does Financial Fragmentation Matter for Monetary Policy?

Compared to the United States, European Financial Markets are more reliant on bank based financial funding (Bijlsma, M. J., et al., 2013) and, consequently, credit provision is particularly important for EMU financial markets. Financial fragmentation therefore poses a particular problem as it hinders credit provision according to actual risk characteristics and adds up risk premia resulting in unequal access to credit depending on national financial conditions. Monetary policy changes aim either at stimulating or at easing of the economy and the policy rate choices made by the central bank are impacting economic conditions through a multitude of different channels.

In particular, the high stress linked to sovereign markets in peripheral countries has impeded the traditional interest rate channel (a) of monetary policy, while high stress on interbank markets has impaired the credit channel (b) (Laeven, L. et al., 2013).

The results have been different lending rates for banks as well as corporate actors. However, given that the ECB cannot carry out regional monetary policy in the single currency area, its monetary policy choices have been necessarily pro-cyclical in some countries of the EA. Some countries would have needed more monetary stimulus but receive enough and vice versa. As investors shy away from risk in peripheral countries, banks in the periphery have to offer higher deposit rates to attract funds (see also Figure 3). Without the necessary capital buffers, credit risk remains high due to a consistently bleak economic outlook leading to high lending rates despite low policy rates (Laeven, L. et al., 2013). Thus, monetary policy risks becoming ineffective in some countries, as the main transmission channels risk of losing their efficiency on the aggregate level.

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(a) The Interest-rate channel is the traditional link between the interest rate, savings and investment. It works through short-term interest rates that affect the cost of capital and overall spending.

(b) The credit channel works via an effect on bank's balance sheets. By lowering the interest rate, credit supply is stimulated as banks shift around their balance sheets.

## 2.1. Overview

From the introduction of the Euro in January 1999 onwards, the European Economic and Monetary Union (EMU), driven by the interbank and sovereign bond markets, seemed to be on track and headed towards continuing financial integration. Figure 1 shows the development of two composite indicators for measuring financial integration developed by the ECB. A higher value indicates higher levels of financial integration. Both the price- and quantity based indicator show a three-phase development starting with the introduction of the euro.

- Until the start of the subprime crisis in the United States, financial integration increased. This came alongside increased foreign exposure, particularly from the core to the periphery.
- The succession of crises from the burst of the housing bubble in early 2006 and the subsequent spill-over to the banking system with the Lehman Brothers collapse in September 2008 to the start of the euro area sovereign debt crisis in early 2010 was accompanied by a phase of financial fragmentation. Financial integration sharply receded and reached its lowest point in July 2012. Battistini et al. (2013), find that, when systemic risk increases, all banks tend to increase the home bias of their portfolios, therefore reducing foreign exposure. The sovereign bond crisis in the euro area caused a sharp disruption in euro area financial markets eventually leading to a sharp reversal of capital flows from distressed countries to the core. Furthermore, there was a powerful process of re-nationalization of bank cross-border exposures that also took place. As investors perceived a higher risk during “bad times”, because of bank vulnerabilities and the possible need for a government rescue (which would subsequently increase public debt and sovereign risk) yield spreads widened accordingly (Gerlach et al., 2010, De Grauwe and Ji, 2013)<sup>1</sup>. This phenomenon is called the bank-sovereign nexus.
- To break this doom loop and halt financial market fragmentation, the ECB took several measures, but ultimately decided to repair the monetary transmission mechanism. On July 26, 2012, ECB President Draghi announced to do “whatever it takes” paved the way for the outright monetary transaction programme OMT.<sup>2</sup> This has led to gradual receding of fragmentation across all markets since 2012. Today we are in an intermediate situation, where we see signs for continuing convergence in some markets, while divergence persists in others.

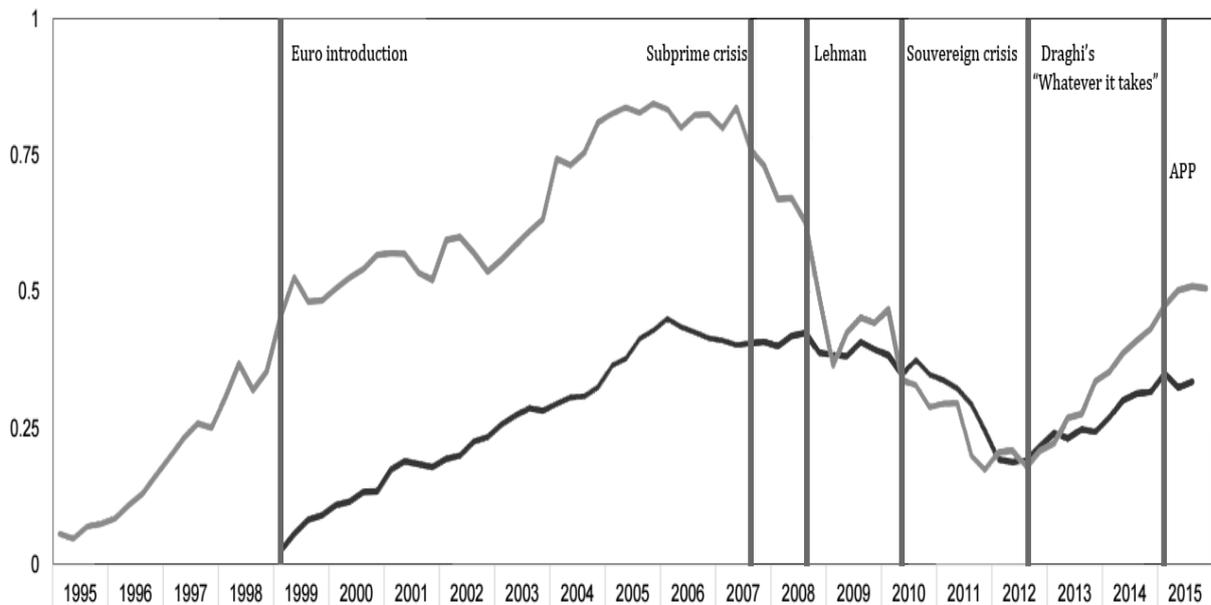
Figure 1 shows financial integration on the basis of the ECB’s composite indicator of different markets. While this indicator might hide that integration was uneven among countries, it still very well illustrates the key dynamics. Before the crisis, Baele, L., *et al.* (2004) analysed price and yield differences and examined the response of asset prices in individual countries to common factors. They found money markets to be the most integrated, followed by government bond markets, corporate bond markets and equity markets. They only observed relatively high price differentials in the banking/credit markets. While disparities among markets remained relatively low or even receded during the pre-crisis phase, during the crisis and post-crisis phases markets were characterized by continuing and increasing heterogeneity. 2012 is a major date in the financial integration process as the crisis trend starts to reverse.

<sup>1</sup> Sovereign exposure goes beyond the debt variable as it also depends largely on national legislation such as foreclosure regulations, for instance.

<sup>2</sup> Although the details of the OMT programme were only announced on September 6, 2012, the idea to address excessive sovereign risk premia was announced in Draghi’s “Whatever it takes”-speech on July 26, 2012. We follow the argument of Al-Eyd, M. A. *et al.* (2013) that markets began to price in the potential for ECB measures already in July and take July 26, 2012 as the de facto introductory date of OMT.

**Figure 1: Price-based and quantity-based Financial Integration Composites (FINTECs)**

(financial integration indicator)



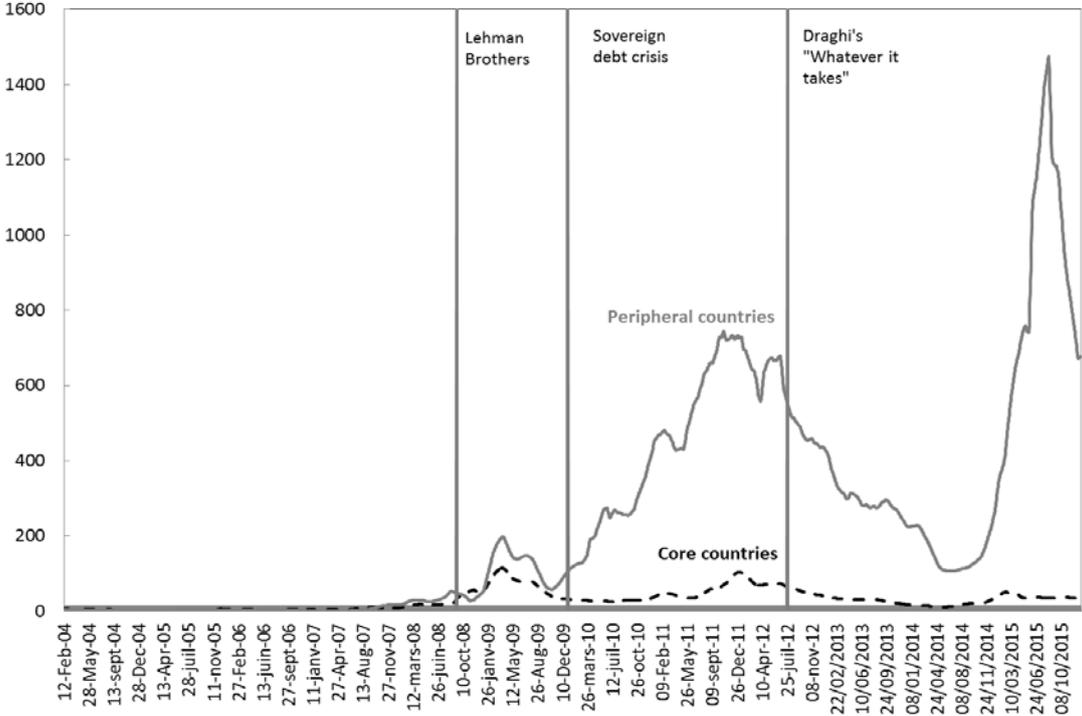
**Note:** The price- and quantity-based FINTEC indicators cover money, bond, equity and banking markets. The basis for the calculation of price- and quantity based indicators are price dispersion and cross-border holdings respectively. Higher values signal a higher level of financial integration. For more information on the methodology used see European Central Bank (2016).

**Source:** Authors based on ECB

## 2.2 Interbank markets

When zooming in on the interbank market, we can confirm this three-phase development identified at the aggregate level. The banking sector is of particular interest, as according to Abascal M. *et al.* (2013) fragmentation appeared first in this very sector and then spread to the sovereign markets. During the pre-crisis phase secured and unsecured lending rates to banks aligned among euro area countries, and there was little differentiation of bank Credit Default Swaps (CDS) spreads across countries. Figure 2 shows this development. The standard deviation of banks' Credit Default Swap (CDS) premia, was still very low during this phase. However, it led, in particular, to a rapid growth of banks' foreign exposures, especially from the core to the periphery, building up large external imbalances. The latter would become a key challenge during the sovereign debt crisis. There is clear divergence between the periphery and the core starting in the beginning of 2010, and a second peak in June 2015 around the time of the Greek Referendum.

**Figure 2: Standard deviation of banks' CDS premia by country group**  
(Basis points)



**Note:** Core countries: Austria, Belgium, Germany, France and the Netherlands. Peripheral countries: Spain, Greece, Ireland, Italy and Portugal.

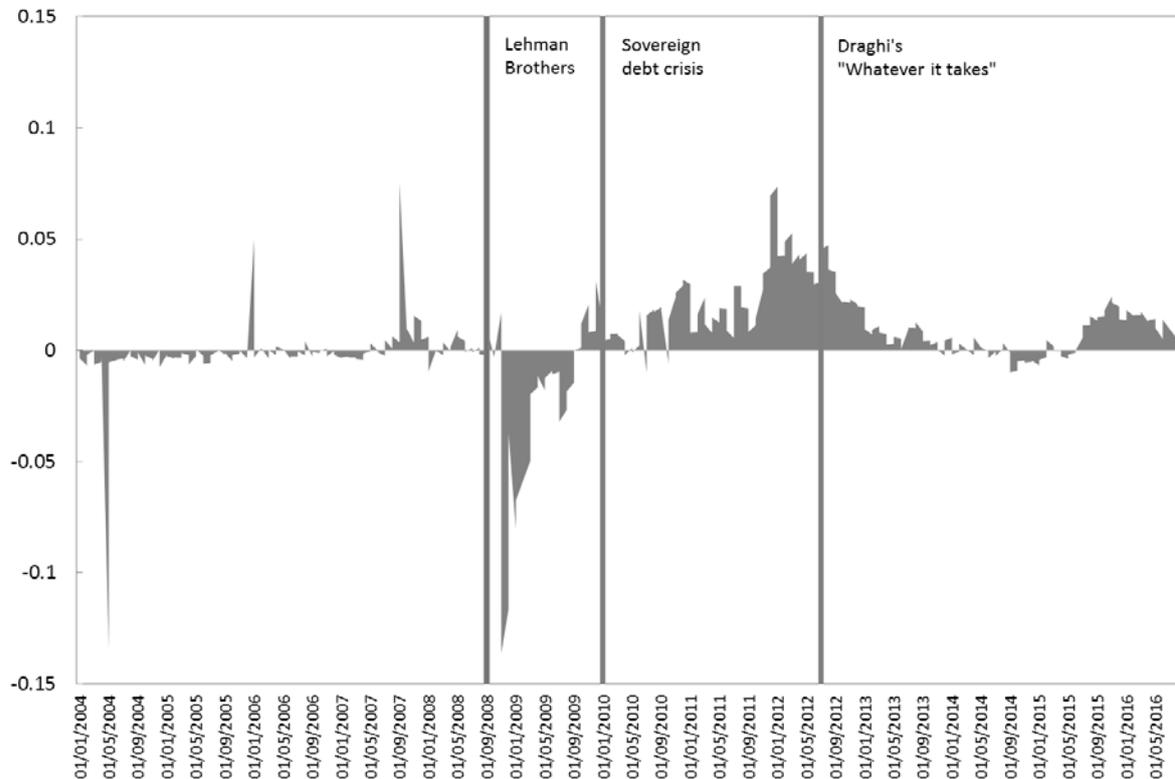
**Source:** Authors based on ECB

Figure 3 assesses this development from a different angle. It shows a decomposition of the EURIBOR panel banks according to bank nationality. Next to EONIOA, EURIBOR is the main interest rate defining interbank lending and retail market conditions, as many lending and deposit conditions for small private agents depend on EURIBOR. By computing the difference between peripheral countries and core countries in the panel, we assess the risk premium that banks assign to each other. Thus, a positive value indicates that periphery banks offer higher interest rates compared to the core. The higher the amplitude, the bigger the interest rate divergence in between core and periphery banks in the EURIBOR panel.

Given that EURIBOR only takes into account prime banks, the cross-country dispersion is relatively small (European Central Bank, 2016). However, there is a clear indication for an additional risk-premium for core-country banks after Lehman Brothers, while at the beginning of 2010, periphery country banks have to pay higher interest rates for their own refinancing. Given the implications for retail loans, the development during the sovereign debt crisis from 2010-2012 is particularly worrying as it means that credit conditions before the ECB intervention varied greatly between the periphery and the core.

**Figure 3: Difference (periphery – core) in average yields offered on the interbank market for 3-month loans, representative country banks in the EURIBOR panel**

(In percentage point difference)



**Note:** Core countries: Austria, Belgium, Germany, Finland, France and the Netherlands. Peripheral countries: Spain, Greece, Ireland, Italy and Portugal.

**Reading:** If positive, periphery banks offer higher yields (e.g. represent a higher risk) to another bank of the EURIBOR panel.<sup>3</sup>

**Source:** Author calculations, based on European Money Markets Institute

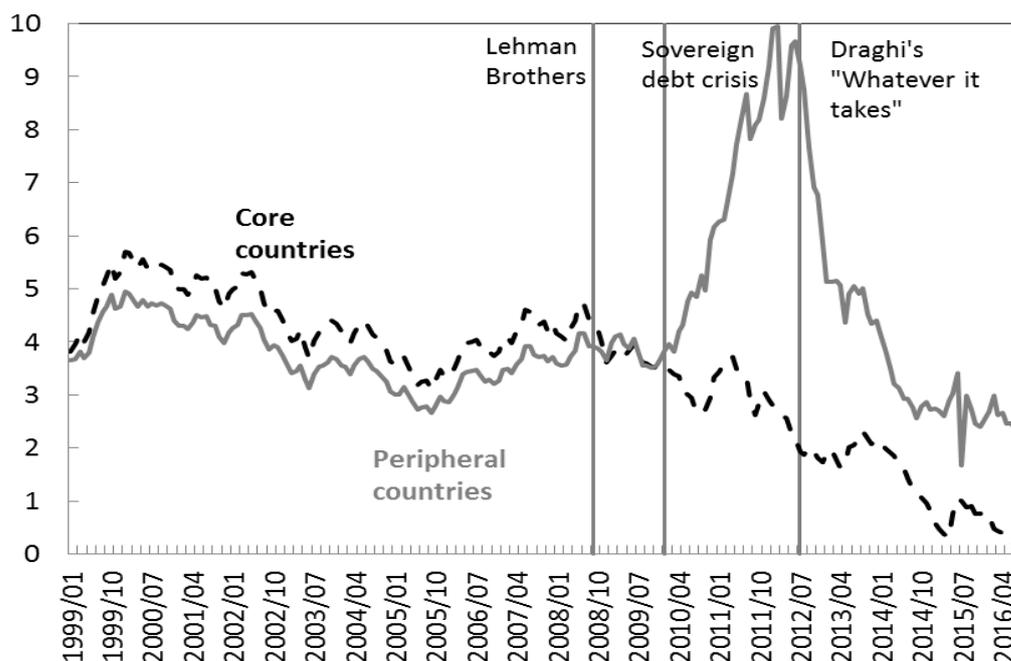
### 2.3 Sovereign markets

On the sovereign bond market the pre-crisis integration process manifested itself through low spreads across countries and a high degree of co-movement between all euro area countries (Ehrmann, M., and Fratzscher, M., 2015). The first signs of fragmentation appeared in 2010.

Figure 4 depicts the average interest rate paid on a 10-year bond on the sovereign bond market for core and periphery countries. In line with the literature there is clear co-movement of interest rates before January 1, 2010. If at all, the Lehman Brothers bankruptcy seemed to have a positive effect on the convergence of interest rates. However, starting in 2010, fragmentation became evident, peaking shortly before Draghi's announcement of this measure in mid-July 2012. The effectiveness of OMT on the sovereign bond market is clearly visible. Having said this, even though the OMT considerably dampened peripheral countries' interest rates, there still is a consistent gap between the periphery and core in yields averaging 1.9 percentage points.

<sup>3</sup> For the list of banks contributing to the panel see <http://www.emmi-benchmarks.eu/euribor-org/panel-banks.html>

**Figure 4: Average yields on 10-year sovereign bonds**  
(In percent, denominated in Euro)



**Note:** Core countries: Austria, Belgium, Germany, Finland, France and the Netherlands. Peripheral countries: Spain, Greece, Ireland, Italy and Portugal.

**Source:** ECB

## 2.4 Corporate bond markets

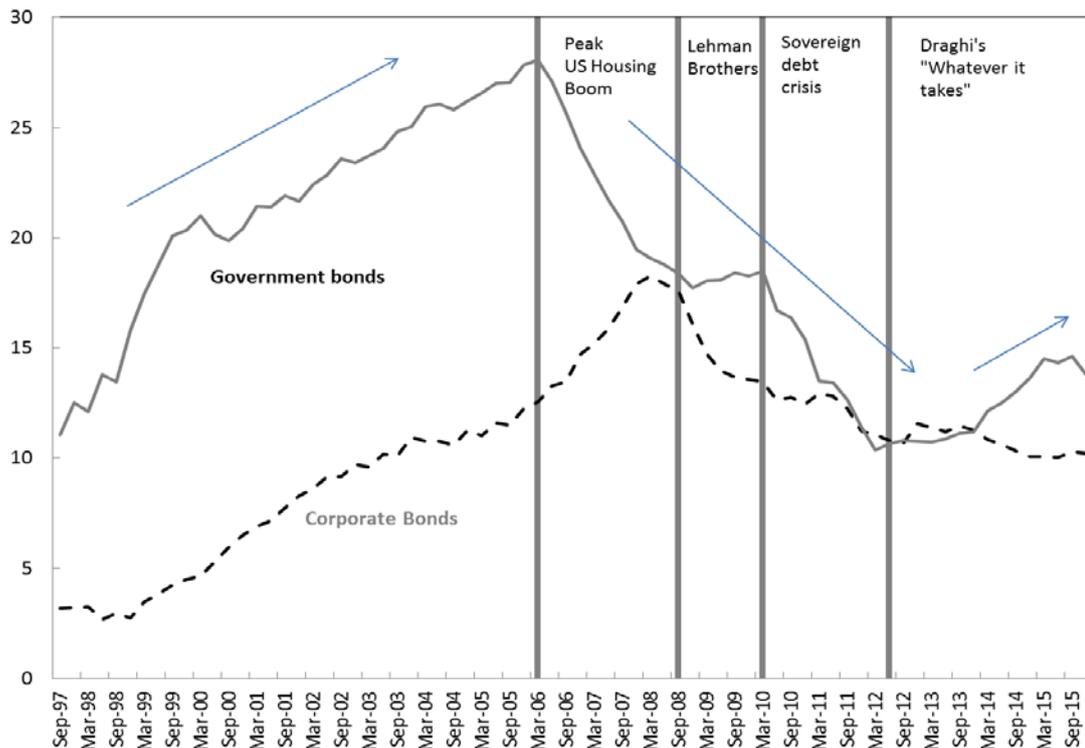
The corporate bond market was no exception during the pre-crisis years and experienced comparable developments. Horny, G., et al. (2016) analyse corporate market fragmentation by taking the German bund as a reference. Fragmentation appeared at the height of the euro area sovereign crisis in 2011 and 2012 and became particularly apparent for Spain and Italy. It immediately declined after the announcement of OMT but while it has gradually receded since then, in June 2015, corporate bonds issued in Italy and Spain still had yields around 50 basis points higher than their German or French counterparts.

De Santis, R. A. (2016) argues that fragmentation in the corporate debt market rose sharply after the Lehman bankruptcy in 2008 and again after 2010. Pianeselli, D., et al. (2014) estimate risk premia of non-financial long-term corporate bonds from 2005-2012. Their findings confirm that the financial crisis increased the costs of funding for all corporate bonds, but the successive sovereign debt crisis created an additional fragmentation between German firms and their peripheral counterparts. That latter study estimates that from 2010-12 Italian, Spanish and Portuguese firms paid an additional premium of between 70 and 120 basis points on average, while German firms received a discount of 40 basis points on their corporate debt.

Gilchrist, S. et al. (2014) build a spread index for euro area banks and non-financial corporate issuers showing that since 2010, credit spreads for both financial and non-financial firms increasingly reflect national rather than euro area financial conditions. This is in line with the literature, which acknowledges the sovereign-bank loop during "bad times".

**Figure 5: Share of MFI cross-border holdings of debt securities issued by euro area and EU corporates and sovereigns**

(In percentage, other Euro area, domestic excluded)



**Source:** ECB

Figure 5 exemplifies this movement by showing the percentage of cross-border holding in debt securities in non-domestic markets. We see a sharp decline of the part of cross-border debt security holdings both for sovereign and corporate bonds, which accelerated during the Lehman Bankruptcy in 2008. From 2008-2011 the share of MFI cross-border holdings of debt securities dropped by nearly 10 percentage points, exemplifying the increased home-bias due to the successive crises.

## 2.5 Retail markets

During the pre-crisis period the good conditions on the sovereign and interbank markets translated into converging interest rates among euro area countries on the retail markets, e.g. deposit and lending rates provided to smaller private entities (Laeven, L. et al., 2013).

However, during the crisis-phase frictions appeared. Al-Eyd, M. A. et al. (2013) look at the interest rates on retail markets and find that credit is more expensive in the hardest hit economies and leads to continuing fragmentation even after the improved financial conditions provided for by OMT.

Thus, the worsening of conditions on the distinctive financial markets finally translated into unequal access to credit not only for sovereigns, banks and corporates but also small lenders.

### 3. WHY DID THIS HAPPEN?

The previous section laid out a diagnosis of financial fragmentation in the EA. When taking a step back and assessing the developments of financial fragmentation the pattern becomes clear. Starting with a period of increased financial integration and augmented cross-border positions, notably from the core to the periphery, the 2008 crisis and the subsequent euro area crisis resulted in a quick reversal of capital flows from the periphery to the core. Especially banks were keen on reducing risk exposure, as suddenly the risk of default was perceived as high. The decomposition into national banking system risks resulted in a higher likelihood of adverse developments triggering large aggregate losses. Adding to that the bank-sovereign nexus, this home bias led to financial fragmentation in several markets. Only the intervention of the ECB in July 2012 and the successive OMT programme brought this process to a halt. However, financial market conditions, whether on the sovereign debt market or the interbank market, have still not reached pre-crisis levels. The deleveraging process and risk reduction that started after the Lehman Brothers crash in 2008, and the resulting financial fragmentation can be explained by both structural and cyclical forces (Laeven, L. et al., 2013). This section summarizes the scarce literature available on the factors at the origin of financial market fragmentation.

#### 3.1. Deleveraging and risk reduction

Given the increased interconnectedness of euro area banks and the growing engagement of core banks in periphery countries, a worsening of economic conditions had strong effects on banks' asset positions. Banks had to reassess counterparty risks, which increased their funding costs, particularly for periphery countries (Al-Eyd, M. A. et al., 2013; Laeven, L. et al., 2013; Abascal M. et al., 2013).

This repricing of risks in between core and periphery countries depended largely on country-specific factors. Banking sector openness became a key variable (Abascal M. et al., 2013), as the outward moving capital flows were particularly strong in peripheral countries characterized by a high degree of foreign exposure.

Thus, this process led to capital flight from potentially exposed countries to the core. The underlying reason for deleveraging and risk reduction can be found in the so-called bank-sovereign nexus.

#### 3.2. The bank-sovereign nexus

EMU entered the crisis as a single currency union without a meaningful supranational risk-sharing mechanism. This institutional setting resulted in cyclical factors affecting EMU member countries differently – without any buffers absorbing those differences. A homogenous exogenous shock hitting the entire single monetary area thus could trigger heterogeneous reactions among euro area countries financial markets.

During the height of the sovereign bond crisis the assessment of default risks on debt obligation varied greatly among euro area countries. As described by Lane (2012) this gave rise to self-fulfilling speculative attacks. Increase in default risk perceptions pushed investors to demand higher yields, which in turn made default more likely.

A European risk-sharing mechanism would deal with this heterogeneity by lowering this default risk factor and introducing an additional safety net<sup>4</sup>. While the euro area has a common currency, regulation remained a national responsibility. Thus, it was up to individual government to bear the risks of a banking crisis, including the direct fiscal costs

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<sup>4</sup> As all mutualisations of risk, this can pose significant problems of moral hazard, e.g. free riders might profit from an implicit bailout guarantee. We fully recognize this challenge but can't enter into the discussion on how to prevent moral hazard.

resulting from recapitalization and the indirect fiscal costs stemming from lower GDP and tax revenues (Lane, 2012). Additionally to these broader implicit guarantees, e.g. bailouts, banks are also linked to sovereign markets via deposit insurance and resolution funding. Sovereigns, in return, are linked to banks via sovereign debt portfolios. Furthermore, the bank-sovereign nexus is exacerbated by other factors, such as ownership and corporate governance, supervisory characteristics, entry barriers, tax and regulatory privileges, and other similar phenomena. Overall, if some EU countries had so much difficulty to borrow, this was clearly due to the bank-sovereign nexus. Some sovereign markets became illiquid and there were massive moves in spreads as default probabilities.

To illustrate the problems linked to the absence of a European risk sharing mechanism we consider the “credit spread puzzle” on the corporate bond market, which describes the fact that spreads on corporate bonds tend to be much wider than the expected default losses. In fact, less than 50% of the variation in corporate bond credit spreads, e.g. the difference between yields on corporate debt and government bonds, can be attributed to the financial health of the issuer (Gilchrist S., et al., 2012; Elton et al. (2001). As described by Gilchrist S. (2012) the literature has shown that the “variation in spreads appears to reflect a kind of liquidity premium, tax treatment of corporates, and most importantly, a default-risk factor capturing compensation demanded by investors”. Numerous authors have tried to estimate this “excess bond premium” and find that it provides a useful indicator for credit-supply conditions (Gilchrist, S., et al. 2014, Gilchrist et al., 2012, Bleaney et al., 2012). Via the financial accelerator mechanism<sup>5</sup>, e.g. the credit channel of monetary policy transmission (see Box 1), an increase in the excess bond premium causes a drop in asset prices and a contraction in economic activity as credit conditions worsen. As the variation in corporate bonds depends heavily on this factor, credit conditions worsened in distressed countries relatively to the core<sup>6</sup>. Thus, the sovereign debt crisis created an additional fragmentation between peripheral firms and their counterparts in the core.

Against this background, it can easily be understood why the creation of the European Banking Union was a response to the bank-sovereign nexus.

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<sup>5</sup> The financial accelerator mechanism has been described by Bernanke and Gertler (1989), Kiyotaki and Moore (1997), Bernanke, Gertler, and Gilchrist (1999), and others.

<sup>6</sup> In addition, government bond yields increased excessively in peripheral countries (see Figure 2).

## 4. POLICY: TOWARDS FURTHER INTEGRATION?

Financial fragmentation as experienced during the height of the sovereign bond crisis is a sign for an incomplete monetary union. Given the current situation, there are two options for EU policymakers to decide upon: further integration or maintaining the status quo.

Further integration, notably through a completion of the banking union, seems currently to be the chosen path. The European sovereign debt crisis revealed that the EMU is still a largely incomplete project, which was not prepared to weather a global financial crisis.

Accordingly, the Five Presidents' Report published in July 2015 argued that completing the banking union represents one of the most immediate steps for "Completing Europe's economic and monetary union" project (Juncker, J.C., *et al.*, 2015). The Banking Union project involves some form of fiscal backing (backing of the central bank's equity capital by fiscal policy), a mutualisation of banking risks via a Common Deposit Insurance scheme, and an instrument to decrease the bank and sovereign linkages. While the first two pillars have already been achieved by the establishment of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM), the common European Deposit Insurance Scheme (EDIS) is yet to be established.

The current European Commission (EC) proposal for EDIS includes three phases<sup>7</sup>. Phase 1 will start as a re-insurance approach, where national Deposit Guarantee Schemes (DGS) only have access to EDIS funds once they have exhausted all their own resources. In this manner, the EC hopes to weaken the sovereign-bank link. Phase 2 will start in 2020, when no prior exhaustion of national funds will be required anymore before EDIS funds can be accessed. EDIS will start by contributing a 20% risk level and will increase over a four-year period. Phase 3 starts after this period in 2024, when EDIS will assume a 100% risk share, meaning that national DGS will be fully insured on the European level. As the Single Resolution Fund (SRF) will be fully phased in by this time, the EC's goal is to have a full-fledged banking union in place by 2024.

However, there are still a lot of choices to be made. One of the main goals to prevent future systemic crisis and financial market fragmentation has to be the diversification of bank exposures. In this regard diversification requirements for sovereign exposures are currently in discussion. However, there are diverging views between the measures that might be applied (risk weights or concentration limits).

We consider the general approach to complete banking union to go in the right direction. However, the proposals look to narrow in scope and too disconnected from the wider debate on deepening monetary union and the role of the ESM. Enderlein H et al. (2016) present a broad set of reform proposals for risk-sharing but conditioned upon continued risk reduction on the national level and in the broader context of reforming EMU. Further risk reduction indeed looks like a necessary condition for further risk sharing on the European level. This process of risk reduction has already started and is well under way.

Once this problem addressed, there can be various solutions to deal with the challenge of national deposit schemes. The problem is straightforward: if deposit insurance schemes in fiscally weaker euro-area countries are less reliable, banks from those countries face higher funding costs, e.g., via higher interest rates to their depositors. Furthermore, in times of crisis, savers are more likely to transfer their money to safe havens, which can reinforce capital flight. The banking union needs to address this challenge. But EDIS is only one solution. Possible alternative solutions include a re-insurance mechanism or even well-designed lending arrangements between national schemes. It could even be considered to

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<sup>7</sup> For a summary see the press release available at [http://europa.eu/rapid/press-release\\_IP-15-6152\\_en.htm](http://europa.eu/rapid/press-release_IP-15-6152_en.htm)

enhance the ESM and create channels within the Mechanism allowing to link and buffer national deposit insurance schemes so as to improve risk-sharing.

Finally, the SRM needs to be enhanced by a common fiscal backstop. Taking the recapitalisation costs of the previous crisis as a yardstick, the final capacity for the SRF of EUR 55 billion as currently envisaged would be exhausted relatively quickly. In such an event the doom loop between banks and sovereigns described above would loom again. Again, a role could be given to an enhanced ESM, as suggested by Enderlein H. et al. (2016) on this task, building on its instrument for direct bank recapitalisation. Depending on the design of such an ESM-based backstop for the resolution fund, it could even incorporate the tasks of a common deposit insurance.

In sum: financial integration has again increased since 2012, but is not yet at an entirely satisfactory level. It is too early to say financial fragmentation is over. All actors in EMU should continue work on risk-reduction so as to pave the way for further risk-sharing and sovereignty-sharing. Completing banking union is one of the key challenges to address future fragmentation risks. In the current banking union set-up, the Euro could still be too vulnerable to survive a major next crisis.

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# NOTES



DIRECTORATE GENERAL FOR INTERNAL POLICIES  
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

# Financial market fragmentation in the euro area: state of play

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## IN-DEPTH ANALYSIS

### **Abstract**

We take stock of the current evidence on fragmentation in financial markets in the euro area and discuss policy options to facilitate further integration. We find that the situation in money, bond, equity and banking markets has generally improved, with remaining signs of divergence in bond and banking markets potentially explained by differences in fundamentals rather than fragmentation. With respect to policy, it is argued that breaking the bank-sovereign nexus is paramount and existing initiatives to weaken this link should be supplemented by further measures, which could include exposure limits for government bonds, a carefully designed joint deposit insurance scheme and implementing the proposed Capital Market Union.

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## EXECUTIVE SUMMARY

- Financial integration in the euro area progressed in the first years of the euro, but this episode was followed by financial fragmentation in the wake of the global financial crisis and the European sovereign debt crisis. Fragmented banking and capital markets can lead to insufficient supply of credit and financing costs unrelated to the underlying credit worthiness of enterprises undermining recovery in the real economy. In addition, the effectiveness of euro area monetary policy is reduced.
- More recently, measures of financial integration suggest that financial fragmentation has decreased considerably. Remaining differences in financing conditions across countries do not necessarily indicate persistent fragmentation of banking markets, but may reflect heterogeneous fundamentals, such as differences in credit risk or earnings prospects across euro area economies, as should be expected in efficient financial markets. Similarly, remaining yield dispersion in bond markets may represent a healthy correction of risk valuations – after all the almost complete disregard of country-specific risk before the financial crisis is arguably one of the major reasons that led to the build-up of unsustainable imbalances before the crisis.
- Regarding liquidity in money markets, the central bank to a large extent replaced the functions of the interbank market. The ECB should be aware of the risk that its extraordinary measures – in part designed to alleviate perceived financial fragmentation – could by itself introduce distortions (e.g. by underpricing differences in risk across countries). Equity markets seem to have resumed their path towards full integration.
- Integration of the banking sector has advantages as well as disadvantages. While beneficial effects can be expected from increased risk-sharing, diversification, and the spread of best practices, there is the risk of capital flight in times of economic difficulties as well as potential risks from contagion and increased complexity in an increasingly integrated financial environment.
- During the European sovereign debt crisis which peaked in 2012, the possibility of a sudden breakup of the Monetary Union introduced an implicit currency risk for all cross-border investments with increasing financial fragmentation as a result. The currency risk effectively acted like an invisible wall for financial cross-border flows. Investors and deposit holders had to take into account that cross-border investments might be repaid in a new and probably devalued currency, potentially resulting in large losses.
- The bank-sovereign nexus, which is at the heart of the sovereign debt crisis, describes the close connection between financial (in-)stability and fiscal (un-)sustainability. Weakening the link between governments and the domestic banking sector is crucial in strengthening the cohesion of the monetary union and reducing financial fragmentation. Policies that weaken this link work through (1) increasing robustness of the financial sector, (2) reducing spill-overs from the financial sector to the public sector, (3) improving fiscal soundness and reducing the probability of sovereign default and (4) reducing financial sector dependence on solvency of the treasury.
- A number of policy initiatives have been introduced to increase loss-absorption capacity of MFIs (e.g. Basel III), improve bank surveillance (SSM) and reduce implicit guarantees of regarding the bail-out of banks in times of crisis (SRM). The third pillar of the Banking Union, namely a European joint deposit insurance scheme (EDIS), is still under discussion. However, the extent of joint liability would be enormous, and issues such as moral hazard, considerable differences in legacy shares of nonperforming loans

and fiscal risks in the bank balance sheets due to excessive home bias will have to be carefully addressed in the design of EDIS. In an attempt to improve fiscal soundness and reduce the probability of sovereign default, with the European Fiscal Compact the rules of the Stability and Growth Pact have been redesigned, but an apparent lack of compliance in recent years may have undermined the credibility of fiscal rules in the euro area. At the same time, while remaining contentious, the combination of the possibility of financial assistance by the ESM in case of sovereign debt crisis and the ECB's OMT program as an ultimate monetary backstop to fiscal problems have successfully calmed down concerns about an imminent breakup of the monetary union and helped reverse financial disintegration trends. However, proposals to reduce the dependence of the financial sector on the solvency of the treasury by limiting exposure of banks to their sovereign (home bias in government bond holdings) have not yet been addressed.

- A Capital Markets Union (CMU) is potentially beneficial as it (1) shifts risks involved in financing real economic activity away from the banking sector to other private market participants (more private risk sharing), (2) simplifies and strengthens cross-border investments (more cross-country risk sharing), and (3) improves access to a broader set of financial market instruments so that European firms' excessive reliance on bank credit will be reduced. Progress in the necessary harmonization of regulations and tax laws, however, is set to be slow and the emergence of a fully developed Capital Market Union remains a distant prospect.

## 1. INTRODUCTION

**Financial integration in the first years of the euro was followed by financial fragmentation in the wake of the financial crisis.** Following the creation of the euro area, financial markets experienced a period of increasing financial integration. The global financial crisis in 2008/09, however, showed that financial integration was at least partially spurious. With different and inconsistent national regulations in place, a massive home bias of financial institutions and dependence on the credibility of national governments as the ultimate financial backstop, financial integration went into reverse with interbank markets particularly affected. Financial fragmentation, broadly defined as a situation in which financing costs of economic agents are to a significant extent determined just by the country of origin of a borrower rather than its underlying fundamentals, has been rising in response.

**In recent years indicators of financial fragmentation have improved again.** At the height of the European sovereign debt crisis, financial constraints as a result of fragmentation were negatively affecting growth in the distressed countries and severely hampering the recovery. Currently, with European rescue schemes in place and monetary policy employing non-standard policies to alleviate the effects of fragmentation, the picture is less clear. In a recent remark President Mario Draghi went so far to state that the fragmentation in the euro area was by and large over.

**Financial integration should foster long-term growth but can improve economic outcomes also in the short run.** Schnabel and Seckinger (2015) find that financial integration during financial crises generates growth effects four to five times stronger than in normal times. This indicates the potential of foreign financial institutions to smooth the economy in the event of reduced domestic bank lending in times of crisis and deleveraging, making a case for policies fostering financial integration. However, without an appropriate regulatory environment more integrated banking markets could also become a source of increased instability.

**Against this backdrop, this paper takes stock of the current evidence on fragmentation in financial markets in the euro area and discusses policy options to facilitate further integration.** The paper starts with a brief description of how financial fragmentation impacts on the real economy with a focus on the bank lending channel (Chapter 2). Chapter 3 discusses recent evidence with respect to financial fragmentation in money, bond, equity and banking markets. It finds that the situation has generally improved with remaining signs of divergence in bond and banking markets potentially explained by differences in fundamentals rather than fragmentation, and notes that the situation in the money markets is difficult to interpret due to the excess liquidity pressed into the market by the ECB. Chapter 4 describes the bank-sovereign nexus as the principle source of fragmentation and discusses different routes to break this connection, including the proposed Capital Market Union.

## 2. ECONOMIC CONSEQUENCES OF FINANCIAL FRAGMENTATION

**Fragmented banking and capital markets can lead to insufficient supply of credit and financing costs unrelated to the underlying credit worthiness of enterprises in a country undermining recovery in the real economy.** The most important source of diverging credit conditions within the euro area is the interdependence of the national banking sector and sovereign debt that during the European sovereign debt crisis became evident in the increasing correlation between sovereign bond spreads and European banks' credit spreads.<sup>1</sup> A deterioration in the perceived creditworthiness of individual countries' sovereigns (usually reflected in downgrading of sovereign debt by rating agencies) tends to reduce the standing of the national banks in international money markets and raise concerns about the safety of deposits. This will lead to increasingly unfavorable financing conditions for the banks concerned which are ultimately passed on to the broader economy. As a result, the cost of credit will rise and availability of credit will be reduced even for fundamentally sound borrowers in the respective jurisdiction, undermining recovery in the real economy.

**Weakness in credit growth seems to be at least partly due to credit supply constraints and SMEs are affected most.** Weak credit growth has been a major concern in the euro area in general and in the distressed countries in particular over recent years. While there is always some uncertainty whether credit growth is restrained by supply or demand, the European Commission in its 2012 autumn economic forecast concluded that diverging financing conditions due to increased financial fragmentation were at least partially responsible for the disparities within the euro area (European Commission 2012: 36). With the credit channel being the most important link to the real economy, small and medium sized enterprises (SMEs), which in European countries generally represent the backbone of the economy, are particularly affected as in contrast to large corporations they lack access to the capital markets and are particularly dependent on bank lending as a source of financing (Al-Eyd and Berkmen 2013). During the European sovereign debt crisis the spread between interest rates for loans to SMEs and loans to large enterprises has risen significantly in distressed countries relative to the respective spread in the rest of the euro area. While part of this increase can be explained by fundamental factors such as profitability or indebtedness, the geographical location remains as a decisive factor in SME lending and investment, indicating that financial fragmentation may play an important role (European Commission 2013).

**In a fragmented banking system the effectiveness of euro area monetary policy is reduced because interest rates for loans in distressed countries respond to individual country's sovereign risk rather than ECB benchmark rates.** A single monetary policy for a group of countries like in the euro area has the inherent problem that in the case of diverging real economic developments the single interest rate of the central banks tends to be destabilizing as real interest rates will be lower in countries in a relatively strong cyclical position, which tend to have relatively high inflation, and higher in countries in a relatively weak cyclical position which will face a relatively deflationary environment. This problem is exacerbated in a situation of fragmentation, when interest rates in distressed countries are going up in response to rising sovereign risk and the policy response of the central bank is restrained by considering the appropriate stance for the whole currency area.

**More generally, financial fragmentation and the underlying inconsistent and divergent regulatory measures reduce the efficiency of capital allocation and**

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<sup>1</sup> The bank-sovereign-nexus will be discussed in more detail in Chapter 4.

**economic welfare in the long run.** Generally, there are uncoordinated or inconsistent regulations at the root of financial fragmentation (BIAC 2014). They create uncertainty which hampers the ability of financial institutions to conduct business, raise costs for financial services and negatively affect cross-border trade, ultimately reducing economic welfare. Thus, the main task of the financial system – to channel savings to the most productive uses – is impaired; it can only fully be accomplished in an integrated financial market.

### 3. FINANCIAL INTEGRATION IN THE EURO AREA: WHERE DO WE STAND?

**Financial fragmentation may not be the most pressing problem for the euro area right now.** In a rather cursory remark at the ECB press conference on 21 July 2016, President Mario Draghi said that "the fragmentation in the Eurozone is by and large over" (ECB 2016a). To judge the veracity of this statement we need three things: (1) a definition of financial fragmentation, (2) some indicators that allow the measurement of financial fragmentation, and (3) an idea of what those indicators would look like in the ideal state of financial integration.

**Differences between countries do not necessarily indicate fragmentation but might also be explained by heterogeneous fundamentals across Member States.** It is important to note that differences in financial indicators across countries can in principle be caused by reasons other than the fragmentation of markets. They could rather be justified by fundamentals, for example by unequal levels of credit risk or earnings expectations. The latest Financial Integration in Europe report (ECB 2016b, henceforth FIE) defines a market (for a given financial instrument or service) as fully integrated if all potential participants with the same characteristics (a) face the same rules, (b) have equal access, and (c) are treated equally. Of course, phrases like "the same characteristics" and "equal treatment" still leave a great deal of room for interpretation. There can never be two different entities that are equal along all possible dimensions, and great care has to be taken not to exclude relevant features when trying to set up comparisons to show supposed financial fragmentation.

**The FIE report recognizes identification problems in principle but nevertheless calculates two so-called Financial Integration Composites (FINTECs).** The first indicator aggregates quantity-based information, the second one price-based information. Both indicators are supposed to measure the development of European financial integration over time from different angles and are based on a host of variables that might show cross-country differences in four different segments of the financial markets, i.e. money markets, bond markets, equity markets, and banking markets.

For **price-based indicators**, it is usually assumed that increasing market integration will lead price differentials to converge towards zero. However, this disregards the fact that heterogeneous fundamentals across entities (such as default risk) would support unequal financing costs even in fully integrated markets.

**Quantity-based indicators** typically use a common market portfolio as a benchmark. The argument here is that in a fully integrated market, investors from all countries would use the same weights for allocation purposes in order to obtain the most favourable risk/return profile. In other words, the percentage shares of different assets would be the same across portfolios in all countries. This disregards two things: asset weight differences across countries could still be efficient if either the access to relevant information is distributed unequally (e.g. locals have better knowledge about local companies) or people in different locales prefer to hold different risk profiles (e.g. if business cycles are asynchronous, people from different countries might wish to insure themselves against income losses at different times, necessitating different investment holdings).

The rest of this chapter will take a look at the four mentioned areas (money, bond, and equity markets, banking) and their recent development, in turn before some big-picture interpretations are offered in the conclusion.

### 3.1. Money Markets

#### When interbank activity fell, the Eurosystem increased the scope of its operations.

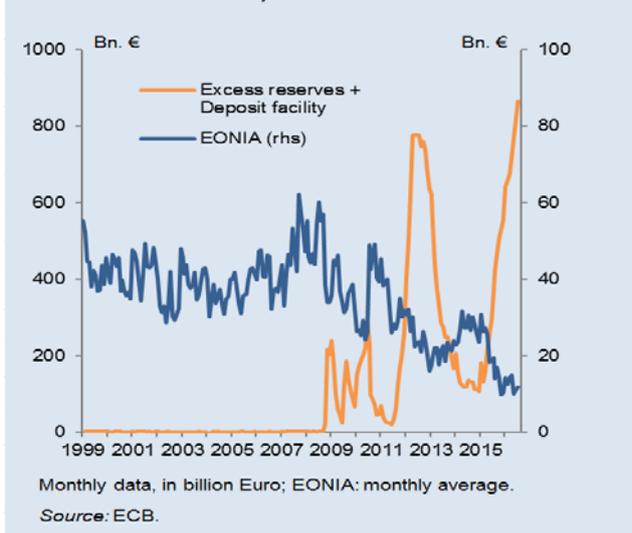
Since the global financial crisis, money market volumes have, apart from two intermissions in 2010 and 2014, been on a broadly downward trajectory. In July 2016, average daily transaction volumes for the EONIA sample (which measures interbank overnight lending) lay about 40 percent below their values a year earlier. At the same time, excess reserves of private banks in the Eurosystem increased dramatically, as the Extended Asset Purchasing Programme continues to increase the amount of outstanding central bank money (see graph G1). Because interbank money markets have, at least for some financial institutions, progressively been supplanted by central bank programmes, additional care should be taken in the interpretation of fragmentation and stress indicators which include money market variable.

**Reduced interbank activity is not necessarily the result of generalized financial fragmentation.** In its Money Market Survey the ECB reports declining turnovers across segments and counterparties (ECB 2015). The fact that transaction volumes with extra-euro area partners seem to have fared comparatively well provides evidence against general fragmentation in the interbank market, however.

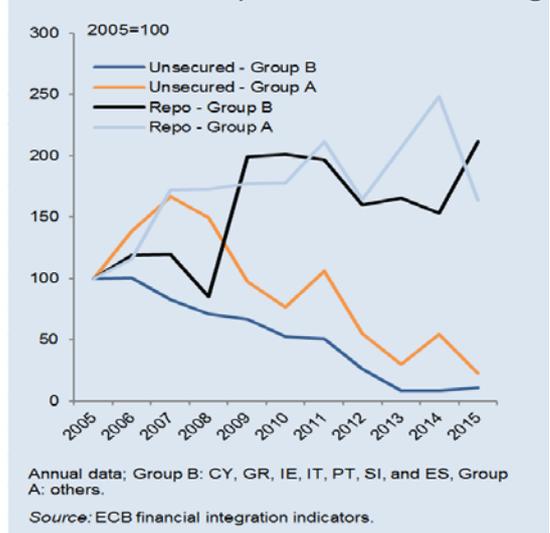
**When assessing money markets, the influence of risk and available collateral should also be taken into consideration.** Compared to before the Crisis, secured lending increased in importance vis-à-vis unsecured lending, and the use of cross-border collateral declined to a lower level. This does not necessarily imply an increase in market fragmentation (especially since the shift towards secured lending was of remarkably similar magnitude in core and peripheral countries; see graph G2), but might just reflect different credit risk and stocks of acceptable collateral across countries.

**Country fundamentals contribute greatly to money market conditions for the local financial sector.** Abascal et al. (2013) find that the interbank market fragmented during the financial crisis and the sovereign debt crisis, particularly when looking at peripheral countries during stress periods. Significant contributing factors were counterparty risk, financing costs, and country-specific factors such as banking sector openness, debt-to-GDP ratio, and the relative size of the financial sector. It should therefore be noted that, although harmonization of banking regulation can reduce heterogeneities, some differences between countries will remain justified by fundamentals and could be viewed as an expression of efficient capital allocation decisions.

G1: Interbank money markets and excess reserves



G2: Euro area money markets - total borrowing



**As regards price-based indicators, spreads have come down in many markets.** In 2014 and 2015, the cross-country interquartile ranges of interest rates in the unsecured interbank markets were back to their pre-crisis levels of mostly below two basis points for durations of one and twelve months (as measured by EURIBOR). Only the very short-run, the overnight lending rate (EONIA) still displayed elevated spreads (however, these disparities between EONIA and the EURIBORs may also be due to differences in participation and trade volumes, which might make EURIBOR rates a less representative measure).

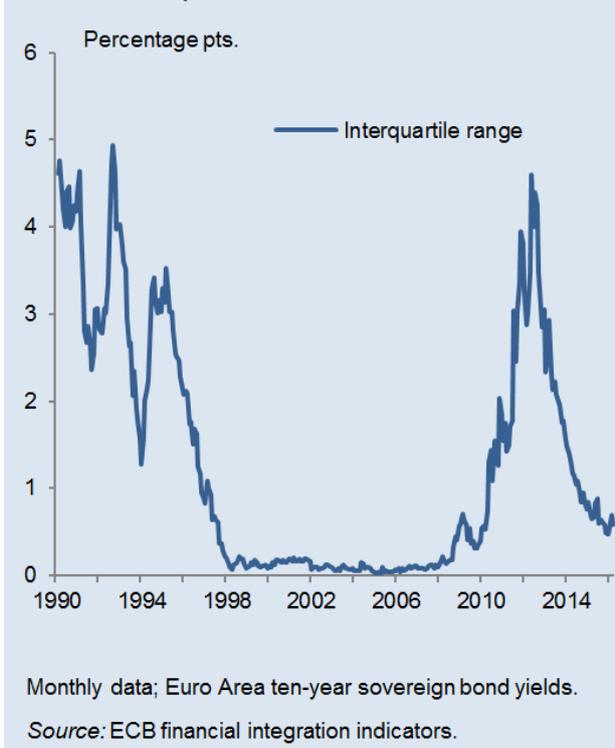
**All in all, money markets do not show significant signs of fragmentation, but interpretation of developments is complicated by ECB activities.** While indications of fragmentation in money markets have diminished, at the same time the European Central Bank has become increasingly important in supplying short term liquidity relative to private participants. The ECB should be aware of the risk that its extraordinary measures – in part designed to alleviate perceived financial fragmentation – could by itself introduce distortions and result in misallocations (e.g. by underpricing differences in risk across countries).

### **3.2. Capital Markets: Corporate and Sovereign Bonds**

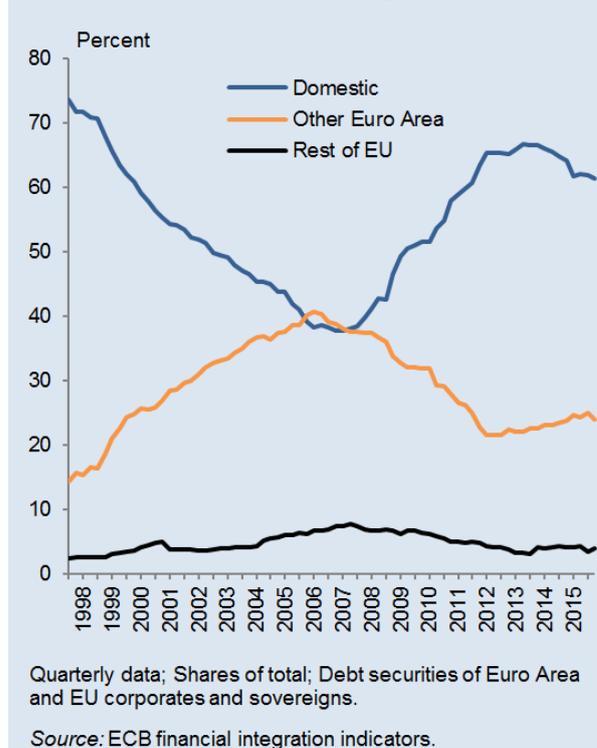
**After showing some signs of fragmentation during the acute phases of the financial and sovereign debt crises, bond market indicators reversed in 2013.** The yield dispersion of long-term government bond yields started to increase with the onset of the global financial crisis and spiked up during 2010-2012 when the European sovereign bond crisis unfolded. Since then, yield differentials have come down substantially, indicating that financial integration has recovered, although they have not yet reached their pre-crisis levels (see graph G3). Similarly, according to quantity-based indicators, following a period of disintegration during the crises the bond markets have started to reintegrate again, with the share of domestic bond holdings (indicating the degree of home bias) having started to decrease again, albeit slowly (graph G4).

**The neglect of country-risk and resulting evaporation of yield spreads between countries before the financial crisis was inefficient.** Yield dispersions for sovereign and corporate bonds now stand well below those observed during the crises' heights but have not come down to the levels before 2008, when they had all but disappeared. Even though rescue programmes and the Eurosystem have collectivized a substantial amount of credit risk, investors still seem to perceive different country risk. Acharya and Steffen (2013) argue that banks' behaviour in the bond markets before the crisis was consistent with inefficient exploitation of implicit government guarantees for large, undercapitalized banks taking excessive risks, arbitrage possibilities provided by regulatory risk-weights, and the option value of access to central bank funding. Hale and Obstfeld (2014) add that the increase in lending to the periphery was financed via an increase in leverage by borrowing from outside the European Monetary Union. A disappearance of yield spreads between Member States should therefore not become a policy objective in and of itself, since it could very well support a repetition of the build-up of unsustainable debt dynamics in individual countries as had been developing before the crises.

G3: Yield dispersion



G4: MFI cross-border holdings (debt sec.s)



**Given the differences in corporations' earnings prospects, one should not expect equal bond yields for all firms.** According to creditreform (2015) notable differences exist across countries in key metrics such as average equity ratio, return on sales, EBITDA<sup>2</sup> interest coverage ratio, and the ratio between net debt and EBITDA. Therefore, differences in interest rates across countries would be expected in an efficiently functioning market. What is suggestive of relatively normal market functioning is the fact that not all crisis countries developed in the same way: for example, while risk premia in Italy remained elevated in recent years, they have come down for Spanish corporations since 2011. In addition to company fundamentals, the interplay between sovereign and firms in its jurisdiction is also important: if governments do not get their spending and debt under control, businesses will be expected to face a higher path of future taxes, reduced profitability and higher default risk, leading to rationally higher financing costs.

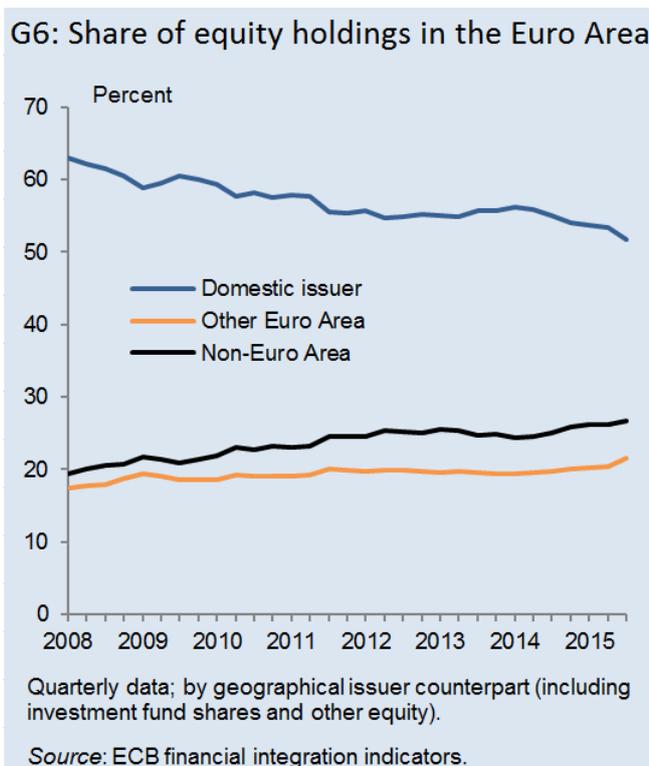
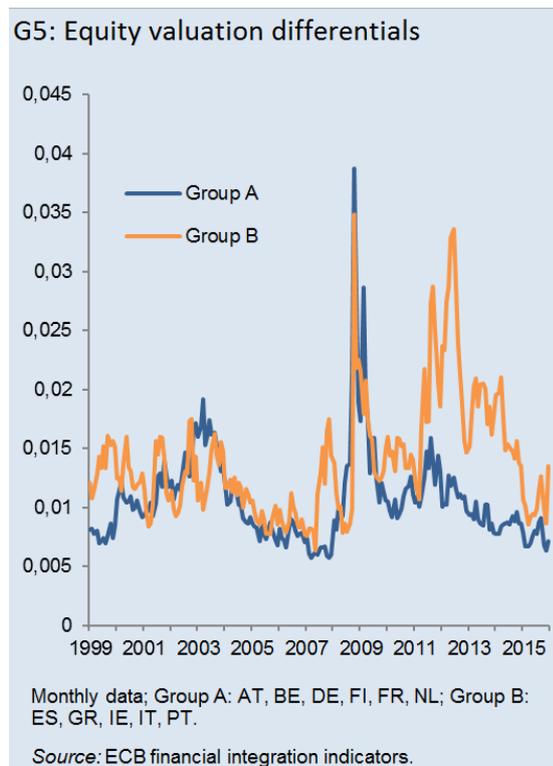
**Home bias in private portfolios is slowly decreasing.** Quantity-based measures show that cross-border diversification in euro area bond markets fell during the crisis, bottomed out around 2012, and has since started to rise again, albeit slowly (see graph G4). However, the increase in domestic bond holdings during the crisis was not only result of a decision by private agents in response to country-specific risks could be alleviated by improvements in the regulatory framework for the private financial sector. According to De Marco and Macchiavelli (2016) the temporary resurgence of home bias can be explained at least partially by political influence which is part of the bank-sovereign nexus. Banks that are either government-owned or have (former) politicians on their boards exhibited higher home biases in the period of 2010 to 2013 and were the only ones to increase it further during the sovereign debt crisis. This effect was most visible in distressed countries.

<sup>2</sup> EBITDA (earnings before interest, taxes, depreciation and amortization) is one indicator of a company's financial performance.

### 3.3. Capital Markets: Equity

Since Member States' economies are heterogeneous across many attributes, simple differences in equity index returns are not a good measure of financial integration. Bekaert et al. (2011) propose to control for cross-country differences by taking into account the relative weights that different industries have in each economy. Doing so results in a measure for equity market segmentation which in 2015 was at the same level as before the crisis (see graph G5). But two periods of divergence in equity returns remain unexplained by the differing fortunes across industries: late 2008 and early 2009, at the height of the global crisis which gripped all countries, and around 2012 when the European sovereign debt crisis peaked. However, since those times were associated with pronounced differences in perceived country-specific risk, they should not be seen as proof of market fragmentation, especially since they subsided very quickly after such risks were reduced.

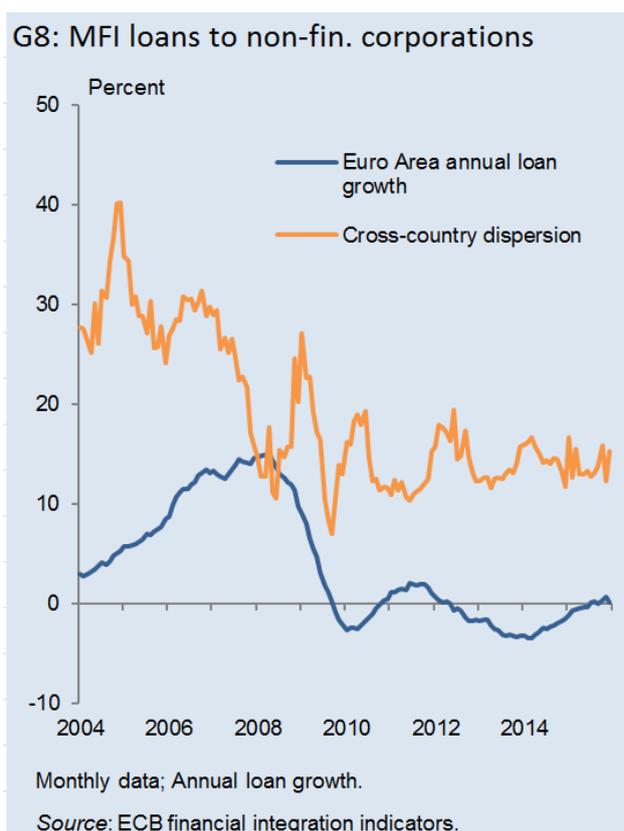
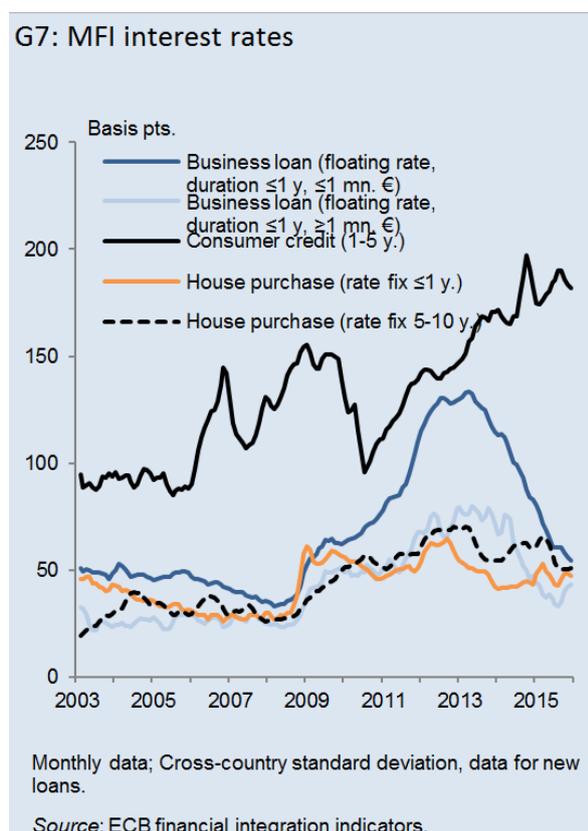
**Home bias in equity portfolios is decreasing steadily.** Shares from other euro area countries increased as a proportion of total equity portfolios from about 18 per cent in 2008 to 22 per cent in 2015. During the same time, home country equity holdings fell by ten percentage points, to 52 per cent (see graph G6). Thus, while local issues are still overrepresented, the level of home bias is decreasing. Moreover, diversification towards the rest of the world is happening faster in absolute terms than towards the rest of the euro area. Taken together, although some price-based measures suggest some inclination of European equity markets to display signs of fragmentation in times of financial stress, the underlying trend towards financial integration has resumed and is continuing apace in this market segment.



### 3.4. Banking

**The picture regarding fragmentation in the banking sector is decidedly mixed.** The differences in loan interest rates between core and peripheral countries, which grew considerably during the crisis, have since come down. The major exception is consumer credit, where the standard deviation of rates across countries has continued to rise (see graph G7).

**Cross-border lending is less dispersed but stagnant in volume since the crisis.** The growth in the volume of loans to non-financial corporations was more equal across countries after 2008 than before (but also slower in general; see graph G8). However, the share of cross-border lending from other euro area countries mostly stagnated at around five per cent since the onset of the crisis, after having doubled in the ten years before. The domestic share of loans to MFIs, which had fallen below 50 per cent before the crisis, even rose by ten percentage points. The reduced willingness for cross-border lending between banks is unsurprising, given that default probabilities became very heterogeneous across countries (this can be seen, for example, by looking at CDS premia) and that the slow and not very stringent process of resolution is still incomplete.



**Current ECB interventions may not be successful in improving financing conditions.** The ECB policy aims at reducing corporate financing costs in distressed countries by affecting the interest rates for loans through government bond purchases. However, this policy may not be effective at the current juncture. Holtemöller and Scherer (2016) note that financing costs for non-financial corporations in euro area countries started to diverge with the onset of the sovereign debt crisis (and not before; furthermore, not all distressed countries' corporate sectors became victims of this heterogeneity) and find that while increasing government bond yields can partially explain rising corporate financing costs in 2011, they cannot in 2012. In the latter phase of the sovereign debt crisis the share of non-performing loans to the corporate sector takes over as the principle explanation for interest rate differentials. Thus, a policy geared toward resolving the

problem of bad loans may be more effective in improving financing conditions in the corporate sector than a policy that aims at reducing government bond yields.

**Maximal financial integration may not be optimal.** Allen et al. (2010) argue that financial integration could be excessive and a moderate level of financial integration may be preferable. While there are advantages of financial integration, including the possibility of risk-sharing and diversification as well as the spread of best practices via market entry of more advanced banks from abroad with better risk management, there are also disadvantages. Foreign capital is typically more mobile and may be quicker to flee in bad times (this can be somewhat ameliorated by the presence of local branches or subsidiaries, which provide more stable funding than direct lending). In addition, a rise in the exposure to foreign shocks increases the possibility of contagion, and increased complexity, size, and interconnectedness in combination with a growing similarity of financial institutions could raise the risk of systemic crises.

**All in all, the problems in the European banking market are to be found less in the loan provision to non-financials and more in the weakness of (some of) the banks themselves.** The bank-sovereign nexus and high legacy amounts of non-performing loans continue to weigh on MFIs in some countries more than in others. However, since the beginning of this year, a resolution mechanism for these issues is available (see also Chapter 4 on policy advice).

### 3.5. Conclusions

**Quantity-based indicators on aggregate show that European capital markets in equity and bonds are increasingly well-integrated.** Some remaining differences in prices can be explained by cross-country differences in risk and other fundamental factors that should be reflected in prices on efficient markets rather than by financial fragmentation.

**By contrast, the situation is less sanguine in banking and money markets.** To be sure, financing costs on the money markets have converged across Member States but this came as a result of massive ECB interventions. But this should not be seen as a sign of healing in money markets. Many MFIs in Europe are still seen as unhealthy, making others reluctant to grant them loans. This interpretation is supported by the fact that non-financial corporations in the wake of the crisis had less trouble to find cross-border loans than MFIs did: since only some foreign activity was reduced, there must be other reasons besides national borders suddenly becoming less permeable to explain the reduction in bank financing.

**All in all financial markets in the euro area currently do not display signs of serious financial fragmentation, leaving policy time to carefully design appropriate policy responses.** Our review of financial integration indicators supports the view that financial markets by and large have resumed working with sufficient efficiency. In this improved financial environment policy makers should carefully evaluate policy options in order not to unnecessarily introduce new distortions and inefficiencies into financial markets that would hurt the economy in the longer run.

## 4. FINANCIAL FRAGMENTATION: REMEDIES

The Five-Presidents-Report singles out two remaining crucial elements required to complete the financial union: **A common deposit insurance system and the Capital Markets Union** (Juncker et al. 2015, p.11). If the financial union were “complete”, we should not expect financial fragmentation to be a major concern. In order to put the two mentioned elements into perspective, we describe in more detail the main mechanism that has caused financial disintegration processes which have peaked in 2012, i.e. doubt about the cohesion of the monetary union. To reduce concerns about a possible breakup of the monetary union a weakening of the link between governments and the domestic financial sector (bank-sovereign nexus) is necessary, as it is at the heart of the European sovereign debt crisis. From this analysis, a number of policy responses can be derived that each have the potential to contribute to preventing problematic forms of financial fragmentation. Some of these policies have already been put in place, while others – such as EDIS and CMU – have not yet been implemented.

### 4.1. Main mechanism that causes financial fragmentation

**The close link between sovereigns and banks created the risk of breakup of the currency union.** Once market participants realized from 2010 onwards, that a default of Greece was imminent and that other countries might follow, the consequences of such an event became clear. If a country declared default it would have difficulties to remain a member of the monetary union. The sequence of events from a sovereign default to abandonment of the Euro can be as follows:

- (Imminent) Sovereign default compromises the capital basis of domestic banks. This is because banks tend to have a disproportionate share of sovereign bonds of ‘their’ own government on their balance sheets (home bias in financial sector’s investment portfolio).
- In a situation of (near) bankruptcy, the government will be unable to recapitalize weak banks. It cannot play the role of an emergency financial backstop any more that prevents systemic crises from going rampant. Credit ratings (and financing conditions) of all domestic banks deteriorate since ‘their’ government as a common backstop is disqualified.
- The ECB rulebook does not allow providing liquidity to insolvent banks. Therefore, large parts of the domestic financial sector will be on the verge of collapse.
- Without central bank liquidity, real economic activity caves in. Therefore, and to be able to pay its own employees, the government would have to consider introduction of a new (parallel) currency. Deposits were to be redenominated to the new (devalued) currency.

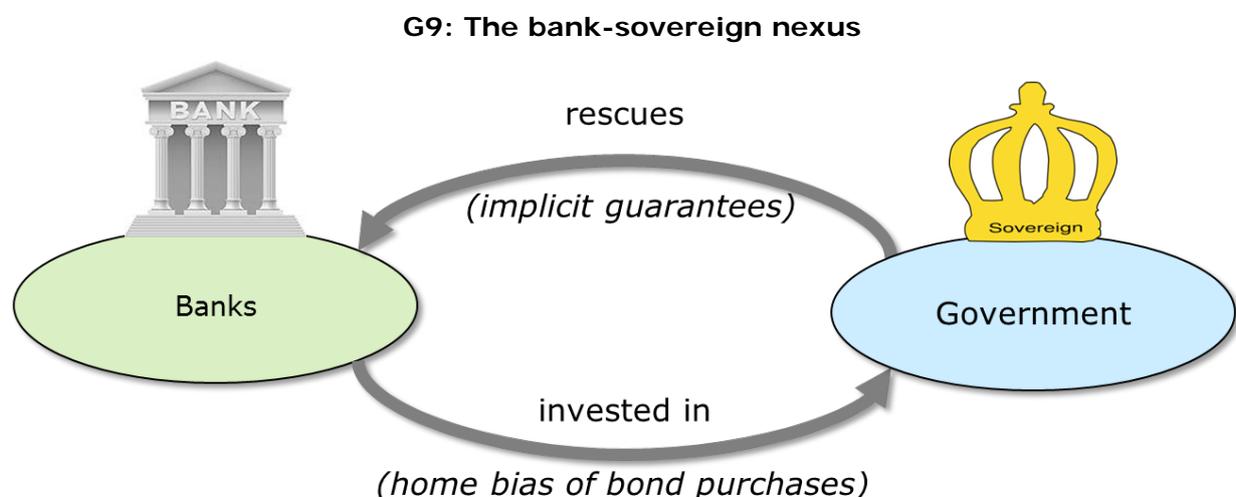
**Doubt about the cohesion of the Euro area was a main reason for intensifying financial fragmentation during the debt crisis peaking in mid-2012.** The possibility of a sudden and unorderly breakup of the monetary union created an implicit currency risk for cross-border financial investments. This implicit risk effectively acted like an invisible wall for financial flows: investors and deposit holders had to take into account an implicit currency risk, i.e. the risk that a member state might have to default and to introduce a parallel currency. In such a situation, existing cross-border financial investments will be expected to be repaid in a new and probably devalued currency (at a certain probability), or not be repaid at all. Similarly, deposits in that country will likely be devalued considerably in real terms. Thus, the expected value of financial investment returns will decline in affected countries. As soon as the implicit currency risk is perceived as being

substantial, it will be incorporated in cross-border investment decisions. As a result credit availability for domestic banks and companies will be reduced irrespective of the specific situation of the firm, thus introducing financial fragmentation.

**Other reasons for incomplete financial integration are often benign.** For example, cross-country interest rate spreads may simply reflect different risk perceptions for investments in these countries. Government bond spreads may mirror (correct) assessments about the degree of fiscal sustainability. Corporate bond yields and credit rates for non-financial enterprises may reflect expectations about future tax rates and economic prospects of the respective countries. Other reasons for limited cross-border investments are lack of knowledge about local markets and conditions or local counterparties, lack of experience with a different legal system, or simply the prevalence of a different language. There may also be the suspicion that foreign investors could be treated differently from local investors in times of crisis. This whole set of reasons for incomplete financial integration is generally not too problematic in normal times, although lack of financial integration reduces the potential to switch to foreign suppliers of financing on the case of financial trouble in the domestic economy. The reason behind financial disintegration at the peak of the European sovereign debt crisis in 2012, however, was malign. As argued above, implicit breakup risks of the currency union caused investors and depositors to shift capital from periphery countries to core countries. In order to fix this vulnerability of the Euro area, the bank-sovereign nexus needs to be addressed properly.

#### 4.2. Weakening the Bank-Sovereign Nexus

**Weakening the close link between governments and the financial sector is paramount.** So far, the close connection of fiscal (un-)sustainability and financial (in-) stability links the fate of governments and banks – in good times and in bad times (“doom loop” or “bank-sovereign nexus”; see graph G9). A major insight that evolved over the years since the start of the debt crisis is that the sovereign-bank nexus must be addressed to solve the debt crisis in a fundamental way. By weakening this link, the above-mentioned sequence of events can be prevented. Without the risk of euro area breakup, the main reason for financial disintegration would be switched off.



**Source:** Own representation.

**Disentangling banks and sovereigns can follow different routes.** There are four elements in graph G9: Banks, the government and the links between the two in both directions. Each of these elements can be dealt with separately by policy instruments in order to weaken the bank-sovereign nexus and reduce the vulnerability of the euro area. The four elements, which are subsequently discussed in more detail are: (1) increase robustness of banks; (2) weaken the link from financial sector to public sector, i.e. remove (or replace) implicit guarantees of governments to bail-out banks in times of crisis; (3) improve fiscal soundness and reduce probability of sovereign default; (4) reduce dependence of financial sector stability on solvency of the treasury.

#### 4.2.1 Increasing robustness of the financial sector

**Regulatory reforms have helped increase the robustness of MFIs.** The “Basel III” framework is intended to overcome weaknesses of former regulatory standards, weaknesses that have become evident during the global financial crisis of 2008 and thereafter. New rules, phased in between 2013 and 2019, require banks to increase the size and quality of their equity base, while counter-cyclical capital buffers are called for to increase loss-absorptive capacity of banks in times of crisis. Risk coverage is also improved as capital requirements are increased for several asset classes. The whole Basel III package of regulatory reforms covers a wide range of measures and is designed to improve robustness of the financial sector. Despite the progress in regulation, the crisis legacy still weighs heavily on many banks, particularly in periphery countries. The sustained economic crisis, followed by a restrained recovery left large amounts of non-performing loans in bank’s balance sheets, particularly in Italy, Portugal and Greece. Moreover, record-low interest rates continuously squeeze bank margins from the revenue side. Overall, the new rules certainly are useful steps towards improving the robustness of the financial sector, but it requires more time – and probably a protracted and strong recovery – before banks in severely affected countries will have absorbed the problems accumulated in the crisis.

**Bank surveillance has been unified under the common roof of the ECB.** In order to overcome the fragmented regulatory environment in Europe a common bank surveillance has been introduced. Since November 2014, the ECB is in charge of supervising banks whose balance sheet total exceeds either 30 million € or 20 percent of the respective countries’ GDP. As a result, the same regulatory standards now apply to large banks in all member states (First Pillar of the banking union: Single Supervisory Mechanism – SSM). Even if smaller banks – which remain under national supervision – outnumber large banks, more than 80 percent of balance sheet totals of euro area banks are under ECB supervision now. Therefore, large parts of the financial sector and particularly banks with systemic relevance are covered by surveillance under a common roof. With unified surveillance, supervisors may be less indulgent with banks in the application of bank regulation. Uniformity in regulation probably further improves the robustness of banks in the medium to long run.

#### 4.2.2 Weakening the link from financial sector to public sector

**Difficulties in the financial sector should not endanger fiscal sustainability any more.** To this end, implicit guarantees of governments to bail out banks in times of crisis need to be removed (or replaced by something else as long as failure is not an option for systemic banks). In this respect, institutional reforms have brought considerable progress (second pillar of the Banking Union: Single Resolution Mechanism – SRM). Since January 2016, the “Bank Recovery and Resolution Directive” (BRRD) is in force. In case of severe difficulties of banks, BRRD rules apply, according to which unsecured bank creditors and large depositors (beyond 100,000 €) are subjected to a bail-in. This procedure aims at generating additional capital of 8 per cent of the bank’s balance sheet value, increasing the

loss-absorptive capacity of banks respectively. In 2015 the single resolution fund has been activated which will gradually build up until 2023 by collecting private (banking) sector contributions, currently targeting 55 billion € of funding value. The SRF will provide resources once bank resolution is required after bail-in of creditors and depositors has been executed. According to Gros (2016), such funding of bank resolutions can generally be a profitable business and does not necessarily involve mere loss absorption. Remaining losses of a bank failure would actually strain the respective deposit insurance system rather than the SRF.

**To contain systemic crises, the financial system could be backed by a common safety net instead of ultimately relying on fiscal resources of a single member state.** A joint Deposit Insurance System is one possible way to implement this (third pillar of the Banking Union: European Deposit Insurance System – EDIS). Basically, this can be organized as a re-insurance system (Gros 2016): while national deposit guarantee schemes still take care of limited difficulties in single banks, EDIS would constitute a joint financial backup for systemic crises in a member state. Moreover, ESM funds could be a fiscal backstop in case a large country would be involved or in case of euro area-wide systemic crises, so that the deposit insurance system would be made waterproof. This way, depositors (up to 100,000 €) would not have to be concerned about safety of their deposits irrespective of the country their money is located. As the Five-President report argues, a truly single currency requires that “confidence in the safety of bank deposits is the same irrespective of the Member State in which a bank operates” (Juncker et al. 2015, p.11).

**A common deposit insurance system, however, is politically rather contested for a number of reasons, and its design would have to carefully address a number of reservations.** Clearly, the extent of joint liability would be enormous. If EDIS resources were exhausted, European tax payer money – probably financed by the ESM – would be required to save the day. Given that current risks in the financial sector (e.g. NPL shares) are rather unevenly distributed between countries, losses for the respective deposit insurance may simply not have materialized yet. Therefore, the joint deposit insurance might effectively imply legacy-sharing rather than risk-sharing. At the same time, moral hazard is also an issue: The possibility to access joint European financial resources would probably increase the likelihood of insurance events. Particularly those countries with limited difficulties in the domestic banking sector are hesitant to move towards systems that introduce joint liability. Another argument is that bank’s balance sheets contain substantial amounts of fiscal risks as long as domestic banks mainly invest in sovereign bonds of ‘their’ country (home bias). Therefore, introducing a common financial safety net for banks implies mutualisation of fiscal risks, i.e. implicit joint liability with respect to government debt. Again, countries with relatively sound public finances are particularly hesitant towards such a step – reducing the home bias would be required as a prerequisite. Lastly, government decisions and characteristics of the respective legal system – e.g. insolvency laws – have a considerable influence on risks in the financial sector, which sooner or later can result in cost for the joint deposit insurance. Since national laws and national government decisions are beyond the influence of elected politicians in other countries, introducing joint liability for the resulting risks would violate the principle of unity of liability and control. Part of these concerns are addressed by current proposals for EDIS as it would be “privately funded through ex ante risk-based fees paid by all the participating banks in the Member States and devised in a way that would prevent moral hazard” (Juncker et al. 2015:11) and would be phased in over more than a decade (ECB 2016b). Also, O&D’s can be harmonized in order to reduce national control over resulting risks for the deposit insurance.

### 4.2.3 Reducing probability of sovereign default

**New fiscal rules aiming at strengthening fiscal soundness of member states have been introduced.** In order to reduce high debt levels, the rules of the Stability and Growth Pact (SGP) have been complemented with the European Fiscal Compact (EFC), which requires each member states to restrain its structural deficit (the budget deficit subtracted by the cyclical component and one-offs) to 0.5 percent of GDP. Member states had to consent to implementing this rule into national law as a precondition to an introduction of the European Stability Mechanism (ESM). If all governments would strictly comply with old and newly introduced fiscal rules, high debt levels would necessarily decline, fiscal space would increase, and the likelihood of sovereign default would be substantially reduced. However, partly due to considerable discretionary leeway for the EU commission in judging member states' efforts to comply with fiscal rules, the system of fiscal surveillance has not been particularly effective so far. Soon after major concerns about imminent sovereign default tapered off, while at the same time financing conditions improved due to ECB's unconventional policies, consolidation efforts were relaxed. Overall, it appears that fiscal discipline has lost some of its appeal lately, so that government debt levels remain on an alarmingly high level for the time being. Efforts to strengthen fiscal soundness have not yet accomplished major progress in excluding the possibility of debt unsustainability.

**A mechanism has been introduced to offer financial assistance to countries that run into liquidity problems.** When the sovereign debt crisis unfolded in 2010, markets realized that being a member of the Monetary Union implies to be indebted in a currency that countries are unable to create themselves. Unlike the United States, Japan and the United Kingdom, euro area countries are unable to guarantee the nominal value of circulating sovereign bonds, since they cannot simply print money to circumvent an imminent default.<sup>3</sup> As a result, countries with high debt levels became vulnerable to speculative attacks by investors. With the spread of doubt, countries faced increasing yield spreads, so that some of them slipped from a good equilibrium with low refinancing cost and manageable debt service into a bad equilibrium of unsustainable debt and high refinancing cost (Baldwin et al., 2015). In order to prevent self-fulfilling sovereign debt crises of solvent member states, a crisis mechanism has been introduced. Once a member state is unable to fulfil its liquidity needs at reasonable market financing conditions, the government can apply for financial assistance at the European Stability Mechanism (ESM). Persistent concerns, that ESM funds may not be sufficient meet the refinancing needs of a big member state like Italy were finally wiped away when the OMT program (OMT = Outright Monetary Transactions) was announced and the ECB stated that it would do "whatever it takes" to preserve the Monetary Union. Conditional on the existence of an ESM adjustment programme, the ECB was enabled to buy unlimited amounts of sovereign bonds from the respective Member State, so that limited ESM funds were not deemed problematic any more. While legitimacy of the ESM and particularly the OMT program is still controversial, the crisis mechanism certainly calmed down concerns about an imminent breakup of the monetary union and successfully reduced the probability of a self-fulfilling liquidity crisis.

**A credible solution for solvency crises of Member States is still missing.** Clearly, the distinction between a liquidity crisis and a solvency crisis is not always straightforward. However, if the level of public debt is unsustainable – as it probably is in Greece – rolling-over of debt by means of an ESM adjustment programme is problematic. In that case, tax payer money is used to bail out investors who took the risk of lending money to the respective government, while these investors should actually not be released from liability

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<sup>3</sup> The inability to print money in a sovereign debt crisis should not have come as a surprise, though, since monetization of public debt is prohibited anyway.

unless it is evident that the country actually suffers from a mere temporary lack of liquidity. A proposal to solve this issue has recently been put forth by Andritzky et al. (2016): Once a country applies for ESM funds, the maturity for all circulating bonds is automatically extended for three years. Thus, investors would not be bailed out immediately, but remain involved as creditors. Moreover, in the negotiations for an adjustment programme, a nominal haircut can be decided upon (debt restructuring), if the assessment does not find debt to be sustainable. Another major argument for the maturity extension is that the ESM would not have to roll over debt for three years, but would only have to finance current deficits. Therefore, current funding of the ESM would clearly become sufficient to deal with adjustment programmes even for big Member States. In effect, this implies that with an automatic three-year maturity extension, the OMT program – which was never applied so far anyway – would probably not be required any more.

#### 4.2.4 Reducing the financial sector's dependence on public finances

**Banks' exposure their own government should be limited.** Currently due to home bias banks tend to have a disproportionate share of government bonds of their home country in their books tying the health of the bank to the fiscal soundness of the sovereign. Exposure limits for single issuers already exist, but not for sovereign bonds. The rationale behind exposure limits is that banks should not be vulnerable to financial difficulties of a single debtor. If they were introduced for sovereign bonds as well, banks would generally have to reduce their holdings of government bonds of their home country reducing the risk of falling victim to a sovereign debt crisis (Gros 2016). So far, proposals to reduce the home-bias in bank's investment portfolios have not yet been addressed at all. If anything, the ECB may press MFIs under their supervision gently towards balancing their portfolios in this respect. Among others, Andritzky et al. (2016b) propose to introduce non-zero risk weights for sovereign bonds in bank regulation. This implies that the mere fact that sovereign bonds are not risk-free would simply be acknowledged by regulatory standards and incentives for holding government bonds would be reduced.

**Removing implicit guarantees of the government also reduces the dependence of banks on the credit rating of the treasury.** As argued above, the SRM ensures that banks are not bailed out by the government at first signs of difficulties, but that loss-absorption capacity is broadened by a bail-in of bank creditors and large depositors. In effect, the bank's own credit rating now depends to a lesser extent on the financial power of the home country's government as an emergency financial backstop. Therefore, deterioration of a countries' credit rating does not necessarily imply any direct consequences for the bank, as has been the case during the financial crises, because the government does not play the role of an emergency backup for all banks any more.

#### 4.3. Capital Markets Union

**The Capital Markets Union is a project to foster further financial integration and deepening of the European capital markets.** The aim of the CMU is to tap additional sources of financing for European firms, especially SMEs, which currently by international comparison rely on bank credit to a disproportionate degree. Sources of finance complementary to bank-financing include equity markets and corporate bond markets, venture capital, crowdfunding and the asset management industry. In addition, reviving the market for securitization could additionally improve financing possibilities for smaller firms.

**With the financial crisis the aspect of of cross-border risk sharing has moved into focus.** Both, global trends in financial integration, and of course the introduction of the euro, have opened up national financial systems to a number of additional risk factors. For the EU countries these are mainly risks associated with other member states. Economic downturns that could easily be absorbed by the EU economy as a whole can lead to

unnecessarily severe impacts because they materialize mostly locally, where the absorption capacity is limited (Furceri and Zdzienicka, 2013).

**The CMU has the potential to improve efficiency and robustness of the financial sector in the Euro area along different dimensions.** To the extent that the bank-based European financial sector shifts somewhat towards a greater role for capital market financing, some of the risk involved in financing real economic activity is also shifted away from the banks to private market participants. Therefore, the CMU implies more private risk-sharing. In addition, if financial products are harmonized across countries, this would simplify and enhance cross-border investment. An increase in cross-country equity holdings implies more cross-border risk sharing, i.e. consumption is smoothed via capital income flows if there are fluctuations in GDP, compared to a situation without cross-border investment (Kalemli-Ozcan 2016). Finally, access to a broader set of financial market instruments for European firms implies that these firms do not have to rely on bank credit only. Experience suggests that companies with access to financial market instruments are financially less restricted in the aftermath of a crisis than companies that have to rely on bank loans, which would probably contribute to a faster economic recovery.

**In order to achieve CMU, substantial harmonization of the legal environment will be necessary in stock markets, bond markets and the market for securitized products, making the CMU a distant prospect.** The Stock markets in most European countries are generally rather developed, but are not very large in terms of capitalization when compared for example to the United States. IPOs still mostly take place on a national level, even though the potential of the European market would of course be much larger raising the question whether the existing large number national stock markets in Europe is efficient. Progress towards a unified European stock market will involve developing common market rules and national law and taxation issues. Bond markets could surely profit from widening the investor base. Harmonization of rules, for example disclosure regimes, would be part of creating a single bond market. The more important aspect is, however, that many institutional investors (pension funds) are constrained because they are only allowed to buy certain investment grade bonds. Reviewing and harmonizing these rules will be necessary and a slight relaxation might be a defensible policy given that recently prices of some high quality bonds have been strongly rising as a result of a run for quality (Kaya, 2015). Securitization is potentially an important tool to improve the access to finance for SMEs, which do not have direct access to capital markets. However, the reputation of this product segment in the general public is not the best and, while the regulation of these products has increased in the aftermath of the financial crisis, ABS, CDO, and MBS remain complex products and come with problems of information asymmetry between the issuer and the investor.

## 5. CONCLUSIONS

**Following a period of significant disintegration in the financial markets in the wake of the global financial crisis and the European sovereign debt crisis, in recent years the situation on financial markets has improved and financial fragmentation currently does not seem to be a particularly pressing issue.** In a discussion of recent evidence with respect to fragmentation in financial markets (money markets, bond markets, equity markets, banking markets, respectively), we stress that interpretation of the behaviour of financial integration indicators should take account of differences in fundamentals. Thus, although we find some remaining differences in price-based indicators, especially in bond markets and banking markets, these could potentially be explained by differences in fundamentals and are not necessarily due to financial fragmentation. Whereas in equity markets the pre-crisis trend of increasing integration seems to have resumed, the situation in the money markets is difficult to interpret due to the excess liquidity pressed into the market by the ECB.

**In order to improve on financial integration, breaking the bank-sovereign-nexus is imperative in order to prevent a resurgence of the doom loops experienced during the European sovereign debt crisis in a number of euro area countries.** Measures to weaken the bank-sovereign-nexus can take different directions. Important steps have already been gone in some areas, but missing links remain. A number of policy initiatives have been introduced to increase loss-absorption capacity of MFIs (e.g. Basel III), improve bank surveillance (SSM) and reduce implicit guarantees of regarding the bail-out of banks in times of crisis (SRM). The third pillar of the Banking Union, namely a European joint deposit insurance scheme (EDIS), is still under discussion and issues such as moral hazard, considerable differences in legacy shares of nonperforming loans and fiscal risks in the bank balance sheets due to excessive home bias will have to be carefully addressed in its design. In an attempt to improve fiscal soundness and reduce the probability of sovereign default, the rules of the Stability and Growth Pact have been redesigned, but an apparent lack of compliance in recent years may have undermined the credibility of fiscal rules in the euro area. At the same time, while remaining contentious, the combination of the possibility of financial assistance by the ESM in case of sovereign debt crisis and the ECB's OMT program as an ultimate monetary backstop to fiscal problems have successfully calmed down concerns about an imminent breakup of the monetary union and helped reverse financial disintegration trends. However, proposals to reduce the dependence of the financial sector on the solvency of the treasury by limiting exposure of banks to their sovereign (home bias in government bond holdings) have not yet been addressed.

**The Capital Market Union can potentially improve efficiency and stability in the European economies, but is a distant prospect.** The proposed Capital Market Union would mean a move towards weakening the disproportionately large importance of bank lending for corporate financing in Europe and can enhance stability and improve efficiency by increased cross-border risk sharing. Progress in the necessary harmonization of regulations and tax laws, however, is set to be slow and the emergence of a fully developed Capital Market Union remains a distant prospect.

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DIRECTORATE GENERAL FOR INTERNAL POLICIES  
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

# Financial market fragmentation in the euro area

**Christophe BLOT, Jérôme CREEL,  
Paul HUBERT, Fabien LABONDANCE**

## IN-DEPTH ANALYSIS

### **Abstract**

Fragmentation has increased since the financial crisis. It remains, though, that differences in cross-border financial flows have been strong across Euro area member states since the creation of the Euro. We show that the transmission of ECB policies to the interest rates on loans to non-financial corporations is quite uneven in the Euro area: the pass-through is much stronger in the periphery than in the core since the Global financial crisis. Consequently, the ECB is able to reduce the spread between the periphery and the core. We also show that the monetary policy transmission to NFC rates is stronger when fragmentation is low. Limiting fragmentation is thus crucial to improve the interest-rate channel in the Euro area. We argue that TLTRO II and QE should be targeted towards peripheral countries in order to limit Euro area fragmentation. Moreover, institutional improvements to make banking systems more homogenous across Euro area should be advocated.

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## EXECUTIVE SUMMARY

- Fragmentation has increased since the financial crisis.
- The transmission of ECB conventional and unconventional policies to interest rates on loans to non-financial corporations is uneven in the euro area: the pass-through is stronger in the periphery than in the core since the Global financial crisis.
- Consequently, the ECB is able to reduce the spread between the periphery and the core, without inducing distortions in market forces.
- The monetary policy transmission to rates on loans to non-financial corporations is stronger when fragmentation is low. Limiting fragmentation is an important objective for the ECB as it will improve the interest-rate pass-through.
- Implementation features of monetary policies (negative rates, TLTROs, QE) should thus aim at reducing euro area fragmentation.
- Institutional improvements to make banking systems more homogenous across euro area should also be advocated.

## 1. INTRODUCTION

The integration of financial markets – full mobility of capital between countries - has been a major concern for the Euro area and especially for the ECB since 1999. Two reasons can be put forward. *First*, the role of financial systems is crucial for growth in the Euro area in order to achieve the best allocation of capital among member countries. Homogeneity in financial and banking systems facilitates capital mobility and makes this optimal allocation possible.<sup>1</sup> *Second*, when heterogeneity in financial and banking systems remain – reliance on banks rather than markets for funding differ or the level of competition in domestic banking system differ –, cross-border financial flows may be limited and may lead to suboptimal allocation of capital. In this latter case, two institutional responses are possible: first, some structural reforms on banking and financial systems through the removal of legal barriers to cross-border capital flows, the harmonization of national regulation (e.g. with a Banking Union), improvement in the homogeneity of the level of bank competition across countries and higher internationalization of domestic banking systems; second, a monetary policy to dampen divergence in financial conditions across countries.

Financial integration has long stood at the political agenda with the aim of enforcing the single market by removing legal barriers and by harmonizing national regulation. Convergence reports have extensively assessed the state of convergence on different markets since 1999. It was generally pointed out that convergence was strong on wholesale banking markets, on sovereign bonds market and to a less extent on retail markets because the latter were retaining local features like different degrees of local competition. Since the financial and sovereign debt crises though, the European banking system has been harshly hit: financial integration has been challenged because of the halt in the process of financial convergence. This halt is usually called ‘fragmentation’: not only have cross-border financial flows been said to have stopped within the monetary union, but interest rates are also said to have deviated across the member states.

The aim of this policy brief is twofold. First, it highlights the degree of fragmentation in the Eurozone, with a distinction between financial flows (deposits, loans, debt securities) and interest rates. The focus is on the banking systems as banks play a crucial role in the Euro area as far as funding to households and non-financial corporations is concerned. Second, the policy brief investigates the impact of ECB policies on market rates and draws some conclusions on the ability of the ECB to limit financial fragmentation.

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<sup>1</sup> The relationship between financialisation and GDP per head (an indicator of allocation of capital) has been shown recently to follow a bell-shape: there is an optimal level of financialisation for which the growth rate of GDP per head achieves a maximum (Arcand, Berkes and Panizza, 2012). The growth in the share of non-performing loans on total loans also impacts negatively the rate of growth of GDP per head (Creel, Hubert and Labondance, 2015).

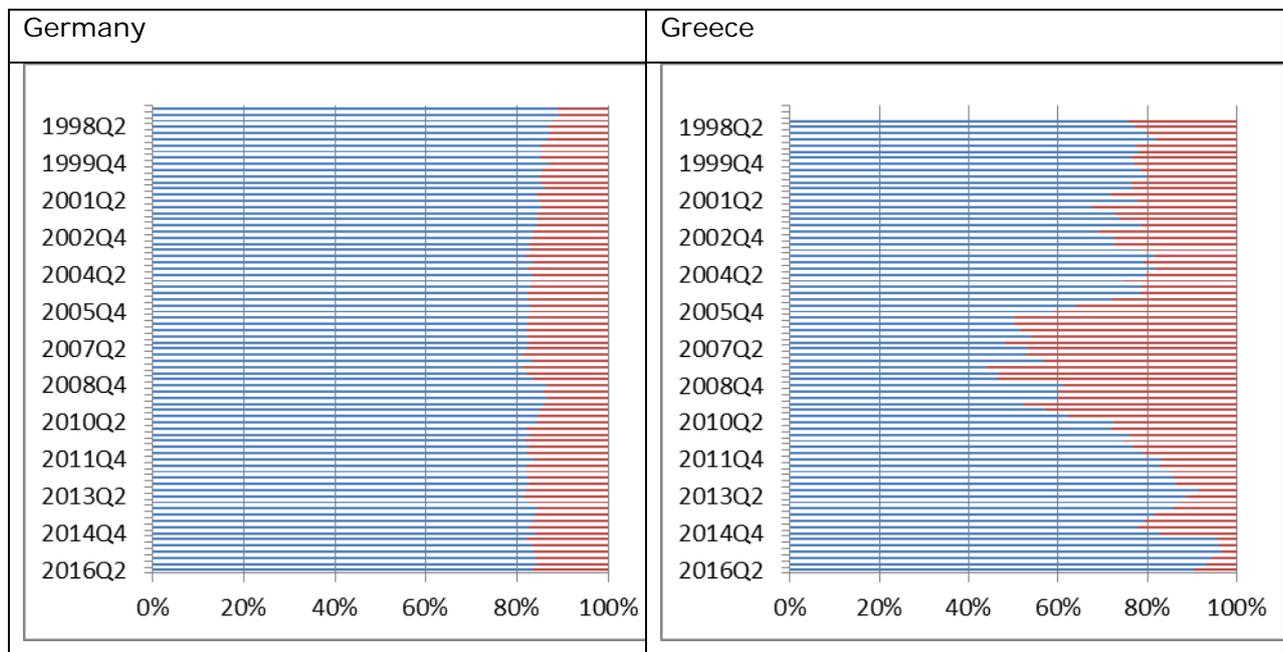
## 2. FRAGMENTATION OF FINANCIAL MARKETS: WHERE DO WE STAND?

There can be two ways of analysing financial fragmentation in a monetary union under so-called full capital mobility (since 1989 in the case of the EU). First, it can be analysed by the degree of heterogeneity in external funding. If banks of country A resort much less to non-domestic assets and liabilities than banks of country B, where countries A and B form a monetary union (with other countries), there can be signs that financial integration is imperfect, e.g. if banks in country A are limited in their cross-border financial activities by domestic regulations or they face disincentives to invest in banks of country B because risk in the latter banking system is different from the risk in their home country.

Drawing on data from the ECB on banks' balance sheets, on the side of cross-border financial flows, there is clear evidence that intra-Eurozone interbank flows are quite different from one country to another. Drawing on the respective shares of banks' assets and liabilities *vis-à-vis* either the origin country or other Eurozone member states, it appears that reliance on non-domestic assets and liabilities is not the same whether we study German banks or Greek banks or banks from the core and banks from the periphery.

The share of deposits by MFI in German banks has been rather stable since 1999 around 16%, whereas it peaked at above 55% in Greek banks before the crises, before it finally declined below 25% (figure 1).

**Figure 1. Deposits by domestic (blue bars) or residents in other members states of the Eurozone (red bars) monetary and financial institutions (MFI)**

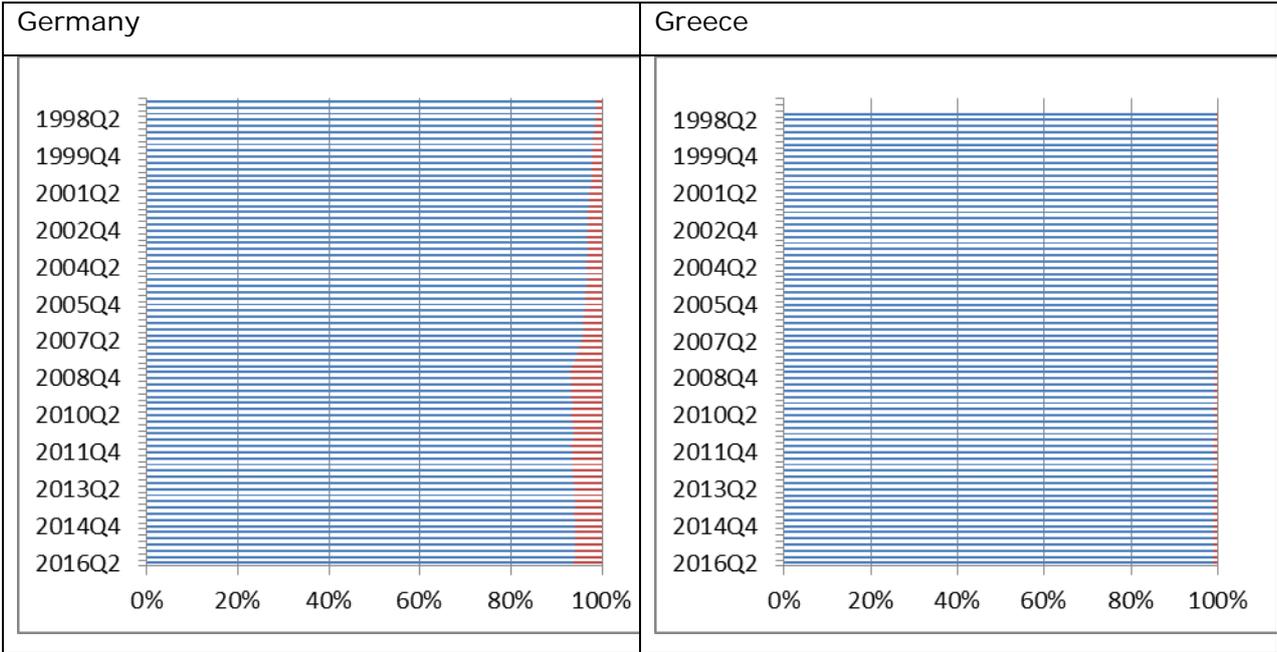


**Sources:** ECB, computations by the authors

On the assets' side of banks' balance sheets, loans typically represent 80% of the sum of loans and debt securities, whether in Germany or Greece. The internationalization of banks as regards loans remains very limited in Germany (with an average share of loans to other Eurozone non-MFIs of 4.5%) and inexistent in Greece (figure 2). On the contrary, the remaining part of assets – debt securities – shows larger intra-Eurozone relationships (figures 3 and 4). Debt securities held by German banks on other Eurozone MFIs grew steeply between Euro's adoption and the financial crisis; it has then stabilized more or less

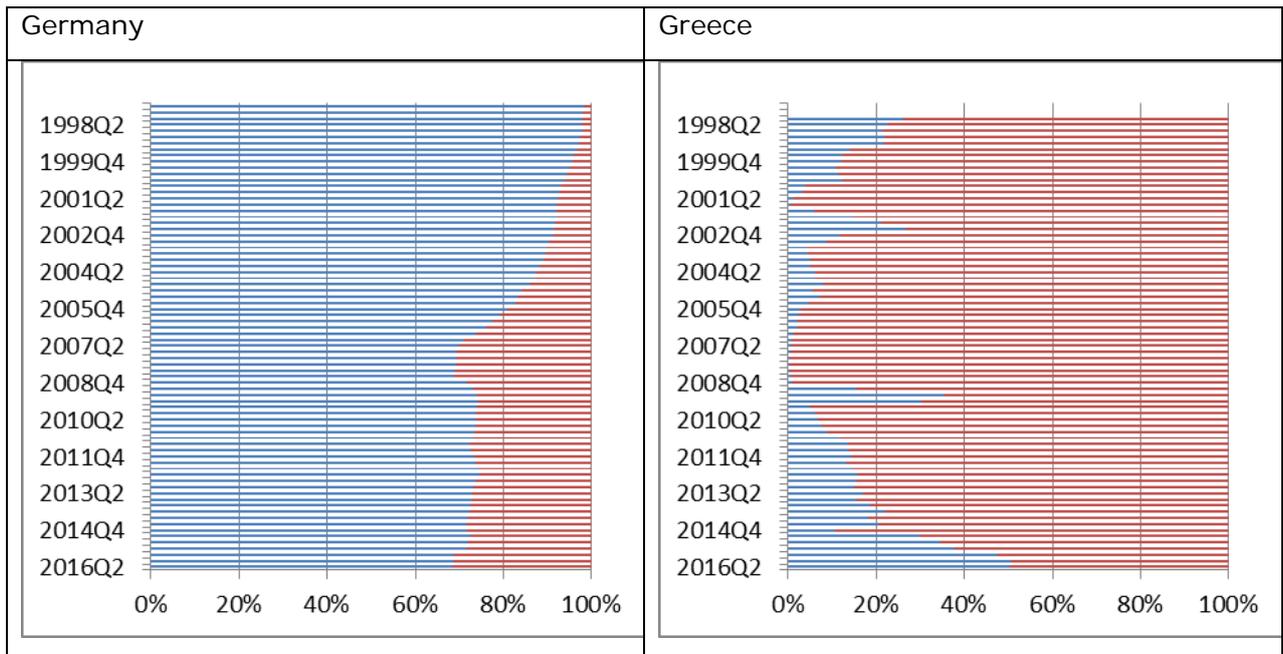
at 30%. Regarding debt securities held on non-MFI, German banks show an even faster increase in the share of other Eurozone countries, with a peak above 55% on the onset of the financial crisis. Since then, the share has declined, showing some signs of the fragmentation often discussed in the media and the literature. The starting point of this fragmentation is 2008 (Bouvatier and Delatte (2016) argue that the overall peak of Eurozone cross-border financial flows appeared in 2007), and seems disconnected from the sovereign-debt crisis, at least for the core countries. Regarding the periphery, fragmentation has appeared later: the share of debt securities held on other Eurozone MFIs declined substantially after 2010. It was partly compensated by the growing share of debt held on other Eurozone non-MFIs.

**Figure 2. Bank loans to non-MFI, domestic (blue bars) or residents in other member states of the Eurozone (red bars)**



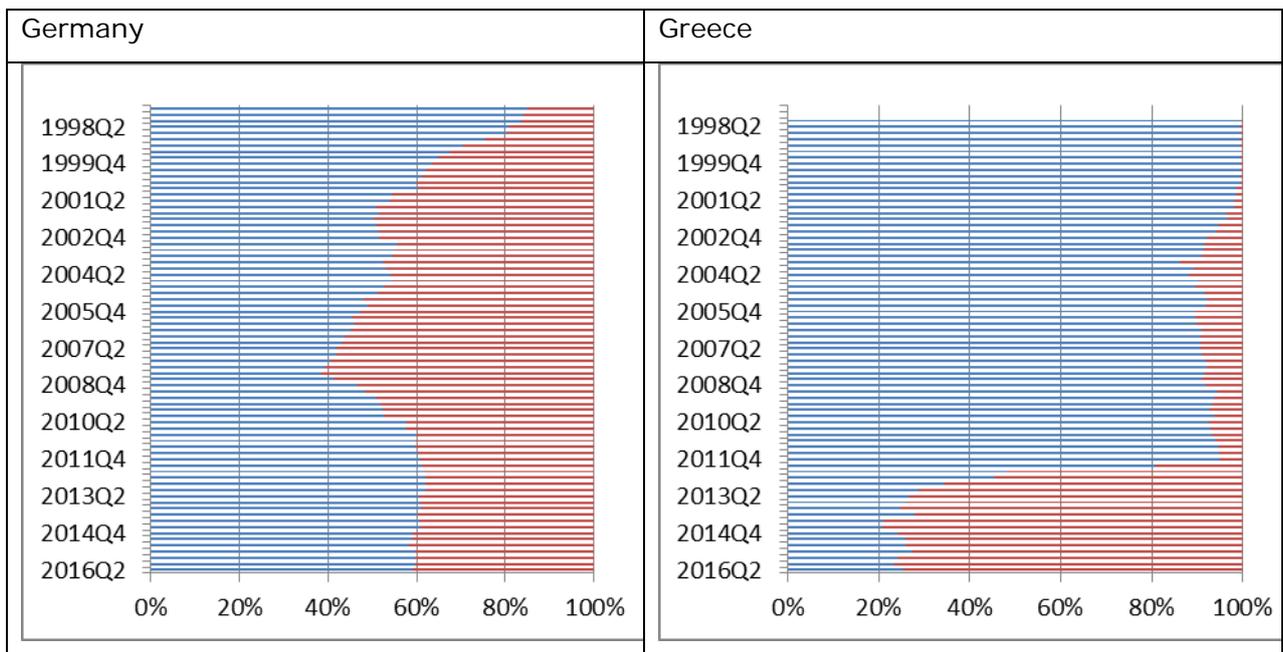
Sources: ECB, computations by the authors

**Figure 3. Debt securities held by banks on MFI, domestic (blue bars) or residents in other members states of the Eurozone (red bars)**



Sources: ECB, computations by the authors

**Figure 4. Debt securities held by banks on non-MFI, domestic (blue bars) or residents in other members states of the Eurozone (red bars)**



Sources: ECB, computations by the authors

The second way of analyzing financial fragmentation is on the side of interest rates charged on loans, debt securities or deposits. Under full financial integration, the law of one price is supposed to hold. In that case, there should be no difference in the prices of two financial assets having the same characteristics. When financial markets are not fully integrated, a convergence process may be expected, prices get closer and financial fragmentation recedes. As emphasized in much of the literature on the convergence of financial systems,

integration was soon achieved for money and public debt markets (Jappelli and Pagano, 2008). In its 2007 report on financial integration, the ECB emphasized the high degree of integration in the money markets, a convergence in bond markets since the introduction of the euro (and the removal of exchange rate risk), rising integration in the equity markets but still fragmentation in the retail banking activities.<sup>2</sup> Yet, it was stressed that integration in the wholesale markets (interbank market activities) as well as for the capital market activities was on an improving path.

Considering the European banking sector, full integration for retail markets would imply that interest rates on loans and deposits are identical across all Euro area countries. Yet, credit and deposit markets across countries do not share exactly the same characteristics as they intrinsically remain local markets subject to national regulations and practices. Besides, the level of interest rates on these markets will also depend on the main features of the domestic financial systems. Competition within the banking sector and between banks and financial markets (debt securities) also matter for the conditions under which households and non-financial corporations have access to funding. Consequently discrepancies between retail banking interest rate are expected to remain. But, with a common monetary policy and increased harmonization of the European legislations, less fragmentation should be expected.

To assess the extent of fragmentation, we apply the concept of sigma-convergence, which boils down to analysing the dynamics of the cross-sectional standard deviation for a given variable to interest rates.<sup>3</sup> Here, we consider the interest rate applied on six retail banking markets for which the ECB provides data since 2000. These markets are: housing loans, consumption loans, loans to non-financial corporations below € 1 Million, loans to non-financial corporations over € 1 Million, deposit market for non-financial corporations and deposit market for households. Data are collected from January 2000 until November 2015 and are available for 11 Euro area countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain.

These indicators provide a quick and visual insight on the process on fragmentation for retail banking market since 2000 (see figures 5a, 5b and 5c). A downward trend in the indicator suggests less fragmentation while an increase indicates more fragmentation across Euro area domestic interest rates. For the six markets, the standard deviation of interest rates first decreased sharply in 2000-2001 then slowed down until 2007-2008. Since the Global financial crisis, standard-deviations have significantly increased either in 2007, for consumption loans for example, or in 2008 after the collapse of Lehman Brothers. During this crisis period, retail banking interest rates went on a diverging path across EMU countries. An empirical analysis confirms the rise in fragmentation after September 2008. It can indeed be shown that a break occurred at this date and that standard-deviations went on a rising trend in the retail banking markets for loans to non-financial corporations (see appendix I). Convergence would have ceased in deposits' markets and significantly slowed down in the markets for housing and consumption loans.

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<sup>2</sup> See also Baele et al. (2004).

<sup>3</sup> See Vajanne (2007) for an early assessment.

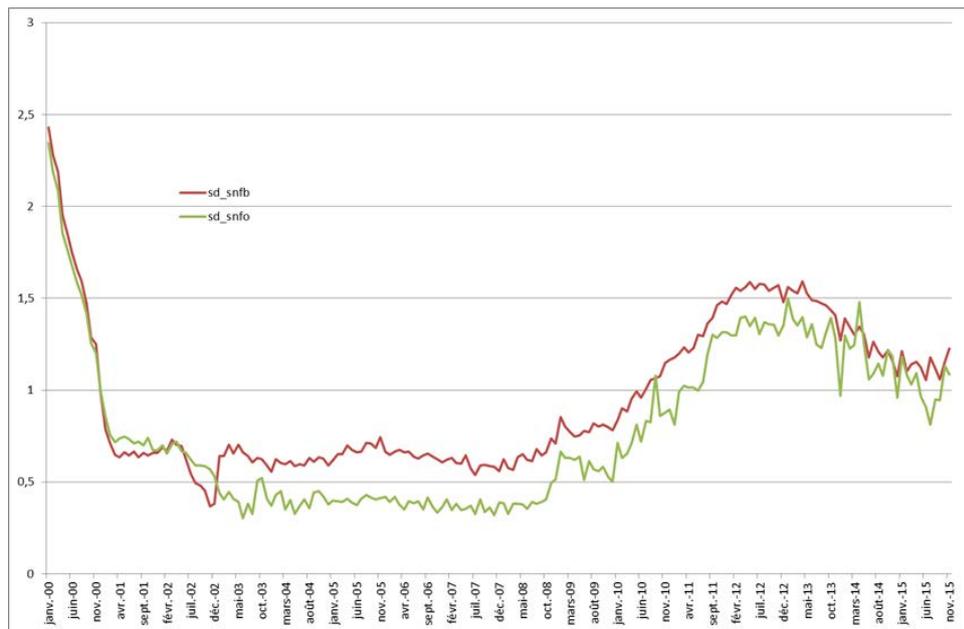
**Figure 5a. Fragmentation indicator for retail banking interest rates to households**  
Standard-deviation



**Sources:** ECB, authors' computations.

**Note:** *immo* stands for rates on housing loans; *conso* stands for rates on consumption loans

**Figure 5b. Fragmentation indicator for retail banking interest rates to non-financial corporations**  
Standard-deviation



**Sources:** ECB, authors' computations

**Note:** *snfb* stands for loans to NFC below €1 million; *snfo* stands for loans to NFC above €1 million

**Figure 5c. Fragmentation indicator for retail banking interest rates on deposits**  
Standard-deviation



**Sources:** ECB, authors' computations

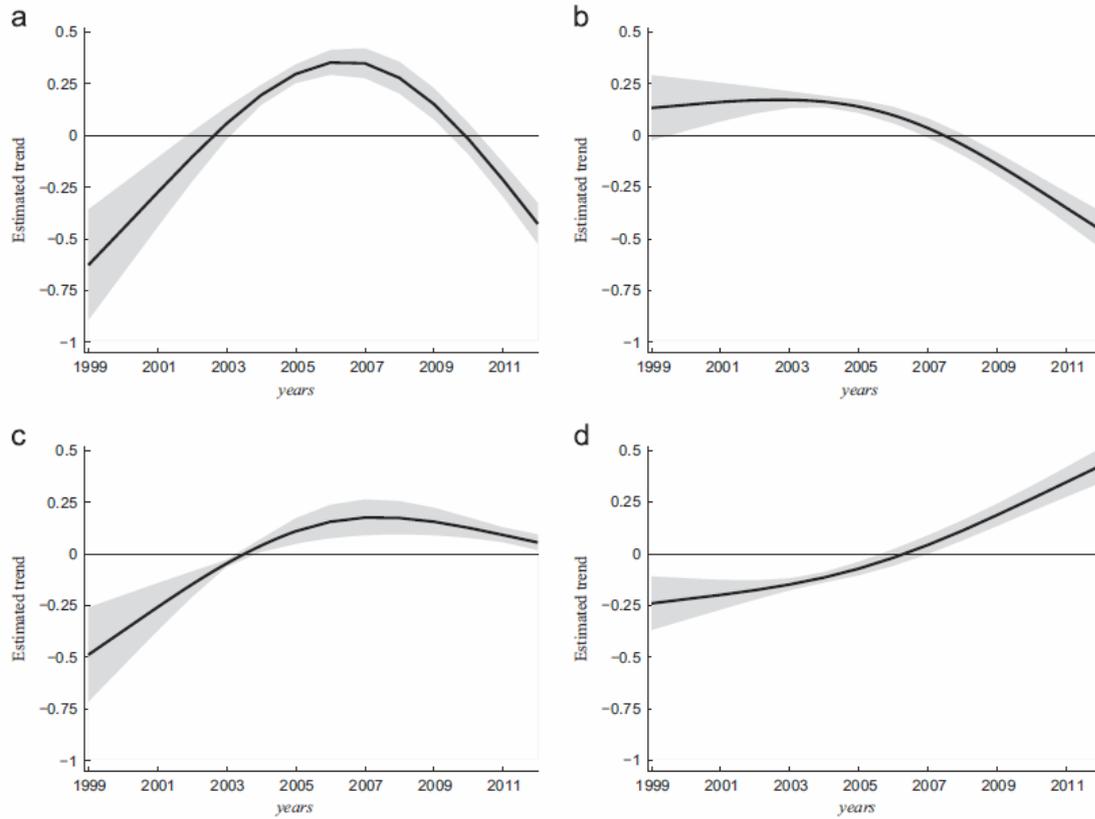
**Note:** *depnhc* stands for deposits from NFC; *depnh* stands for deposits from households

Overall, figures 5a, b and c show that fragmentation indicators are improving since 2011-2012 but standard deviations remain in all cases above their pre-crisis levels.

Besides, dispersion in retail banking markets partly reflects the increase in the dispersion in sovereign bonds markets. Regressing standard-deviations for retail banking markets on standard-deviation for sovereign yields, inflation rate, industrial production and the levels of some macroeconomic indicators suggest a positive link from the dispersion of sovereign yields to the dispersion in the retail banking markets (see Appendix). An increase in the average level on the sovereign yield in the Euro area would also contribute to a rise of dispersion in the retail banking markets.

The analysis on retail banking interest rates is consistent with Bouvatier and Delatte (2016). They show that the crises – the Global financial crisis and the sovereign debt crisis – have triggered a halt in international banking activities leading to a “balkanisation of Euro area financial markets” (Reichlin, 2014). Based on international cross-border flows of the banking sector, they build a synthetic indicator of international banking integration. They suggest that integration of Euro area banks *vis-à-vis* other Euro area banks and non-Euro area banks has declined significantly since 2007 (figure 6). While claims of non-Euro area banks *vis-à-vis* Euro area banks have slowed down, they have still been increasing *vis-à-vis* other non-Euro area countries. Lucotte (2015) also finds that dissimilarities widened across banking systems of the Euro area. Such a situation questions the transmission of a common instrument of monetary policy for different countries since higher fragmentation in the retail banking interest rates may imply that the transmission of monetary policy is not homogeneous across Euro area countries.

**Figure 6. Trends in international banking activities**



Note: The trend for the dyads belonging to group  $g$  ( $T^g$ ) is given by  $T^g = \alpha Basis^g + \alpha Basis^g$ . The grey area corresponds to the 95% confidence interval given by  $T^g \pm 1.96\sigma^g$  with  $\sigma^g = \sqrt{(Basis^g)^2 \sigma^2 + (Basis^g)^2 \sigma^2 + 2 Basis^g Basis^g cov(\alpha, \alpha)}$ .

Source: Bouvatiér and Delatte (2016). Estimated trend. (a) Claims of Euro area countries vis-à-vis Euro area countries; (b) Claims of Euro area countries vis-à-vis non-Euro area countries; (c) Claims of non-Euro area countries vis-à-vis Euro area countries; (d) Claims of non-Euro area countries vis-à-vis non-Euro area countries.

### 3. POLICY OPTIONS FOR THE ECB

#### 3.1 An asymmetric transmission of monetary policy?

Fragmentation is a key issue for the ECB as it threatens the transmission of common monetary policy. The interest channel has indeed been disrupted by the shocks to banking systems and on sovereign markets. Blot and Labondance (2013) and Gambacorta et al. (2015) document this point and show that the long-term pass-through of the ECB policy rate to the banks' lending rate have decreased after the bankruptcy of Lehman Brothers.

There have already been a few attempts to assess the impact of ECB unconventional measures on private interest rates, e.g. Gambacorta et al. (2015) and Creel, Hubert and Viennot (2016) who focus on the interest rate channel on a selected number of Eurozone countries: Italy and Spain in Gambacorta et al. (2015), the same plus Germany and France in Creel et al. (2016). Gambacorta et al. (2015) report that unconventional ECB policies have enhanced the interest-rate channel.<sup>4</sup> Creel et al. (2016) suggest that SMP and covered bond purchase programme (CBPP) have helped to reduce retail banking interest rates in Italy and Spain.

Following this literature and in order to study whether the monetary policy transmission has been asymmetric in the Euro area since the crisis, we estimate the relationship between monetary policy rate<sup>5</sup> and retail banking interest rates for two groups of countries. We classify member states that belong to the core or to the periphery of the Euro area.<sup>6</sup> This classification is suggested by the differentiated impact of the sovereign debt crisis which has led to an increase in the spread of peripheral long-term interest rates *vis-à-vis* German long-term interest rate. We estimate that since October 2008, a country which encounters an average spread superior to 2 percentage points is part of the periphery. Countries in the core are thus Austria, Belgium, Germany, Finland, France and the Netherlands. Countries in the periphery are Greece, Ireland, Italy, Portugal and Spain.

The empirical model introduces sovereign bond yields and control variables (see the appendix) to capture the structural determinants of private interest rates. The monetary policy rate is assumed to impact private rates only in the short run. Hence, if the policy rate has a significant impact, it will illustrate the ability of the ECB to move private rates in the expected (positive impact) or unexpected direction (negative impact) without impairing long-run determinants of private interest rates. For instance, if there are structural reasons behind the spread in private rates between the periphery and the core, they will be captured by sovereign bond yields and the control variables; hence, ECB policy in the short run does not show any distortionary impact on market forces.

The main result regarding the short-term pass-through between ECB policy rate and private rates relates to non-financial corporations (table 1). It is twice higher in the periphery than in the core, meaning that an accommodative monetary policy has a quite stronger effect in the periphery than in the core in reducing banking interest rates. It suggests heterogeneity in the transmission mechanism, but it also suggests that the ECB unconventional monetary policy has helped to mitigate the fragmentation in non-financial corporation interest rates markets.

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<sup>4</sup> See also Blot and Labondance (2013) for a similar result and Belke, Beckman and Verheyen (2013) in a non-linear framework.

<sup>5</sup> We use the shadow rate computed by Wu and Xia (2016) as an indicator of conventional and unconventional policy measures.

<sup>6</sup> As a robustness check, we have also tested panels of the Euro area and the periphery without Greece.

**Table 1. Monetary policy short term pass-through**

		Euro Area	Core	Periphery
Loans to Households	Loans for consumption	-0.01	0.00	-0.07
	Lending for house purchase	0.03***	0.02***	0.04***
Loans to non financial corporation	Loans to Non-Financial corporations up to 1 million euro	0.10***	0,10***	0,20***
	Loans to Non-Financial corporations - over 1 million euro	0.15***	0,11***	0,22***
Deposit	Non financial corporations	0.07***	0.01	0.12***
	Households	0.04***	-0.00	0.07***

### 3.2 How does fragmentation affect the monetary policy transmission?

Finally, we also test the extent to which fragmentation may affect the monetary policy transmission. We look at the short term pass-through to the NFC according to the level of fragmentation (low fragmentation versus high fragmentation). Table 2 shows that the transmission mechanism is stronger (0.21 and 0.27 for loans to non-financial corporations up to and over € 1 million respectively) when the cross-sectional dispersion of retail banking interest rates across countries is low than when this fragmentation indicator is high (0.05 and 0.08 respectively). The monetary policy transmission is improved when the fragmentation in the euro area banking sector is low.

**Table 2. Monetary policy short-term interest rate pass-through to the interest rates for NFC according to the level of fragmentation**

	Low Fragmentation	High Fragmentation
Loans to Non-Financial corporations up to 1 million euro	0,21	0,05
Loans to Non-Financial corporations - over 1 million euro	0,27	0,08

## 4. CONCLUSIONS

Our empirical analysis shows that fragmentation has increased since the financial crisis. It remains, though, that differences in cross-border financial flows have been strong across Euro area member states since the creation of the Euro, at least.

Our results also show that the transmission of conventional and unconventional ECB policies to the interest rates on loans to non-financial corporations is quite uneven in the Euro area: the pass-through is much stronger in the periphery than in the core since the Global financial crisis. Consequently, the ECB is able to reduce the spread between the periphery and the core. We argue that the part of the spread that the ECB is able to reduce is not structural. The ECB does not distort market forces.

We also showed that the monetary policy transmission to NFC rates is stronger when fragmentation is low. Limiting fragmentation is thus crucial in order to improve the interest-rate channel in the Euro area.

Considering these results, we argue that the (relatively) new features of ECB policies, like negative rates, TLTRO II, and QE, should be targeted towards peripheral countries in order to limit Euro area fragmentation. Beyond monetary policymaking, we argue that institutional improvements to make banking systems more homogenous across Euro area should be advocated: in large countries, like Germany and France, bank systems remain highly auto-centric as far as cross-border financial flows within the Euro area are concerned. More Euro-area- liberalisation of banking flows would enhance capital allocation and the effectiveness of ECB policies at impacting private rates. Euro-area-liberalisation may accelerate with the implementation of the Single Supervisory Mechanism and the application of the Single Resolution Mechanism as part of the provisions of the Banking Union.

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## ANNEX

### A1. Testing for fragmentation in the retail banking interest rates

Fragmentation may be assessed by a dispersion indicator for a given price variable. For loans and deposits, we consider interest rates applied by banks on retail banking markets, and the measure of dispersion is the cross-sectional standard-deviation, reflecting what is called  $\sigma$ -convergence in the literature on convergence. The indicator is also computed for public market interest rates: the sovereign yield on benchmark bonds. A significant decrease (respectively increase) in the indicator suggests lower (respectively higher) fragmentation. Then it can be tested whether this indicator is trending downwards over the all sample or over sub-samples. We highlight this effect in estimating equation (1) where the cross sectional standard deviation between interest rates of the same market ( $\sigma_{b,t}$ ) is regressed on a linear time trend.

$$\sigma_{b,t} = \alpha + \beta_1 \text{time} + \varepsilon_t$$

In case of convergence,  $\beta_1$  is significantly negative, indicating that the standard-deviation for a given retail banking market is decreasing over time. It should be noted that deviations may persist as the constant may remain significantly positive. In the extreme case of fully integrated retail banking markets, interest rates on housing loans, consumption loans, on credit to non-financial corporations and on deposits would be the same in all Euro area countries so that  $\sigma_{b,t}=0$ . Otherwise, for  $\beta_1$  significantly positive, we would conclude that retail market interest rates are facing higher fragmentation. Finally, if  $\beta_1$  is not significantly different from zero, we are neither in a process of lower nor higher fragmentation. Due to the occurrence of the crisis, a breakdown occurred in the interest rates process the month when Lehman Brothers collapsed. Formal evidence of the occurrence of such a break point is confirmed in the literature by Belke et al. (2013), Blot and Labondance (2013), Gambacorta et al. (2015). To account for this situation, we estimate equation (1) on the whole periods (January 2000 – November 2015) and on two sub-periods with a break in September 2008. Results are summarized in table A1 below.

They suggest that the trend was significantly negative for all retail banking markets from January 2000 to September 2008 and also for the sovereign bonds market. The level of  $\beta$  is then either significantly positive – for the sovereign bond market, and for the market of loans to non-financial corporations –, null – for deposits markets – or would have decreased for the markets for housing and consumption loans. We would then conclude that fragmentation in the retail banking markets has at least slowed down and has even reversed for some markets.

**Table A1. Testing for fragmentation in the retail banking interest rates**

	Sovereign	Housing loans	Consumption loans	NFC below 1M €	NFC over 1M €	Deposit rates for NFC	Deposit rates for households
All sample							
$\beta_1$	0.023***	0.000	0.002***	0.003***	0.002***	0.002***	0.001***
<i>S-D</i>	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Before September 2008							
$\beta_1$	-0.000***	-0.005***	-0.006***	-0.007***	-0.010***	-0.008***	-0.005***
<i>S-D</i>	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
After September 2008							
$\beta_1$	0.017*	-0.002***	-0.003***	0.006***	0.008***	0.001	0.001
<i>S-D</i>	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]

**Source:** ECB, authors' computations. S-D stands for standard-deviation.

The determinants of standard-deviations for retail banking markets can be analysed through simple regression analysis where ( $\sigma_{b,t}$ ) is explained by standard-deviations for sovereign bonds markets, for some macroeconomic variables (inflation rate, the quarterly growth rate of industrial production and the banking sector market capitalization). Results are shown in table A2 and suggest that standard-deviations for retail markets are mainly correlated to the standard-deviation of sovereign markets. The dispersion of inflation rates across Euro area countries is significant only for the deposit market for non-financial corporations but the level of inflation rate in the Euro area has a positive (respectively negative) impact on the dispersion in non-financial loans and deposit markets (respectively housing loans and consumption loans markets).

**Table A2. The determinants of dispersion in the retail banking interest rates**

	Housing loans	Consumption loans	Loans for NFC <1M	Loans for NFC >1M	Deposits by NFC	Deposits by households
<b>Sovereign Dispersion</b>	0.040*** [0.01]	0.026** [0.01]	0.045*** [0.01]	0.033** [0.01]	0.040*** [0.01]	0.044*** [0.01]
<b>IPI Dispersion</b>	-0.010* [0.01]	-0.015 [0.01]	-0.004 [0.01]	0.009 [0.01]	-0.004 [0.01]	-0.005 [0.01]
<b>Market cap Dispersion</b>	-0.000 [0.00]	0.000 [0.00]	0.000 [0.00]	0.000 [0.00]	-0.000 [0.00]	-0.000 [0.00]
<b>CCISS</b>	-0.058*** [0.02]	-0.033 [0.03]	-0.042 [0.03]	-0.002 [0.04]	-0.042 [0.04]	-0.010 [0.03]
<b>Time</b>	-0.008*** [0.00]	-0.004 [0.00]	0.011*** [0.00]	0.014*** [0.00]	0.006* [0.00]	0.002 [0.00]
<b>Inflation Dispersion</b>	0.010 [0.04]	-0.117 [0.08]	0.117 [0.08]	0.145 [0.11]	0.234** [0.10]	0.148* [0.08]
<b>Sovereign Level</b>	-0.064*** [0.02]	0.094** [0.04]	0.169*** [0.04]	0.163*** [0.06]	0.095* [0.05]	-0.000 [0.04]
<b>Inflation Level</b>	-0.062*** [0.01]	-0.081*** [0.02]	0.055** [0.02]	0.064** [0.03]	0.138*** [0.03]	0.098*** [0.02]
<b>IPI Level</b>	0.024*** [0.01]	0.010 [0.01]	-0.018 [0.01]	-0.011 [0.02]	-0.021 [0.02]	-0.022 [0.01]
<b>Constant</b>	2.033*** [0.29]	2.481*** [0.50]	-1.202** [0.52]	-1.897*** [0.69]	-0.875 [0.66]	0.040 [0.50]
<b>Observations</b>	86	86	86	86	86	86
<b>R2</b>	0.71	0.52	0.85	0.77	0.77	0.75

**Source:** ECB, authors' calculation. Standard-deviation in brackets.  
Estimation period: 2008-M10 / 2015-M11

## A2. Testing for ECB monetary policy transmission

The changes in bank lending rates  $\Delta ib_{i,t}$  are determined by adjustments towards long term equilibrium between bank interest rates and the long term interest rate ( $LT_{i,t}$ ).  $\lambda'$  measures the long term pass-through of long term interest rates to the retail interest rates.  $\alpha'$  reflects the speed of adjustment to the long term equilibrium. Here, we are also interested in the significativity of  $\phi_j$  coefficients measuring the effect of monetary policy in the short-run

To account for direct and indirect effects, we estimate the following system with equations 2 and 3:

$$\left\{ \begin{array}{l} \Delta ib_{i,t} = \alpha_{ib} + \alpha'_{ib} \cdot (ib_{i,t-1} + \lambda'_{ib} \cdot LT_{t-1}) \\ + \sum_{j=1}^{p1} \theta_{j,ib} \Delta ib_{i,t-j} + \sum_{j=1}^{p2} \gamma_{j,ib} \Delta LT_{t-j} + \sum_{j=1}^{p3} \rho_{j,ib} \Delta X_{t-j} + \sum_{j=1}^{p4} \phi_{j,ib} \Delta MP_{t-j} + \varepsilon_{i,t} \quad (2) \\ \Delta LT_{i,t} = \alpha_{LT} + \alpha'_{LT} \cdot (LT_{i,t-1} + \lambda'_{LT} \cdot iBC_{t-1}) \\ + \sum_{j=1}^{p1} \theta_{j,LT} \Delta LT_{i,t-j} + \sum_{j=1}^{p2} \gamma_{j,LT} \Delta iBC_{t-j} + \sum_{j=1}^{p3} \rho_{j,LT} \Delta X_{t-j} + \sum_{j=1}^{p4} \phi_{j,LT} \Delta MP_{t-j} + \varepsilon_{i,t} \quad (3) \end{array} \right.$$

$iBC_t$  stands for an ECB policy rate, measured by a shadow rate (see Wu and Xia, 2016).

# NOTES



DIRECTORATE GENERAL FOR INTERNAL POLICIES  
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

# Financial market fragmentation and monetary transmission in the euro area

Roman HORVÁTH

IN-DEPTH ANALYSIS

## Abstract

Financial market fragmentation in the euro area has increased markedly since the outbreak of the global financial crisis in 2007. Fragmentation declined somewhat from late 2012 onwards, but is still above the pre-crisis level. Interest rate pass-through has become less efficient primarily because of increased mark-ups and, to a certain extent, the lower responsiveness of bank interest rates to policy rates. The effectiveness of interest rate pass-through has become more heterogeneous across euro area countries and across firm size, making a common monetary policy more difficult. The unconventional monetary policy conducted by the European Central Bank has reduced financial market fragmentation notably; however, it was not without secondary effects. Enhancing financial and fiscal stability in the euro area is key for the efficient functioning of the monetary transmission mechanism.

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## EXECUTIVE SUMMARY

- Financial market fragmentation in the euro area increased markedly during the global financial crisis, especially after the fall of Lehman Brothers. Financial market fragmentation was observed for a variety of assets, but particularly in sovereign bonds and wholesale funding. Fragmentation peaked in 2011-2012 (e.g. during the euro area debt crisis) and decreased afterwards. However, financial market fragmentation remains higher now than before the crisis.
- Nominal interest rate convergence in the euro area before the crisis shifted to nominal interest rate divergence during the crisis. Lending rates to households and (small and medium-sized) non-financial firms as well as sovereign bond yields were typically higher in southern Europe, contributing effectively via the real interest rate channel to a greater divergence in economic activity across euro area countries.
- The pass-through of monetary policy rates to bank interest rates became more incomplete during the crisis. Interest rate pass-through also became more heterogeneous. It is worth noting that interest rate pass-through consists of two elements. The first element is the responsiveness of the bank interest rate to the policy rate, and the second element is the mark-up (of the bank interest rate over the policy rate to reflect the risk inherent to lending). Mark-ups became more heterogeneous across the euro area during the crisis, reflecting banks' perceived risks, and contributed to the lower effectiveness of interest rate pass-through. Cross-country heterogeneity in interest rate pass-through can be long lasting. There is empirical evidence that not only short-term factors, such as different types of bank risks, but also long-term factors, such as those related to market capitalisation, bank competition, and banking sector concentration, are important.
- The European Central Bank's unconventional monetary policy (of massive scale) helped significantly decrease financial market fragmentation and improve the functioning of monetary policy transmission. However, unconventional monetary policies with an ultra-low or even negative interest rate environment pose the long-run risks of (regional) asset price bubbles, drops in money market liquidity, and income redistribution. Therefore, other measures, such as sovereign debt restructuring, the coordination of macroprudential policies, or a properly executed Banking Union can be key to safeguarding the functioning monetary transmission.

## 1. INTRODUCTION

Over the nearly two decades before the global financial crisis, euro area financial markets had been becoming more integrated. However, this trend halted with the outbreak of the global financial crisis in 2007, and, since, financial market fragmentation in the euro area has increased markedly. Financial market fragmentation is typically defined as: *"a decrease in cross-border holdings of a wide range of asset classes, resulting in a divergence of related asset prices"* (Ruscher and Vašíček, 2016).<sup>1</sup>

Financial market fragmentation peaked during 2011-2012 and steadily declined after; however, fragmentation remains higher now than before the crisis (e.g. prior to 2007). The unconventional monetary policy undertaken by the European Central Bank (ECB) was instrumental in reducing the overall degree of financial market fragmentation, even though some segments of the financial market, such as money markets, exhibited difficulties operating in the approximately zero interest rate environment.

In this report, we discuss whether and how this financial market fragmentation has affected the monetary transmission mechanism, or, more specifically, interest rate pass-through, in the euro area. It is worth mentioning that interest rate pass-through consists of two elements. The first element is the responsiveness of bank interest rates to policy rates, and the second element is the mark-up (of the bank interest rate over the policy rate to reflect the risk inherent to lending).

The available empirical evidence suggest that interest rate pass-through in the euro area became more incomplete during the crisis. However, the greater incompleteness of interest rate pass-through would not necessarily pose a major policy issue *per se* because it would require a more aggressive monetary policy to compensate for its incompleteness.

Examining interest rate pass-through in greater detail, the available empirical evidence suggest that greater cross-country heterogeneity in the magnitude of the mark-up has been a major factor of the incomplete interest rate pass-through in the euro area. This heterogeneity has been driven by financial (as well as fiscal) instability in some euro area countries, increasing overall financial market fragmentation.

Can we reduce financial market fragmentation? This report discusses a number of policy measures and argues that, in general, enhancing financial and fiscal stability is key for the efficient functioning of monetary transmission in the euro area.

This report is organised as follows. We discuss financial market fragmentation in the euro area in Section 2. First, we focus on the development of fragmentation over time. Second, we examine the determinants of fragmentation, and third, we analyse whether fragmentation has an effect on the real economy and financial stability. Section 3 examines whether and how financial market fragmentation affects the monetary transmission mechanism in the euro area. We discuss several policy initiatives and measures to reduce financial market fragmentation in Section 4. Section 5 concludes.

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<sup>1</sup> Financial market integration is another term often used in this regard. Researchers typically refer to financial market integration as the opposite of financial market fragmentation. Sometimes the term financial market de-integration is used instead of fragmentation. Importantly, Zaghini (2016) emphasises that *"the reason why the mere heterogeneity in bond yields cannot be directly used as a measure of market fragmentation is that actual spreads are primarily influenced by bond features, such as duration and liquidity, and the different creditworthiness of the issuer. This in turn implies that the first step when assessing financial markets' integration is to control for all potential determinants of bond risk premia; then, if after this filtering out there is evidence of significant country-specific effects, we can speak of a market fragmented along national borders"*.

## 2. FINANCIAL MARKET FRAGMENTATION IN THE EURO AREA

This section consists of three parts. First, we discuss the development of financial market fragmentation in the euro area over time. We show how this fragmentation increased markedly in the first years of the global financial crisis due to deleveraging, peaked in 2011-2012, and decreased afterwards, though remaining at pre-crisis levels. Second, we discuss the determinants of financial market fragmentation during the crisis and suggest that the divergence in the financing costs of banks, along with credit and sovereign risks, were the main culprits. Redenomination risk was significant during 2011-2012. The ECB's unconventional policy measures helped reduce fragmentation. Third, we show that financial market fragmentation had consequences for the real economy, negatively affecting investment activity in the euro area and contributing to the deterioration of financial stability.

However, before examining these three aforementioned areas, let us briefly mention the benefits and costs of financial integration in general. Overall, it seems that financial integration is beneficial in the long term, but can be associated with some short-term costs. Agenor (2003) provides a survey of the benefits and costs of international financial integration from the country perspective (not from the individual investor perspective) and notes that the benefits of financial integration include: i) greater consumption smoothing, ii) higher investment and growth, and iii) increased banking efficiency and financial stability. The costs of financial integration are i) the concentration of capital flows and lack of access, ii) the domestic misallocation of capital flows, iii) the loss of macroeconomic stability, iv) the pro-cyclicality of short-term flows, v) the herding, contagion, and volatility of capital flows, and vi) the risk of entry by foreign banks.

A related phenomenon to financial integration or financial market fragmentation is the concept of financial market contagion. Financial contagion is defined as spillovers in asset prices across markets that go beyond what one would expect from economic fundamentals (Bekaert et al., 2005). Therefore, this concept is useful in the sense that it makes a distinction between a "natural" level of spillovers and excessive spillovers. While it is difficult to estimate to what degree spillovers are driven by fundamentals, the literature tends to show that financial contagion exists and is typically stronger during crisis periods. Therefore, the message this literature delivers is that financial markets can malfunction. Consequently, this opens the possibility for policy interventions in order to improve the functioning of financial markets. Without the malfunctioning of financial markets, policy interventions are difficult to justify. However, the separate but equally important question is whether policy interventions are effective, i.e. whether they are able to improve the functioning of financial markets (or, more specifically for this type of literature, whether they are able to reduce financial contagion).

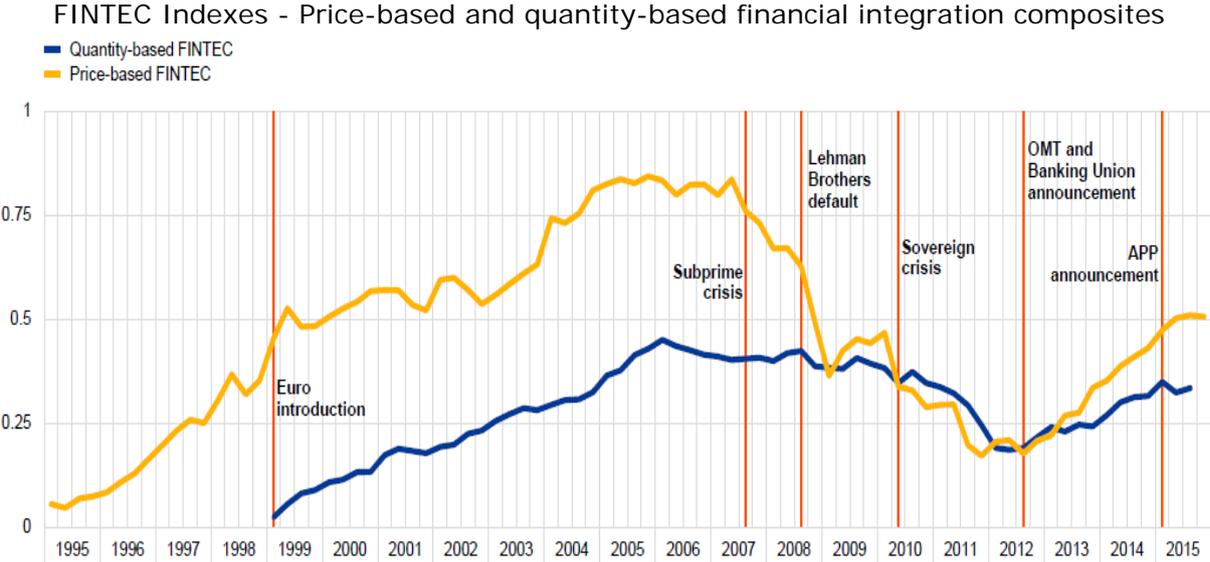
### 2.1. Financial Market Fragmentation in the Euro Area over Time

Financial market integration improved significantly during the 1990s. The introduction of the common currency in 1999 has been associated with interest rate convergence, and one of main risks—redenomination risk—disappeared once the euro was introduced. Although financial integration increased markedly, some heterogeneity across different markets in terms of the degree of financial integration has remained. While money market interest rates or sovereign bond yields converged strongly, equity markets or corporate and household retail interest rates (both on deposit and lending) remained dominated by national factors. The International Monetary Fund (2013) documents that "40 percent of the euro area banks' interbank claims were vis-à-vis non-domestic banks in the EU", with

"cross-border holdings accounting for 54 percent of total holdings of EU bonds by EA banks at the end of 2007", while "85 percent of loans supplied by the euro area domestic credit institutions were to domestic resident".

The period of the global financial crisis starting in mid-2007 was characterised by a greater financial market fragmentation (disintegration) in the euro area. Fragmentation occurred both in "prices and quantities". Interest rates in the various financial market segments of the euro area began to diverge. The financial market fragmentation in the euro area was characterised by strong deleveraging and sharply reduced cross-border exposures, especially in the bond market (International Monetary Fund, 2013). Abascal et al. (2015) show that fragmentation was more severe in southern European rather than in other euro area countries.

**Figure 1: Financial Integration in the Euro Area**



**Source:** European Central Bank (2016). The indexes are restricted to lie between zero (full fragmentation) and one (full integration). A higher value of the index signals a higher financial integration. FINTEC is an abbreviation for FINancial INTEgration Composite.

Figure 1 presents the FINTEC indexes, which comprehensively summarise the degree of financial integration in the euro area in a single metric. The indexes are based on aggregating information from money, bond, equity, and banking markets and are developed by the ECB.

According to Figure 1, financial market fragmentation peaked in 2011-2012 during the sovereign debt crisis. Fragmentation decreased markedly after the announcement of the Outright Monetary Transactions (OMT) programme in 2012. The OMT programme stipulates procedures to improve the functioning of the monetary transmission mechanism in the euro area. Its important feature was the announcement of the possibility of outright transactions in secondary sovereign bond markets by the ECB. Following the introduction of the OMT programme, sovereign bond yields in many (especially Southern) European countries have fallen significantly from unsustainable levels. The relatively speedy reaction of sovereign bond yields to the announcement of the OMT programme suggests that the sovereign bond market suffered from some panic and contagious phenomena before the announcement.

However, it is worth noting that observations for selected underlying indicators seem to be excluded from the construction of the FINTEC either because of a lack of data or because of extreme values (ECB, 2016). It is difficult to assess the importance of these excluded observations to the overall degree of financial integration. If one takes a conservative

attitude, actual financial market fragmentation might be somewhat worse than portrayed by the FINTEC.

Financial market integration in the euro area has steadily improved since 2012, supported by various ECB policy measures, but the level of integration is still below its pre-crisis level (see also Abascal et al., 2015). The improvement in the level of financial market integration was driven by the majority of financial markets (and not simply by certain specific markets). Specifically, the ECB (2015) notes that financial integration also increased thanks to the announcement regarding the Banking Union in 2012. A key development was the establishment of the Single Supervisory Mechanism and the Single Resolution Mechanism.

The overall degree of financial integration increased from 2012 following the introduction of various unconventional monetary policy measures by the ECB; however, some financial market segments were adversely affected. Although prices in money markets converged, turnover in this market decreased substantially, likely as a result of the policy rates being kept around zero. More specifically, the ECB policy of zero or negative rates induced greater convergence in money market interest rates and likely did not significantly affect cross-border transactions in this market. The share of domestic counterparties remained broadly unchanged. On the other hand, total turnover in secured lending and borrowing decreased by 13% in the euro area between 2012 and 2015, by 39% in the unsecured market, and, for example, by 56% in the overnight index swaps segment (ECB, 2016). Di Maggio and Kacperczyk (2016) provide evidence for the case in the United States (US) and show that because of the (very) low interest rate environment, some money market funds exited the market and some accepted a higher portfolio risk. In addition, the low interest rate environment has also been unfavourable for the performance of pension funds.

The FINTEC index used by the ECB does not include data on the real estate market. In good times, this makes sense given the specificity of the real estate market. However, given the very low interest rate environment, investment in real estate becomes widespread in many European countries. House prices appear to diverge in recent years in the euro area. Examining the quarterly house price indexes from the third quarter of 2012 (e.g. at approximately the time of the speech by ECB president Mario Draghi and the Banking Union announcement), we observe that from 2012 to 2016, house prices declined by approximately 20% in Greece, 13% in Italy, and 6% in France; stagnated in Belgium, Spain, and the Netherlands; and increased by approximately 13% in Germany, 20% in Austria, and 32% in Ireland and Estonia (based on the house price index data provided by Eurostat and the Bank of Greece). Overall, this result suggests that we do not observe convergence in this segment. Moreover, the overheating of real estate markets might have adverse effects on financial stability.

## 2.2. Determinants of Financial Market Fragmentation in the Euro Area

There are a number of factors influencing the degree of financial market integration (or fragmentation)—some have a more immediate effect, while others influence integration with a greater lag. We focus on those that have been economically relevant for the euro area in recent years. We try to systematise these factors in following paragraphs, but it is clear that some factors can be quite related; hence, listing them as two separate entries is a matter of taste. In addition, it is worth noting that some factors (typically those related to financial markets) can be influenced by factors from the real economy. A useful summary list of the factors contributing to financial market fragmentation in the euro area during the financial crisis is also provided by the International Monetary Fund (2013), which states that fragmentation was caused because of: *“a broader deleveraging process triggered by the global financial crisis, increased fragmentation within the EA [euro area] as a result of a*

*repricing of risks, capital and funding shortages, and structural developments, including the new Basel III rules at banks”.*

The financing costs of banks in the euro area before the crisis had been largely uniform. Short-term costs were nearly identical, and long-term costs differed only marginally (Illes et al., 2015). Illes et al. (2015) calculate the weighted average cost of liabilities for banks in the euro area both for short-term and long-term costs. They show that costs began to differ dramatically starting from 2009. For example, they report that the weighted average cost of short-term liabilities in 2011-2012 was approximately 1% for Germany, 2% for Italy and Spain, and 3.5% for Portugal (note that short-term costs represent a large majority of overall financing costs for banks). Similar differences in financing costs have also been present for long-term liabilities. Nevertheless, Illes et al. (2015) show that cross-country heterogeneity in terms of financing costs for banks has steadily declined since it peaked in 2011-2012. Interestingly, despite concerns about the stability of banks in Italy, interest rates on new business (small loans up to 1 million euro with a shorter maturity) declined significantly in 2016.

Ruscher and Vašíček (2016) note that the differences in financing costs for banks were mainly related to cross-country divergences in redenomination risk (more on this factor below), the bank-sovereign loop, and the quality of banks' balance sheets. In addition, macroeconomic imbalances materialising in worsening firm and household financial health in some euro area countries translated into different banks' borrowers risks. Ruscher and Vašíček (2016) show that borrower risk differed widely for non-financial firms and households in the euro area, especially in 2008-2013. While the differences in household financial situations continue, borrower risk for non-financial firms has recently become more uniform (at least for the countries reported: Italy, Portugal and Spain).

In addition, Ruscher and Vašíček (2016) conduct an interesting econometric exercise and decompose the factors driving lending rates in the euro area. They find that roughly half of the fluctuations in lending rates in 2007-2014 can be explained by the ECB's monetary policy rate. They attribute the other half (i.e. why lending rates differ) to economic conditions, bank funding costs, fluctuations in bank credit risk, and changes in overall sovereign risk in the euro area. In addition, they find that the importance of these factors is country-specific and that there is no one factor that is substantially more significant than another.

Using a panel data regression framework, Abascal et al. (2015) also examine the determinants of financial market fragmentation in the euro area, specifically focusing on the interbank market. They find results similar to Ruscher and Vašíček (2016) in terms of the importance of the financial costs of banks and sovereign risk. In addition, counterparty risk (as measured by the credit default swap (CDS) spreads of the main 14 banks) is an important driver of financial market fragmentation. Importantly, Abascal et al. (2015) find in their panel regressions that non-standard ECB measures help reduce interbank market fragmentation, with the Securities Market Programme (SMP) being the most effective (although they acknowledge that other ECB measures may have been effective, too, because it is far from easy to identify the effects separately, as they are often implemented concurrently). Abascal et al. (2015) emphasise that *“liquidity provided through the SMP has an effective double impact, given that, besides the liquidity the banks might get because of selling the sovereign debt to the ECB, the programme helped decrease the levels of sovereign risk, thus improving the confidence in the euro and the EMU [European Monetary Union]”*.

In addition to panel regressions (which inherently focus on medium or long-term trends rather than short-term fluctuations), Abascal et al. (2015) examine the short-term effects of a number of unconventional ECB policy measures on interbank market fragmentation.

Namely, they focus on the short-term effects of the announcements regarding the Covered Bond Purchase Programme (4 June 2009), SMP (10 May 2010), Covered Bond Purchase Programme 2 (3 November 2011), Long Term Refinancing Operations (8 December 2011), Banking Union (29 June 2012), Mario Draghi's speech (27 July 2012), and OMT (Sep. 6, 2012). The authors find that each of these announcements had an immediate impact and decreased the level of interbank market fragmentation. This result suggests that the ECB measures helped restore confidence in European financial markets in this period. Zaghini (2016) confirms these results using European corporate bonds data.

Next, redenomination risk, which is the risk that a country leaves the euro area and redenominates its assets and liabilities in a new currency, was present before the well-known Mario Draghi speech in London on 26 July 2012, where Mr. Draghi emphasised that *"Within our mandate, the ECB is ready to do whatever it takes to preserve the euro... believe me, it will be enough"*. Although sovereign bond yields fell following this speech and the later announcement of the OMT programme (6 September 2012), it is not simple to accurately estimate the effect of these actions on redenomination risk. However, Al-Eyd and Berkmen (2013) show that the speech and the OMT programme very likely contributed to a lower redenomination risk. Following these events, speculative activity in euro-currency contracts declined markedly, and similar bonds were found to have a similar price regardless of whether they were traded under a local or international jurisdiction. Similarly, Krishnamurthy et al. (2014) find that redenomination risk was present during 2011-2012, but that ECB policies successfully reduced the risk.

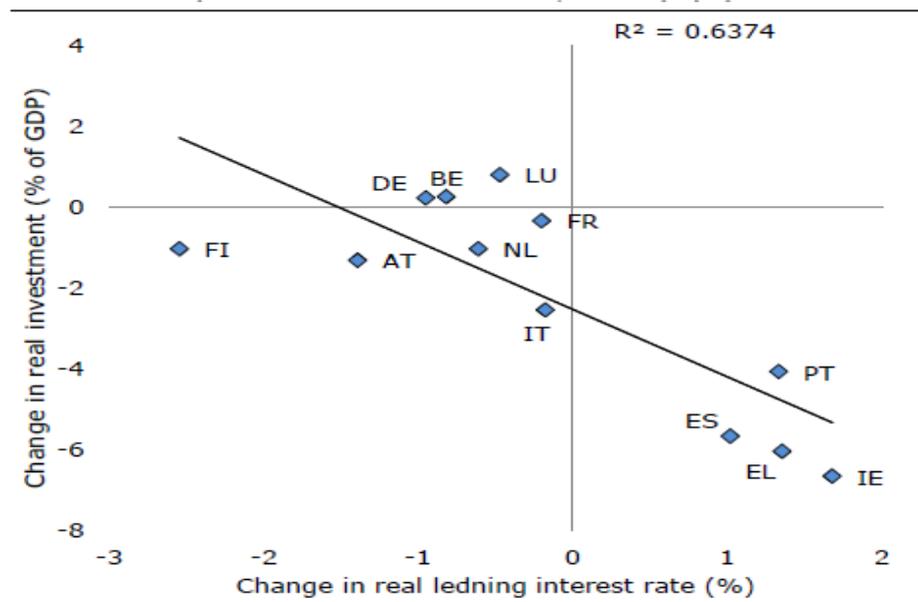
In addition, different financial market structures in euro area countries can also be a factor of financial market fragmentation. Greater bank competition and alternative sources of financing, such as stock markets, typically lead to lower lending rates.

### **2.3. Effects of Financial Market Fragmentation in the Euro Area on the Real Economy and Financial Stability**

Financial market fragmentation matters. It affects real economy developments as well as financial stability (the interactions between financial market fragmentation and monetary policy transmission are discussed in the following section). Ruscher and Vašíček (2016) show how financial market fragmentation translates into different nominal as well as real interest rates across euro area countries. Nominal interest rates have been typically higher since the outbreak of crisis (and, in general, they remain so in 2016) in several euro area countries, such as Greece, Portugal, and Spain, in comparison to other euro area countries. At the same time, these countries often exhibited lower inflation rates than the rest of the euro area, which further amplified the differences in real interest rates among euro area countries. Ruscher and Vašíček (2016) show that these differences in real interest rates seem to exert a strong negative effect on investment activity, as Figure 2 documents. Figure 2 presents a strong link between the change in real lending interest rates and the change in real investment activity in averaged data for 2008-2014 versus 2003-2007.

Financial market fragmentation has also negatively influenced financial stability in the euro area. Banks in some euro area countries, mainly in southern Europe, encounter higher funding costs, which negatively affect their profitability and, subsequently, their stability. The underperformance of these banks is amplified by weak economic activity in these countries, which is associated with the declining asset quality of banks.

**Figure 2: Change in Real Interest Rates versus Change in Real Investment**  
(2008-2014 versus 2003-2007, %)



**Source:** Ruscher and Vašíček (2016)

### 3. FINANCIAL MARKET FRAGMENTATION IN THE EURO AREA AND MONETARY POLICY TRANSMISSION

A highly relevant policy question is whether the financial crisis changed the effectiveness of the monetary transmission mechanism. We focus here on a more narrowly defined question—whether financial market fragmentation impaired monetary transmission in the euro area and, if so, which factors were likely behind the impairment.

There is a vast theoretical and empirical literature examining the different channels and aspects of the monetary transmission mechanism. Given our interest in the effects of financial market fragmentation, in this section, it is relevant to focus on the evidence regarding interest rate pass-through (e.g. how policy rates affect bank interest rates or different interest rates in financial markets).<sup>2</sup>

Empirical research on interest rate pass-through before the financial crisis largely focused on whether pass-through is complete in the long-term (i.e. when policy rates are increased by the ECB by one percentage point, do bank interest rates also increase by one percentage point) and the speed of the pass-through. Although it is difficult to generalise, the literature typically finds that pass-through was near complete and took several months. Incomplete pass-through requires a more aggressive monetary policy; however, as long as pass-through is homogeneous across euro area countries, it is manageable by a more aggressive monetary policy. A more serious concern is when pass-through is heterogeneous—namely, when the reaction to monetary policy shocks differs sharply across euro area countries.

In addition, based on pre-crisis data, researchers typically find that the degree of interest rate pass-through differs across interest rate categories. Pass-through is typically strongest in regards to interest rates on mortgages and small loans for non-financial firms (e.g. those below 1 million euro), followed by interest rates on large loans for non-financial firms. The reaction of consumer rates (e.g. the rate for loans for households other than for housing—usually for durable goods) is typically weaker because the risk premium is more dominant than the monetary policy shocks (see Horvath and Podpiera, 2012, or Belke et al., 2013).

In addition, there has been some evidence that bank characteristics influence the nature of interest rate pass-through (see, for example, Horvath and Podpiera, 2012, and references therein). This is an important exercise in order to understand how the functioning of the financial sector shapes interest rate pass-through.

Interest in interest rate pass-through renewed during the financial crisis, when the ECB lowered its policy rate significantly after the fall of Lehman Brothers but many other interest rates did not follow the decrease in the policy rate. Al Eyd and Berkmen (2013) note that this divergence was caused by: *“the combination of factors, including lack of term-funding for some banks, and weak bank and corporate balance sheets and associated credit risks”*. This impairment in interest rate pass-through has been observed especially in southern euro area economies and in selected interest rates, such as government bond yields and for lending to small and medium-sized enterprises (for example, the Italian and Spanish corporate sectors are dominated by small and medium-sized enterprises). Ruscher and Vašíček (2016) argue that from a policy perspective, it is important to understand whether this divergence is a one-off or a more lasting phenomenon.

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<sup>2</sup> Given that monetary policy rates change in discrete steps, researchers typically use short-term money market rates instead of monetary policy rates in the regression analysis, assuming that policy and money market rates co-move strongly. However, this co-movement became somewhat weaker during the crisis, see Van Borstel et al. (2016).

Leroy and Lucotte (2016) find substantial heterogeneity in interest rate pass-through across euro area countries, both for interest rates for households and for non-financial firms. They also examine the determinants of interest rate pass-through and find that not only are short-term factors, such as bank risks, important, but that more long-term factors related to financial structure, such as market capitalisation, bank competition, and banking sector concentration, are also important. The latter factors suggest that the heterogeneity found in interest rate pass-through can be long lasting.

Importantly, Van Borstel et al. (2016) examine interest rate pass-through to bank interest rates in the euro area during the financial crisis both from the perspective of conventional as well as unconventional monetary policy. Regarding conventional monetary policy, they find that the reaction of bank interest rates to policy rates did not change during the crisis in the euro area. However, banks increased mark-ups during the crisis due to an increase in perceived risk and, therefore, we can observe that falling policy rates were not accompanied by a decrease in bank rates. Regarding unconventional monetary policy, their results suggest that unconventional policy was as important as conventional policy. However, it was not because of strong pass-through; rather it was because the unconventional policy shocks were large. Therefore, according to their results, policy makers should focus on reducing bank mark-ups by alleviating credit constraints and reducing borrowers' risk.

## 4. HOW TO REDUCE FINANCIAL MARKET FRAGMENTATION IN THE EURO AREA?

Below we provide the major factors that may help reduce financial market fragmentation in the euro area. Some may have more immediate effects, while others, such as improving the overall institutional and legal framework, may have slower but longer-lasting effects.

### Unconventional monetary policy

The effects of the ECB's unconventional monetary policy have been discussed largely in previous sections. It has been shown that its unconventional policy helped to reduce financial market fragmentation. However, solutions attained through unconventional monetary policy are, by definition, temporary. The magnitude and scope of unconventional policies become more limited once inflation risks re-appear in the euro area. Unconventional monetary policies also have non-negligible international spillovers, with negative effects on the stability of the international monetary system (Taylor, 2016).

### Coordination of macroprudential policies across the euro area

Given the strong interconnectedness of European financial systems, macroprudential policies may have non-negligible spillovers across national economies. Although the empirical evidence is somewhat limited, Ongena et al. (2013) examine large multinational banks and show that stricter bank regulation and higher capital adequacy are associated with lower bank lending standards abroad. Banking and Capital Unions are examples representing international coordination regarding financial integration and financial stability issues. It is also important to emphasise the interactions between macroprudential policy and monetary policy. Macroprudential policy should ideally reduce the risks stemming from a very loose monetary policy in the euro area (such as those related to overheating in the real estate market). Though, macroprudential policy alone cannot eliminate these risks; therefore, coordination between monetary and macroprudential policies is vital.

### Banking Union

The main motivation for the establishment of a more comprehensive Banking Union in the euro area has been to break the adverse loop between the banking sector and sovereign debt and to reduce the degree of financial market fragmentation. The Banking Union consists of three major pillars: 1) harmonised regulation and single supervision, 2) a crisis resolution scheme, and 3) a deposit insurance systems for banks. While the euro area has undertaken important steps to create a Banking Union by establishing the Single Supervisory Mechanism and Single Resolution Mechanism, the third pillar is still missing. Importantly, risk reduction in the euro area financial sector is key prior to deepening of the risk sharing mechanism.

Belke and Gros (2016) provide a useful comparison of the Banking Union in the euro area and the US and note marked differences between the two. The US Banking Union has existed for nearly 90 years, while steps towards the establishment of a Banking Union in the euro area have only recently been undertaken. Importantly, they show that the financial sector has a greater capacity to absorb shocks as compared to the common budget (fiscal capacity), making a case for a Banking Union rather than a fiscal union.

Regional disturbances in the US banking sector during the financial crisis were addressed at the federal level by the Federal Deposit Insurance Corporation, which seized the problematic banks and covered their losses. In addition, large, internationally-active banks absorbed the negative shocks. The role of these internationally-active banks was especially important. To the contrary, the risk sharing mechanism of these "internationally-active banks" was largely missing from euro area banks, resulting in a sizeable accumulation of

government debt (as, for example, in the case of Ireland). The aforementioned international risk sharing mechanism has successfully operated only in certain cases, for example, as in the Baltic countries, where foreign banks served as shock absorbers and as substitutes for the Banking Union, to a certain extent.

In principle, international risk sharing through a Banking Union is likely to be beneficial. However, Belke and Gros (2016) raise several important issues that could undermine the ability of a Banking Union to curb regional financial shocks. These issues include the lack of an explicit fiscal backstop and the possible excessive risk taking of banks once they contributed the target level of funds to the Single Resolution Fund. Calzolari et al. (2016) note that large banks may try to avoid the increased monitoring stemming from supranational supervision by the ECB by changing the form of foreign representation from subsidiaries to branches. The International Monetary Fund (2013) mentions the coordination issues between the existing supervisory architecture with that provided under the umbrella of the ECB. Lízal (2014) emphasises that the benefits of a Banking Union depend on these factors: membership in the euro area, the impact of the financial crisis on the stability of the national banking sector thus far, the costs spent on stabilising national banking sectors thus far, and the position of banks and their supervisors in the single EU market.

### **Capital union**

The European financial system is largely bank-based (for example, approximately 90% of the debt of non-financial corporations is intermediated via the banking sector). There are two arguments why the greater development of capital markets can be beneficial for the euro area. First, the more general argument is that there is evidence showing that different forms of financing help cushion negative shocks and, therefore, reduce the size of an economic recession. In addition, there is evidence that stock markets can be more growth-promoting than other financial intermediaries (Valickova et al., 2015). In addition, Coricelli and Frigerio (2015) examine the so-called creditless recoveries and find that credit constraints are softened in sectors that rely more on alternative sources of financing. Second, asymmetric shocks cannot be addressed by national monetary policy in a monetary union, which makes different forms of international risk sharing more important. Constâncio (2015) emphasises the roles of the cross-ownership of productive assets, fiscal transfers, and consumption smoothing in international risk sharing mechanisms. In this regard, the European Commission announced its action plan for a European Capital Markets Union (CMU) as of September 2015.

There is also empirical evidence showing that the degree of international risk sharing is lower in the euro area than in fiscal federations such as the US or Germany. Furceri and Zdzienicka (2013) show that international risk sharing improved after the introduction of a common currency in the euro area, but declined severely during the financial crisis when it was naturally needed the most.<sup>3</sup>

### **Financial stability and sovereign debt**

A well-functioning financial market is key for an efficient monetary policy transmission mechanism. Regression results by Van Borstel et al. (2016) suggest that it was primarily the increase in the mark-up due to financial instability, rather than the weaker sensitivity of bank interest rates to monetary policy shocks, that was behind the weak interest rate pass-through in the euro area during the financial crisis. As it is well known, Europe experienced

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<sup>3</sup> Furceri and Zdzienicka (2013) propose a supranational fiscal stabilisation mechanism in the euro area in order to curb the impact of recessions on individual countries, given that individual countries (especially those with high debt and fiscal deficits in good times) are constrained by the Stability and Growth Pact. An alternative to fiscal stabilisation would be a market-based solution via an integrated capital market in the euro area.

adverse interactions between the stability of banks and sovereigns. Therefore, sovereign debt restructuring—along with reducing the elevated levels of non-performing loans—is key to improving the long-term outlook for the financial sector in the euro area. Several feasible proposals on sovereign debt restructuring have been put forward (Pàris and Wyplosz, 2014, Corsetti et al., 2015, and Andritzky et al., 2016).

In addition, macroprudential policies have been shown to have a positive effect on financial stability (Cerutti et al., 2016). However, it is crucial to realise that the efficiency of financial intermediaries is key for long-term growth (Hasan et al., 2016). Therefore, macroprudential policies should be designed in a way to maximise the efficiency of financial intermediaries in promoting growth as much as possible.

### **Law, institutions, and finance**

High-quality institutions are key for sustainable financial development. A country with ill-defined institutional and legal frameworks will have difficulty attracting investment, resulting in lower cross-border investment. Daude and Fratzscher (2008) show how portfolio investment is highly sensitive to the quality of host country institutions—namely, to the degree of information disclosure, accounting standards, risk of expropriation, and costs of disputes. Schiantarelli et al. (2016) find that judicial efficiency is an important factor for bank stability. The quality of the legal system, such as its insolvency rules or company laws, is central to reducing financial friction (European Commission, 2015). However, these rules, as well as the ability to effectively enforce these rules, differ across euro area countries.

Baltagi et al. (2009) find that institutional quality is an important factor of financial development. The World Bank provides worldwide governance indicators that try to assess institutional quality in six areas: Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence, Government Effectiveness, Rule of Law, and Regulatory Quality. When examining these indicators, for example, rule of law, we can observe some heterogeneity for euro area countries. We find countries such as Germany and the Netherlands at the top of the ranking. Other countries, such as Estonia, Lithuania, Latvia, and Slovakia, made significant progress and their rule of law indicator improved substantially over last 10 years. Notably, the rule of law rankings for Italy, Spain, and especially Greece dropped during the financial crisis (data are available to 2014). However, it remained largely the same in other euro area countries (or even improved, such as in the case of the Netherlands). Overall, even though we do not want to overemphasise the precision of these soft indicators, it seems that the institutional quality in euro area countries does not converge.

## 5. CONCLUSIONS

Financial market fragmentation increased markedly during the financial crisis. Euro area financial markets were the most fragmented during 2011-2012. Fragmentation decreased afterwards partially due to the unconventional monetary policy measures (of massive scale) implemented by the ECB. Nevertheless, euro area financial markets are still more fragmented now than before the outbreak of the global financial crisis in 2007. We emphasise that although financial market fragmentation decreased after 2012, there are still some warning signs, such as the significant decrease in turnover in money markets or the cross-country divergence in housing prices in the euro area.

Financial market fragmentation in the euro area reduced the effectiveness of monetary policy transmission. Bank interest rates in some euro area countries did not fall following the interest rate cuts by the ECB. We argue that this low interest rate pass-through was primarily caused by the increase in mark-ups due to higher perceived risks. A lesser reaction of bank interest rates to monetary policy shocks occurred as well, but its importance was likely less as compared to the increase in the mark-ups.

We discuss a number of policy initiatives to improve the effectiveness of the monetary policy transmission mechanism. In general, these initiatives should promote the smooth functioning of financial markets in the euro area. Some measures, such as unconventional monetary policy, have already shown that they are able to reduce financial market fragmentation in the euro area. However, the magnitude of unconventional policies will become more limited once inflation risks re-appear in the euro area, and other measures, such as sovereign debt restructuring, coordination of macroprudential policies, or a properly executed Banking Union, can be the key to reducing financial market fragmentation and to promoting a well-functioning monetary transmission mechanism in the euro area.

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# NOTES



**DIRECTORATE GENERAL FOR INTERNAL POLICIES**  
**POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY**

# **The current state of financial (dis)integration in the euro area**

**Corrado MACCHIARELLI , Panagiotis KOUTROUMPI S**

## **IN-DEPTH ANALYSIS**

### **Abstract**

The sovereign bond crisis which started in 2010 caused a major disruption in euro area financial markets. The rise of credit risk led banks from the “core” of the euro area to stop lending to the euro-area “periphery”. Only the huge liquidity support by the ECB through its unconventional monetary policy measures alleviated divergent financing conditions across euro area Member States. But the fragmentation of euro-area financial markets has not disappeared, and financial fragmentation still continues to divide the euro area. This is the case despite progress on the European Banking Union project and the ECB’s (conventional and unconventional) monetary policy. Against this background, this note assesses the implications and risks stemming from persistent fragmentation of euro area financial markets for the transmission of monetary policy. Secondly, it discusses some of the policy options available (to the ECB) which may reduce this fragmentation.

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## EXECUTIVE SUMMARY

While there have been positive developments in financial integration in the euro area since the crisis, there are some indications of financial markets not being completely at ease, particularly in some market segments. After the Outright Monetary Transactions (OMT) and Banking Union announcements, financial integration is resuming, albeit it now remains well below pre-crisis levels. The Asset Purchase Programme (APP) has generally granted a continuation of this (positive) trend. The Governing Council's recent decision to keep rates on hold (Deposit Facility = -0.4%, Main Refinancing Operations = 0.0%) in September does not exclude the possibility that more policy accommodation is on the way, as the March package of stimulus has still not been fully implemented. In our view, the latter decision does not necessarily reflect optimism, but rather a "wait and see" position.

### Money market

- The euro area LIBOR-overnight interest rate (OIS) spread suggests there was an upward pressure in the spread in early 2016 due to a change in investors' sentiment regarding banks' long-term profitability, with an ensuing increasing pressure in the interbank market. From March 2016, the spread narrowed down, which could be interpreted as a sign of easing.
- 1 and 12 month Euribor rates have now returned (almost) to their pre-crisis levels. At the same time, the overnight rate remains still higher than pre-crisis levels, pointing to money market fragmentation, particularly in some countries.
- Looking at the spread on overnight repos in some selected countries, one can notice that differentials have started to narrow after the period 2011-2012. However, investors' search for yields, in an environment characterized by safe assets' scarcity, low or negative interest rates, might be the reason for convergence in money market rates.
- ECB's Quantitative Easing (QE) purchases and long-term refinancing operations contributed to increasing the amount of money available to banks and circulating in the economy. However, the excess reserves of credit institutions in the euro area increased sharply over the period April 2015 to July 2016, accentuating the likelihood of interbank trading volumes falling.
- The reoccurrence of TARGET2 imbalances suggests moreover the APP is creating a situation where the extra liquidity available in the economy is not absorbed evenly but it gets deposited at banks in euro area countries enjoying the highest rating (e.g., Germany, and to a lesser extent, the Netherlands, Finland, and Luxemburg)
- Bond market
- The persistent difference in liquidity and default risks in some peripheral euro area countries (Portugal and Greece in particular) against German bunds could well reflect structural factors and may not necessarily be surprising at this stage, in the lack of country-specific structural reforms restoring fundamentals.
- The holdings by euro area Monetary Financial Institutions (MFI) of domestic government and corporate bonds remain at high levels compared to pre-crisis (60%). This suggests MFIs, particularly in the "core" of the Eurozone, are moving in the direction of an increasing bias towards "home" government and corporate bonds.
- The observed "home bias" on the market of government papers may be a problem because it increases the feedback loop between sovereigns and banks; a dimension that current governance reforms, such as the European Banking Union, are trying to break.

## Equity market

- Countervailing factors such as the uncertainty around the future sustainability and prospects of the Greek economy, turmoil in emerging markets such as in China, general concerns about the world economic outlook, as well as the loosening of the US monetary policy, and an uncertain outlook regarding a UK withdrawal from the EU, made equity markets continue to fall through 2016.
- This overall highlights the limited (for now) expected effectiveness of the ECB's QE in sustaining the euro area recovery, despite a reduced fragmentation in this market.

## Banks

- Banks' profitability faced serious challenges from early 2016.
- The figures for MFI lending rates to SMEs show that there are signs that credit conditions are easing generally. Overall, however, there is still a high divergence in retail rates in lending in Portugal and Greece, thus having an impact on the real economy and the extent of economic recovery in these countries.
- Large variations in the pass-through of the reduction in the policy interest rate suggest some problems in the transmission of monetary policy, and may reflect banks' specific factors such as capitalization.

## Policy recommendations

- Although significant measures have been taken towards the limitation of solvency issues and moral hazards, with the establishment of the first steps of the Banking Union, the profitability of the banks does not seem to be substantially affected by these developments as it continued to largely decrease. This is because the current "incomplete" approach to a Banking Union would not help reduce the observed "home bias" in the bond market segment, nor it destroys the "deadly embrace" between sovereign and banks debt that characterized the sovereign debt crisis.
- One way to reduce the observed home bias would be through regulation, in particular, setting incentives on risk weight on the banks holding of different euro area bonds.
- Alternatively, this could be achieved by fully transitioning to a Banking Union. It will thus be important to accelerate the Banking Union or anyway leave as little uncertainty as possible during the transition.
- On top of the Banking Union, another reform acting in the direction of strengthening and incentivising private risk sharing mechanisms through credit and capital markets would be the Capital Markets Union, as proposed by the Five Presidents' Report. The latter is expected to reduce fragmentation, enabling "safe" platforms for risk sharing.
- The ECB could take further actions to support access to liquidity by weak banks with a targeted review of existing collateral policies, including lower haircuts on certain assets.
- The ECB should continue, together with its asset purchases, Targeted Longer-Term Refinancing Operations (TLTROs) contingent on the provision of new lending to SMEs, directly supporting credit to this sector and improving the quality of banks' assets. For this to prove effective, the costs to access the scheme must be less than alternative funding costs. Given funding costs are falling quite slowly in the periphery, lower haircuts (discussed above) could be considered at the same time.
- QE would give countries a window of opportunity to do the necessary investment and reforms, but it could not as a substitute for them. Given the little fiscal space left in many "vulnerable" economies, however, this should happen within a joint monetary-

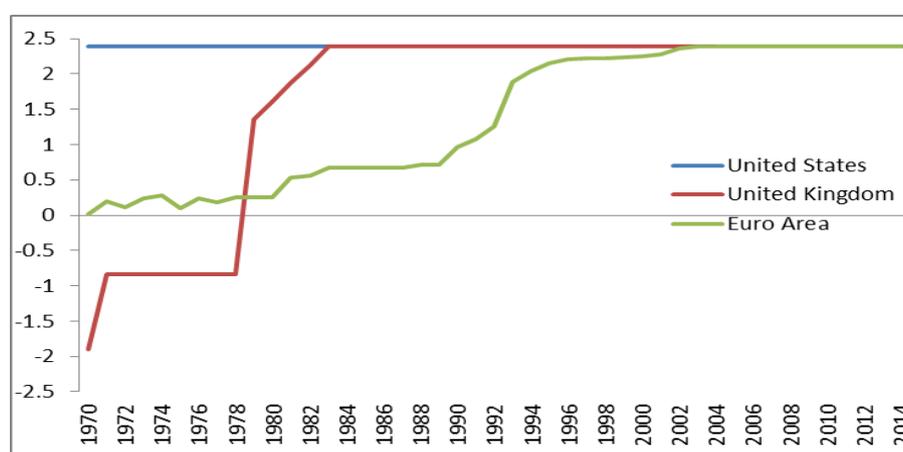
fiscal stimulus, where – in recognizing the existing asymmetries – the ECB's support could create the needed room for reforms.

## 1. INTRODUCTION

The imperfect institutional framework characterizing the Eurozone (De Grauwe, 2016) and markets re-pricing of risk, which came with the start of the crisis, reversed the trend towards financial integration started with the euro introduction, triggering a process of financial crumbling, which became particularly evident in some market segments (de Sola Perea and Van Nieuwenhuyze, 2014).

Despite the degree of inflation (and macroeconomic) integration of euro area countries has increased since the euro introduction up until recently (Karanasos *et al.* (2016)), real rates are diverging. Yet, **the Single Market has undoubtedly become more open and integrated**. One example of this was the creation of the Single Euro Payments Area (SEPA), that has helped to reduce the cost of moving money between euro area countries by 90 % since 2001 (European Commission, 2006). Financial integration has thus been incremental – this is well captured by the Chinn-Ito (2008) index. The index (Figure 1) measures the degree of capital controls or other restrictions on international transactions. The figure shows how the Single Market and its institutional underpinning have clearly had a positive impact on financial market integration, with a level of financial openness in the euro area which is now comparable to that of the United States or the UK (see Figure's footnote for technical details).<sup>1</sup>

**Figure 1: Financial openness de jure**  
(Chinn-Ito Index)



**Source:** Chinn and Ito (2008; 2016). **Note:** The index spans between -2.5 (no financial openness) and 2.5 (full openness). Euro area figures are GNP-per-capita weighted series for Austria, Belgium, France, Germany, Italy, the Netherlands, Finland, Greece, Ireland, Portugal and Spain. For the euro area as a whole, the number is 2.38 after 2002.

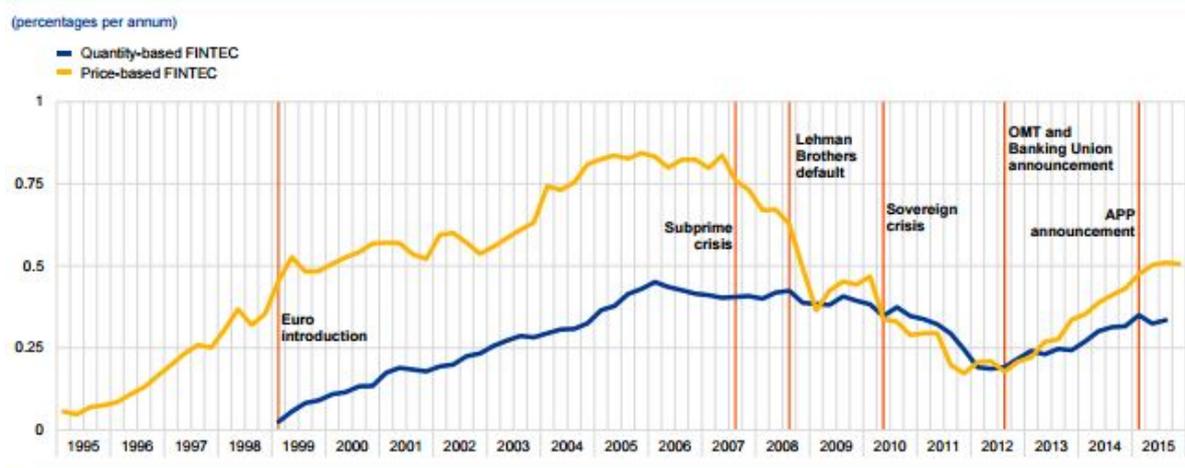
However, the fact that the euro area has benefited from legal and institutional measures to facilitate financial integration does not necessarily mean that markets are *actually* integrated. Many other variables play a role, including risk perception, counter-party risk, asymmetry of information, habits' formation etc. In this respect, it is useful to discern between *de jure* (or integration from a legal point of view, i.e. in the removal or reduction of the existing barriers) from *de facto* integration (or integration in practice). The former can be seen as a necessary - but non-sufficient - condition for the latter (de Sola Perea and Van Nieuwenhuyze, 2014). *De facto* measures of financial integration can be divided into *quantity-based* indicators – which measure the stock of cross-border financial assets and liabilities and international capital flows – as well as *price-based* indicators – which measure integration on the basis of comparable risk-

<sup>1</sup> Country specific measures such as capital controls in Greece are likely to act in the opposite direction.

adjusted interest rates on different markets. Over the last decade, financial integration in the euro area has increased considerably also *de facto*, at least until the crisis.

Looking at a synthetic priced and quantity-based indicators developed by the ECB and the European Commission like SYNFIN (Synthetic Indicator of Financial Integration; see Figure 2) one can notice how convergence in both prices and volumes has been sloping upwards since 1999. However, since 2007 the volumes of international capital flows reveal how financial integration in the euro area has declined. This was largely due to an international slowdown in (gross) capital flows which, together with the deteriorating macroeconomic fundamentals, should be seen against the backdrop of a general re-pricing of risks by the financial system worldwide, including the effect of new regulation (i.e. Basel III) (de Sola Perea and Van Nieuwenhuyze, 2014). Price indicators confirm the weakening of *de facto* financial integration observed on the basis of capital flows. Since the outbreak of the financial crisis, the yields on financial products have in fact diverged strongly, causing this aggregate index to drop even more substantially.

**Figure 2: Price-based and Quantity-based Financial Integration Composites**



**Source:** ECB (2015)

The recent historical agreement on a Banking Union for Europe together with the OMT announcement (which are to be seen as measures of *de jure* integration) has ensured a reversal of this trend. From Figure 2, one can see indeed how, **after the OMT and Banking Union announcements, financial integration is resuming, albeit it now remains well below pre-crisis levels**. Despite this ECB's commitment to do "whatever it takes" and the ensuing rounds of asset purchases by the Eurosystem since 2015, financial fragmentation is still dividing the Eurozone, with liquidity flowing unevenly through euro area economies; one example among all being the reoccurrence of "core-periphery" TARGET2 imbalances (discussed in Section 2.1), revealing some worrisome supply side effects after QE.

Against this backdrop, in the following section, we will first review the evidence of financial market integration *de facto* in the euro area based on four markets (money, bond, equity, banks). Here, we will discuss the implications and risks stemming from persistent fragmentation of euro area financial markets for the transmission of monetary policy. In section 3, we briefly look at recent steps in financial openness *de jure* (focusing on the Banking Union in particular) and how these may be expected to affect the state of financial integration in the euro area going ahead. In the last subsection (section 3.2) we discuss some policy instruments available to the ECB in order to possibly reduce fragmentation.

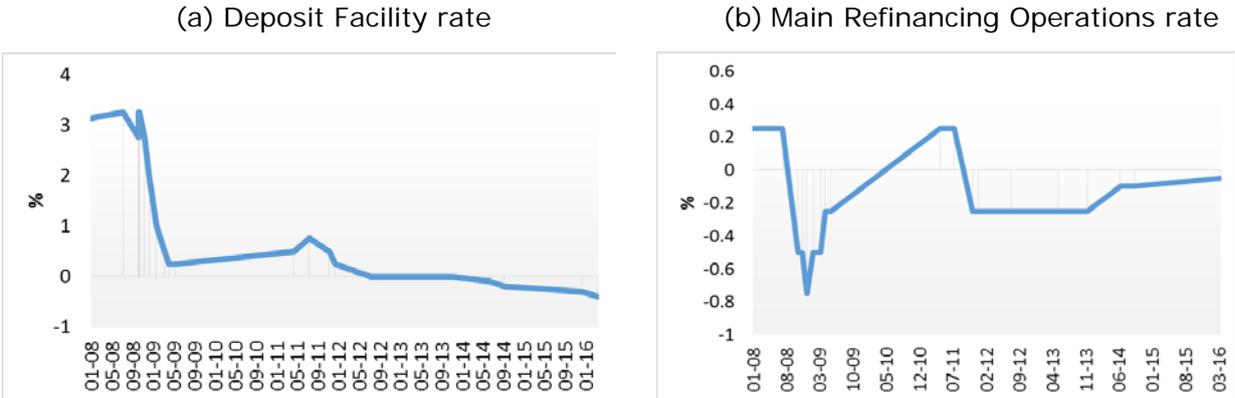
## 2. THE CURRENT STATE OF FINANCIAL MARKET (DIS)INTEGRATION IN THE EURO AREA

### 2.1. Money market

In March 2016, the ECB cut its deposit facility from -0.30% to -0.40% (see Figure 3) and decreased the Main Refinancing Operations rate (providing the bulk of liquidity to the banking system) to 0.0%. It also expanded its Asset Purchase Programme (APP) and launched a corporate sector purchase programme (CSPP) (for a discussion see Gerba and Macchiarelli, 2016). During the last September meeting, the Governing Council has nevertheless decided to leave both interest rates unchanged, as well as not to extend the size and duration of its monthly asset purchases.

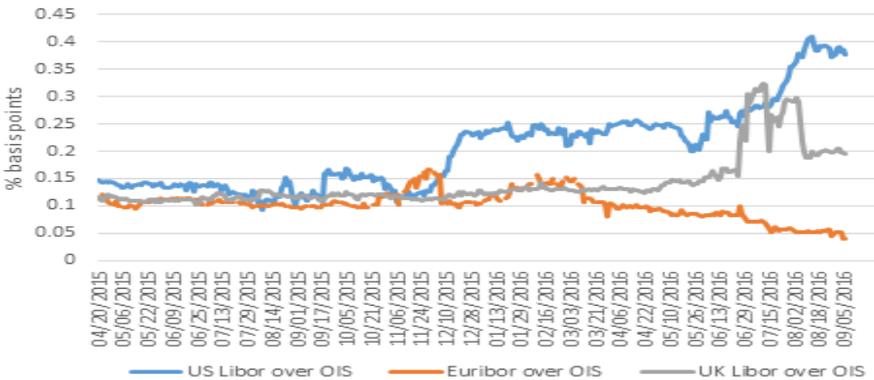
This decision does not necessarily reflect optimism in the euro area’s economic growth and inflation forecasts – which, on the contrary, have remained “broadly unchanged” or went up by a little for the current year and were revised slightly downward for the next year. The Governing Council’s decision rather denotes a “wait and see” approach. In addition, this decision does not exclude anyway the possibility that more policy accommodation is on the way, as the March package of stimulus has still not been fully used. Another possible reason for the ECB’s reluctance to accommodate the economy further at this stage may be the related tantalizing question of scarcity of eligible papers for the APP, or the fact the expected negative effects of the UK referendum on the euro area economy are modest or yet to materialise.

**Figure 3: ECB’s key interest rates**  
(percent)



Source: ECB data

**Figure 4: LIBOR spreads to OIS (3-months)**

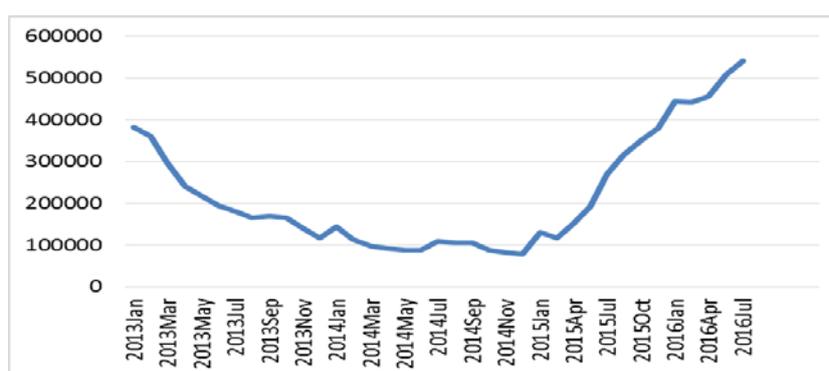


Source: Bloomberg data

At the international level, the ECB's "wait and see" position contrasts with the position of the Fed, which has started to normalise its monetary policy stance. The difference in the US and the euro area LIBOR (London Interbank Offered Rate)-overnight interest rate (OIS) spread, typically understood as a measure of the health of the banking system, is quite telling. In Figure 4, the US (and the UK) LIBOR-OIS spread is significantly higher than the Euribor spread over the OIS. The euro area money markets during 2015 were characterized by abundant liquidity, partly because of the ECB's expanded APP which included corporate debt as well. Nevertheless, **in early 2016, there was an upward pressure in the spread due to a change in investors' sentiment regarding banks' long-term profitability** (see Section 2.4 below), **with an ensuing increasing pressure in the interbank market**. From March 2016, the spread narrowed down, which could be interpreted as a sign of easing.

**Figure 5: Excess reserves of credit institutions in the euro area**

(Millions of EUR)



**Source:** ECB data

As Gerba and Macchiarelli (2015) have reminded, with the ECB keeping its interest rate on the deposit facility at -0.40% banks will not have incentives to place excess cash at the central bank. On the other hand, ECB's QE purchases and long-term refinancing operations are contributing to increase the amount of money available to banks and circulating in the economy. From Figure 5, one can notice how the **excess reserves of credit institutions in the euro area increased sharply over the period April 2015 to July 2016, accentuating the likelihood of interbank trading volumes falling** (encompassing cross-border flows; see ECB, 2016d). With the exemption of targeted longer-term refinancing operations, i.e. TLTROs, this increase in liquidity now primarily derives from the APP and not from the standard Eurosystem liquidity operations. As a result, the Eurosystem constitutes the principal driver of the rise in liquidity itself.

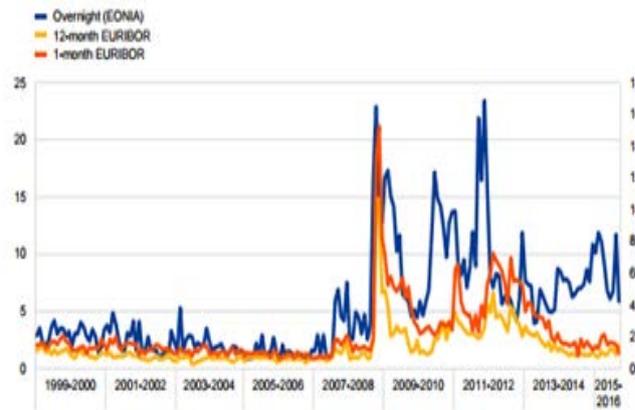
### **Price-Based Indicators**

Looking at the price dispersion of the unsecured interbank lending rates of euro area countries across different maturities – namely overnight rates (EONIA), 1-month and 12 month Euribor rates – one can notice that, during the financial crunch and the ensuing sovereign debt crisis, the unsecured interbank lending rates soared (Figure 6). Nevertheless, already as of 2012 EONIA and Euribor rates started to drop. Potential reasons being this easing could be less financial market pressure and greater market access of banks. Particularly, the **1 and 12 month Euribor rates have now returned (almost) to their pre-crisis levels. At the same time, the overnight rate remains still higher than pre-crisis levels**, even though with a downward sloping tendency more recently. This is overall a positive development, suggesting that credit and liquidity conditions have improved and uncertainty declined since the APP. Overall, however, a

higher (than pre-crisis) overnight rate may still be **pointing to money market fragmentation, particularly in some countries.**

**Figure 6: Interquartile range of euro area countries' average unsecured lending rates**

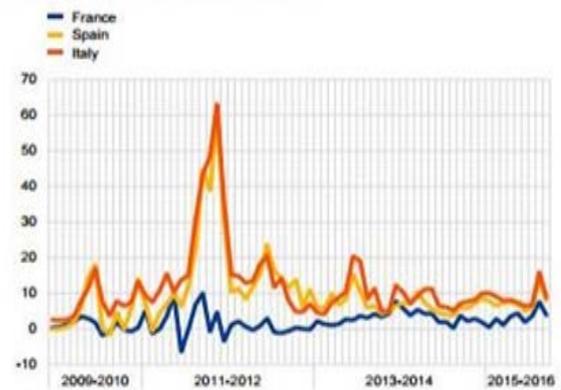
(Average per maintenance period, basis points)



Source: ECB (2016d)

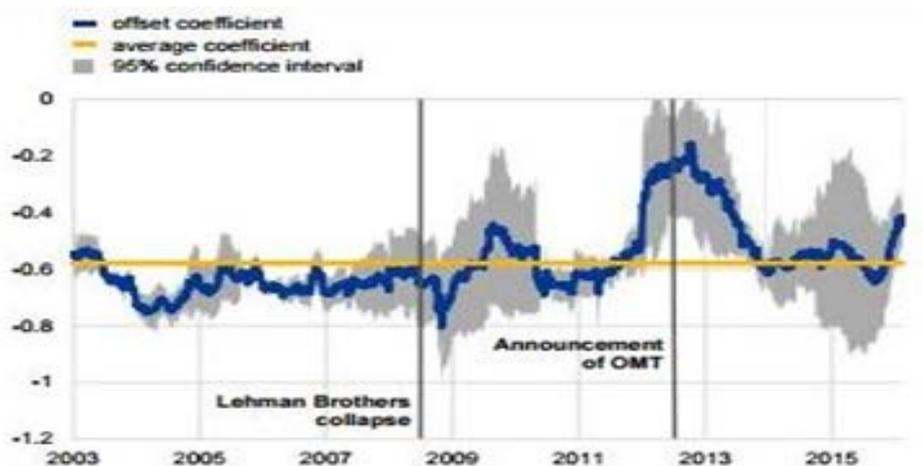
**Figure 7: Spread on overnight repos vs. Germany**

(Average per maintenance period, basis points)



Source: ECB (2016)

**Figure 8: Offset coefficient for domestic liquidity shocks**



Source: Veyrune *et al.* (2014). **Note:** The closer is the coefficient to 1 (in absolute value) the more integrated the interbank money markets are.

**Another dimension to consider is that of repo spreads and the quantity of repo papers. In the current environment, the policy stance has driven the EONIA below zero, consequently driving short-term rates on repos deeper into negative territory as well. Negative repo rates imply the buyer pays interest on the money it is lending, therefore a seller could well decide to fail, and still receive the repo rate. As stressed by Ferrari *et al.* (2016), while the resulting incentives to fail are lessened by the existing penalties, all such penalties could be compensated by a negative enough interest payment from buyer to seller, overall creating a **situation of low responsiveness to fundamentals on the repo market** (Ferrari *et al.*, 2016).**

Looking at the spread on overnight repos of France, Spain, and Italy against repos based on the German *bund* (Figure 7), one can notice that differentials have started to narrow

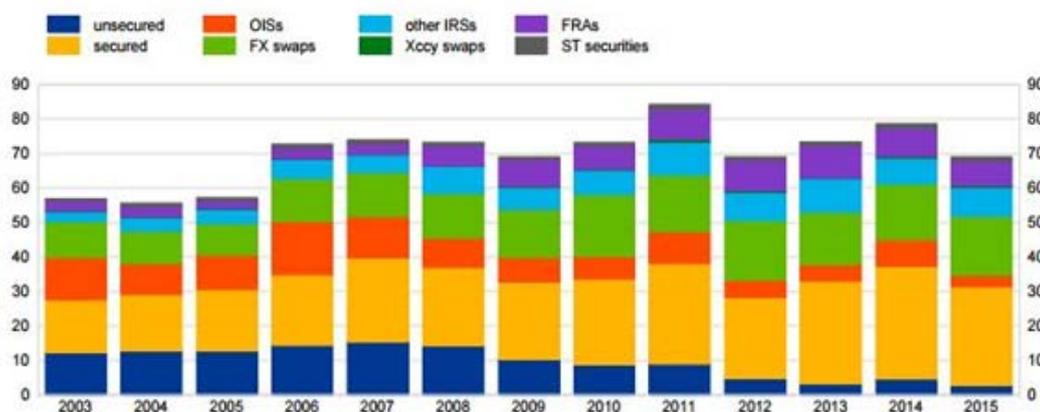
after the period 2011-2012. While the use of Italian and Spanish bonds as collateral is still associated with higher risks (compared, e.g., to French bonds), **investors' search for yields, in an environment characterized by safe assets' scarcity, low or negative interest rates, might be the reason for convergence in money market rates** (see also ECB, 2015).

Interestingly, ECB's staff estimates on the extent of absorption of liquidity shocks in euro area countries (for a technical discussion see Veyrune *et al.*, 2014), show that, over the period 2003 to 2015, on average, every €1 of domestic liquidity contraction was offset by a €0.58 inflow from the rest of the Eurosystem - i.e. an average "offset coefficient" of -0.58. The ECB's figures make clear how the announcement of the Outright Monetary Transactions (OMTs) came during a period in which cross-country flows were at their minimum (this measure hit -0.2). The OMT's announcement has clearly reversed this trend (see also Altavilla *et al.*, 2014). However, since late 2015 the "offset coefficient" has started increasing again; possibly due to TLTRO allocations that accentuated carry trade opportunities and home bias in MFIs' bond holdings (see Section 2.2, Horváth *et al.*, 2015; Valiante, 2015), on top of the Eurosystem asset purchases affecting bank reserves and cross-border flows, as discussed.

### Quantity-Based Indicators

Focusing on quantity-based indicators, a declining turnover in most of the money market sectors can be observed in 2015, reversing the trend of the previous two years. This decline was clearly visible in the secured and unsecured market as well as in the derivatives markets (Figure 9).

**Figure 9: Cumulative quarterly turnover in the euro money market**  
(Trillions of EUR)



Source: ECB (2016)

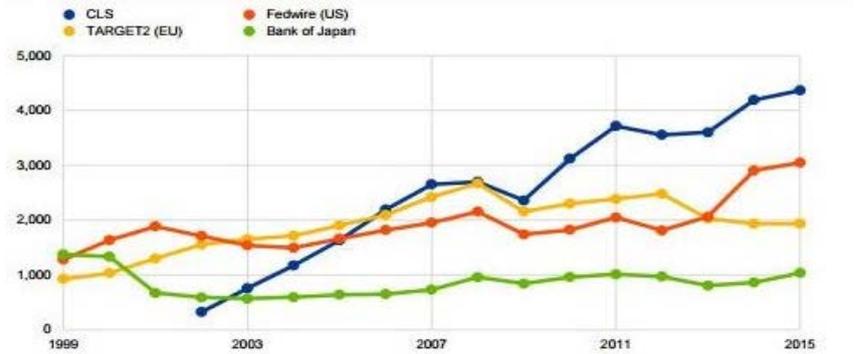
### Other Indicators

Looking at the average daily turnover settled by the major large-value payment systems around the world (namely CLS, TARGET2, Fedwire and BOJNET)<sup>2</sup> after 2012 TARGET2 was the only system whose turnover decreased, with a drop of 2% for the period 2014-15 only (Figure 10). Since much of the EU money market integration (after 1999) is attributable to the establishment of the TARGET system, the close monitoring of TARGET2 performance and imbalances could assist the ECB in adopting targeted measures.

<sup>2</sup> CLS and BOJNET stand for Continuous Linked Settlement and for Bank of Japan Financial Network System respectively. TARGET2 stands for Trans-European Automated Real-time Gross settlement Express Transfer system.

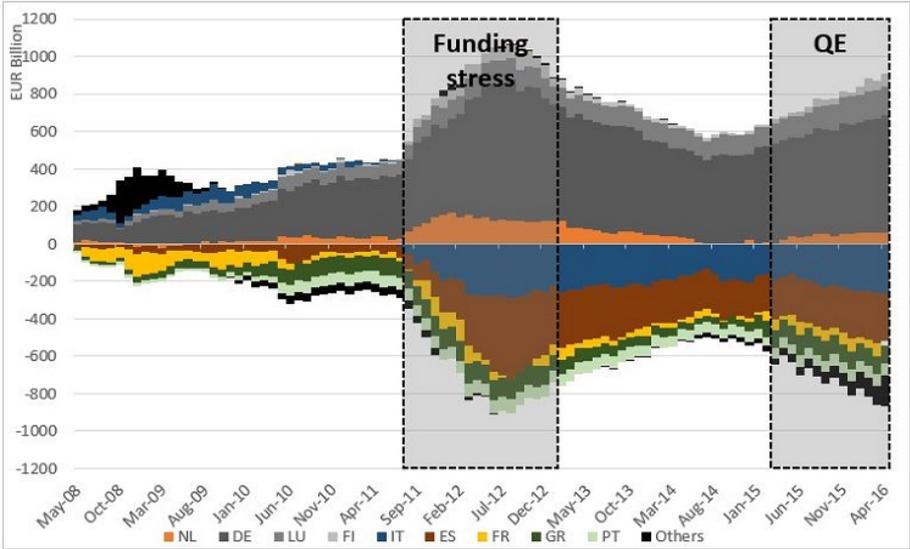
It is interesting to note that such **TARGET2 imbalances have in fact resumed more recently**. It is well known that TARGET2 imbalances rose substantially during the sovereign debt crisis. However, as pointed out by De Nederlandsche Bank (2016), these imbalances recently may be well indicative of a persistent fragmentation within the euro area's financial markets as well as uneven liquidity allocation.

**Figure 10: Average daily turnover settled by the major large-valued payment systems**  
(Billions of EUR)



Source: TARGET Annual Report 2015, ECB (2016d)

**Figure 11: TARGET2 balances since 2008**  
(Billions of EUR)



Source: De Nederlandsche Bank (2016)

Particularly, **the Eurosystem purchases of bonds from institutional investors through banks under the APP is creating a situation where the extra liquidity available in the economy is not absorbed evenly but it gets deposited at banks in euro area countries enjoying the highest rating**, i.e. the “core” (see also De Nederlandsche Bank, 2016). This is not surprising given that risk perceptions within the euro area have not yet completely normalized, as many of the institutional investors selling under QE prefer to hold deposits indeed. As a result, **APP purchases undertaken by NCBs of peripheral countries are leading to additional bank deposits in countries like Germany, and to a lesser extent, the Netherlands, Finland, and Luxemburg**, as

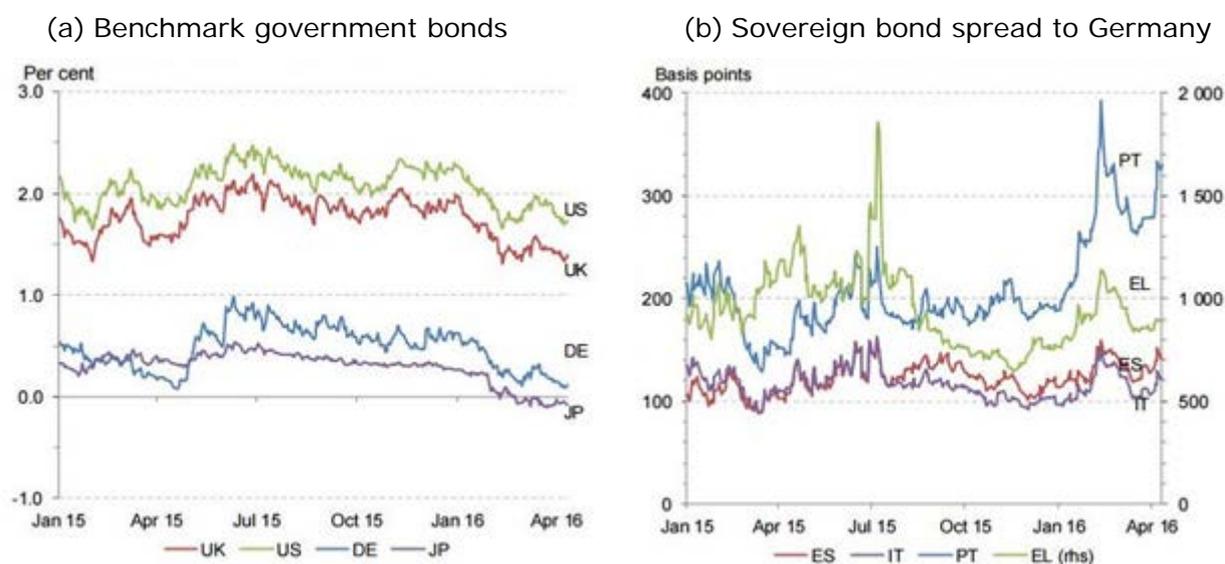
evidenced from Figure 11. Rising TARGET2 imbalances are thus currently reflecting an uneven distribution of liquidity created by QE across the euro area. In a well-functioning monetary union, the liquidity created by QE should more or less be absorbed proportionally by the banking system of each member state, thereby not leading to any imbalances. Here, the current build-up of TARGET imbalances does show that risk perceptions and fragmentation have not yet disappeared, mainly with regard to specific euro area countries.

## 2.2. Bond market

The introduction of the single currency played an important role in the degree of integration of the European government bond markets (see also Abad *et al.*, 2009). However, as the sovereign debt crisis has shown, the euro has made member states more vulnerable to idiosyncratic and EMU-specific risk factors, at least until 2010. **The persistent difference in liquidity and default risks in some peripheral euro area countries (Portugal and Greece in particular) against German *bunds* could well reflect structural factors** (see also Dewachter *et al.*, 2015) and may not necessarily be surprising at this stage (Buti and van den Noord, 2009), in the lack of country-specific structural reforms restoring fundamentals.

While at the height of the 2010 sovereign crisis only a few countries (among them Greece and Ireland) were severely affected, in 2012 almost all non-AAA-rated euro area countries suffered from financial distress, mainly as the result of international risk aversion and contagion (see Manganeli and Wolswijk, 2009). As reminded in a previous note (Gerba and Macchiarelli, 2015), the OMT announcement during the second half of 2012 has laid down a stepping stone for an important improvement in bond markets' conditions. This has been followed by the positive "signalling" effect of the APP (see Altavilla *et al.*, 2015; Andrade *et al.*, 2016). Following these developments, the euro area bond markets result to be somehow stabilised, compared to the levels observed during the sovereign crisis, displaying a certain degree of convergence, which is – nevertheless – still higher than what observed pre-crisis.

**Figure 12: Government bonds (10-year maturity)**



Source: ECB (2016a)

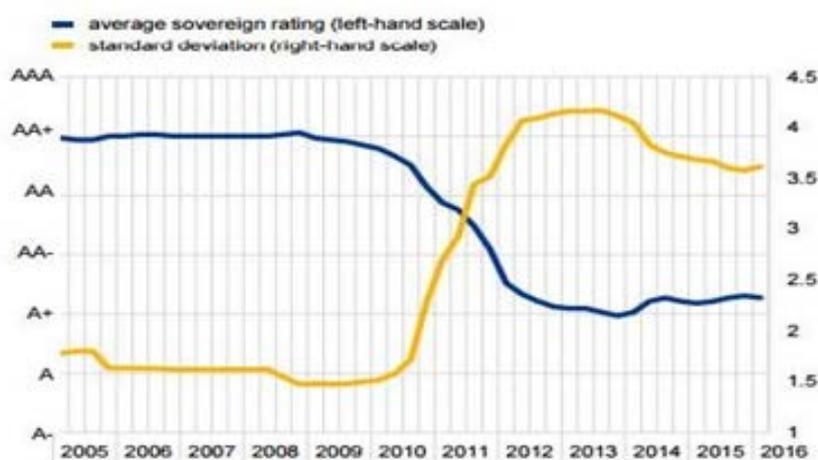
**The last available data for 2016 particularly show that most of the bond spreads have remained relatively steady. However, some high peaks can be observed towards the end of the sample, especially in Greece, due to some country-specific**

factors, such as the Greek referendum and the implementation of the capital controls during the summer of 2015, **and Portugal**. Spreads have widened also as the result of the benchmark 10-year government bond for Germany being particularly low, e.g., compared to the US and the UK, as the result of *flight-to-safety* effects, as well as the Eurosystem's hovering of *bunds* through QE (Figure 12). As Gerba and Macchiarelli (2016) highlight, this newly emerging fragmentation is not a 10-year maturity issue only but it is emerging for bonds at 2-year maturity as well in those countries. In addition, yields around the globe fell to all-time lows recently as the result of the outcome of the UK referendum.

### Price-Based Indicators

The dispersion of sovereign bond yields (measured as the standard deviation of selected euro area countries) over the period 2015-2016 appears to be lower than what observed during the first half of 2011-2014 (Figure 9), but still higher than what observed pre-crisis. Persistent differences in bond yields premia might well indicate bonds' market fragmentation, which might be due to liquidity risk, induced by differences within the euro area sovereign bond markets, as well as the markets' pricing-in of different fiscal and macroeconomic outlook for euro area countries. The figure also displays the average sovereign debt rating falling in the euro area. This seems to have moved in the opposite direction of sovereign bonds dispersion: as the average sovereign rating (blue line) fell significantly in 2008 (from AA+ to approximately A+) the standard deviation increased. The most recent drop in dispersion after 2014-15 is however not accompanied by a rating improvement in Figure 13, rather reflecting the effect of narrowing of bond spreads due to the APP.

**Figure 13: Sovereign debt ratings' development and dispersion in the euro area**



Source: ECB (2016)

### Quantity-Based Indicators

Another way to examine the level of integration of the sovereign bond markets is to consider volumes. Accordingly, **the holdings by euro area Monetary Financial Institutions (MFIs) of debt securities issued by EU corporate and sovereigns has shrunk since 2012. Still, MFIs holdings on domestic government and corporate bonds remain at high levels compared to pre-crisis (60%; left-hand panel, blue line).** Instead, the share of holdings by euro area MFIs of debt securities issued by MFIs of (other) monetary union Member States (see Figure 14, yellow line) remains 10 p.p. below the pre-crisis value. By contrast, the share of holdings of debt securities issued by domestic and other monetary union MFIs was just above the pre-crisis levels. Overall, this implies that the most affected segment is that of government bonds issued by euro area member states, in the sense that **MFIs seem to move in the direction of an increasing bias**

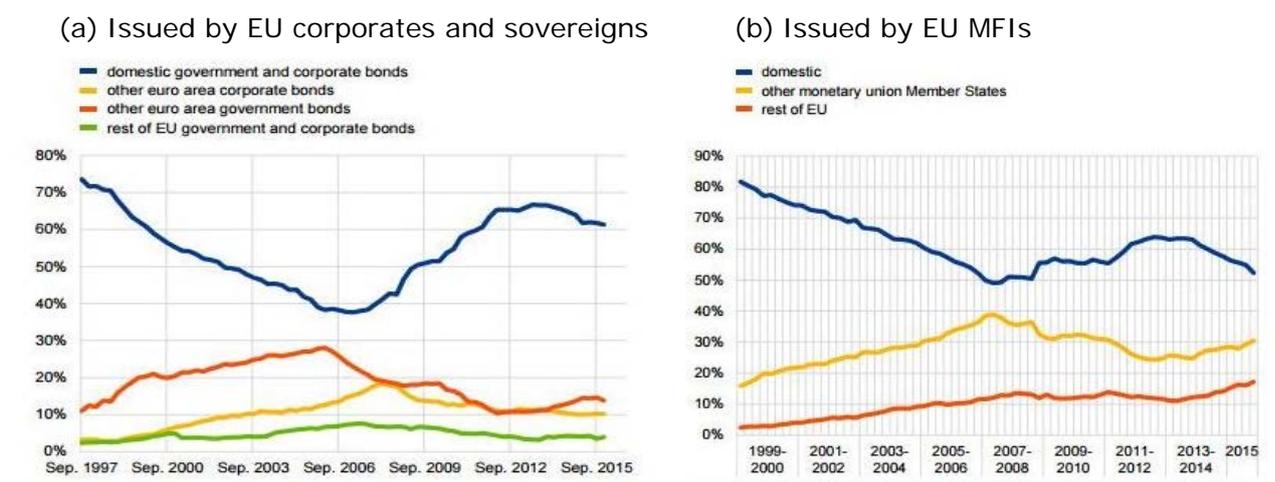
towards “home” government and corporate bonds. The downward shift in the yield curve as the result of QE may help explain this phenomenon, as bond yields have now been forced down, whereas underlying structural weaknesses, both at the euro area level and country-specific, have not been fully addressed.

The share of foreign government bonds in the total bond holdings of the banks in relation to the euro area thus seems to suggest that the integration on this market is now back to the level prevailing *before* 1999, broadly comparable with the levels observed during the third stage of the EMU launch (see also de Sola Perea and Van Nieuwenhuyze, 2014).

**The observed “home bias” on the market of government papers may be a problem because it increases the feedback loop between sovereigns and banks; a dimension that current governance reforms, such as the European Banking Union, are trying to break.** This home bias may have consequences for the monetary transmission process in the euro area, being mainly a non ‘GIIPs countries’ phenomenon, thus making MFIs based in “core” countries heavily dependent on country-specific fundamentals. In this respect, the existing evidence suggests that banks with a sovereign debt portfolio biased towards domestic debt are valued more highly in the stock market if both the bank and the sovereign are deemed weak. This is consistent with a behaviour of weak banks located in a weak country voluntarily increasing their sovereign debt home bias in an effort to shift risk and increase bank valuation (Horváth *et al.*, 2015). This is however not what it is being observed in practice in the euro area, with “home bias” being more present in the “core”, with an overall tendency of flying to-safety (Horváth *et al.*, 2015; see also Gerba and Macchiarelli, 2016). Tendency of portfolio rebalancing towards bonds in the “core” may be the result of low growth expectations and persistently low rates.

**Figure 14: Holdings by euro area MFIs of debt securities**

(Percentage of total holdings, excluding the Eurosystem)



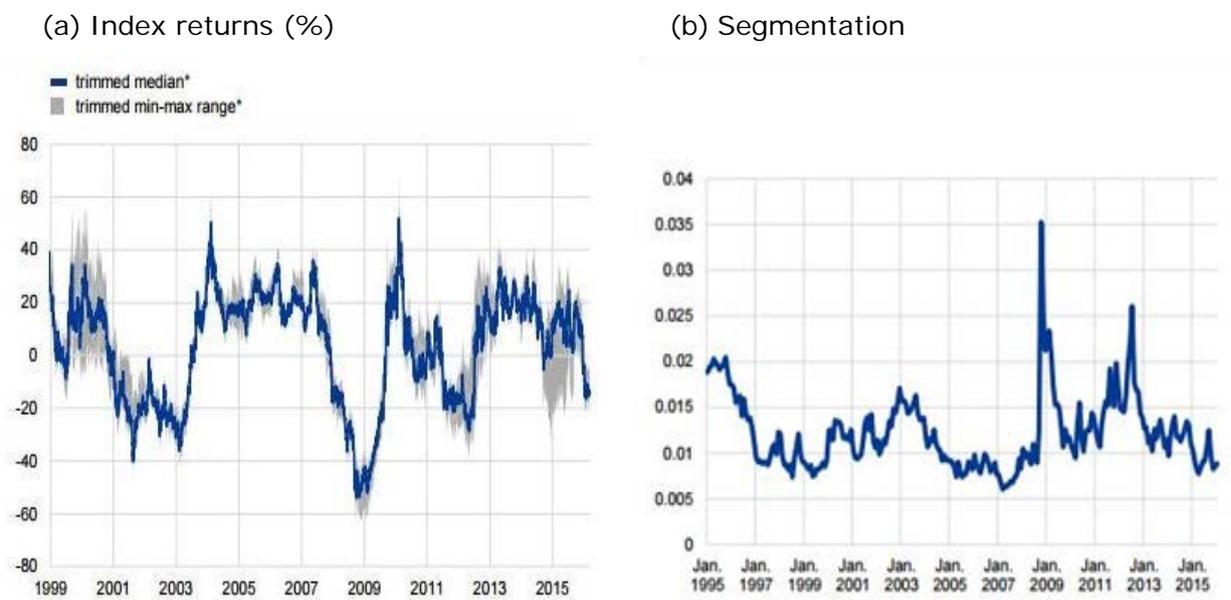
Source: ECB (2016)

### 2.3. Equity market

**Equity markets in the euro area displayed a dynamic rise over the last quarter.** Among other reasons, the increase was partially justified by the ECB’s announcement of an expanded large-scale QE programme beginning last March. **However, countervailing factors** such as the uncertainty around the future sustainability and prospects of the Greek economy, turmoil in emerging markets such as in China, general concerns about the world economic outlook, as well as the loosening of the US monetary policy, and the UK vote to leave the EU, **made equity markets continue to fall through 2016, overall**

**highlighting the limited (for now) expected effectiveness of the ECB's QE in sustaining the euro area recovery.** According to the ECB's account on the 20-21 of July (see ECB, 2016a), broad stock markets fell on the 24 of June 2016, following the UK referendum's outcome, albeit recovering their position fairly rapidly.<sup>3</sup> The banking shares and bond spreads followed a similar pattern. The effect of a UK withdrawal from the EU on equity markets can be hardly evaluated for now, as markets reactions will largely depend on the extent to which EU-UK negotiations will evolve.

**Figure 15: Equity market in the euro area**



Source: ECB (2016b)

### **Price-Based Indicators**

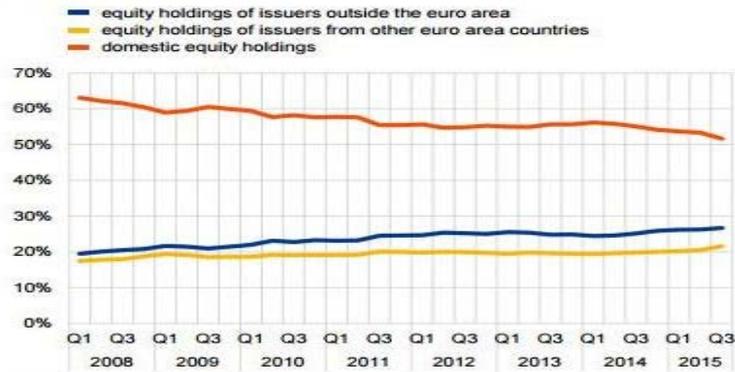
Similarly to bond markets, equity markets enjoyed high levels of convergence in the past (see Figure 15 and ECB, 2011). With the outbreak of the financial crisis, the volatility of equity markets increased, starting to display a significant level of heterogeneity as well. This trend was largely restored after the ECB's OMT announcement in September 2012. Figure 15 (right panel) displays the equity market segmentation in the euro area.<sup>4</sup> **The level of fragmentation in the euro area in January 2016 was at the same level as the one observed in January 2005 and 2007 respectively, and in any case far below the high levels of the 2009 and 2012 periods.** Segmentation has thus continued to fall under the push of the APP.

At the moment, **however, the factors mentioned above, together with the global uncertainty relating to the UK vote to leave the EU, as well as the actual state of the euro area economy** – both economic and financial – seems to **have suppressed any further returns on the euro area equity market throughout 2016**, as these markets have indeed continued to fall.

<sup>3</sup> Apart from the indices for the UK domestic and corporates and European banks.

<sup>4</sup> According to ECB (2016b) the index measures the average cross-country deviation in sectorial equity valuation levels.

**Figure 16: Holding by euro area investors of equities (all sectors)**  
(Percentage of total holdings)



Source: ECB (2016c)

**Quantity-Based Indicators**

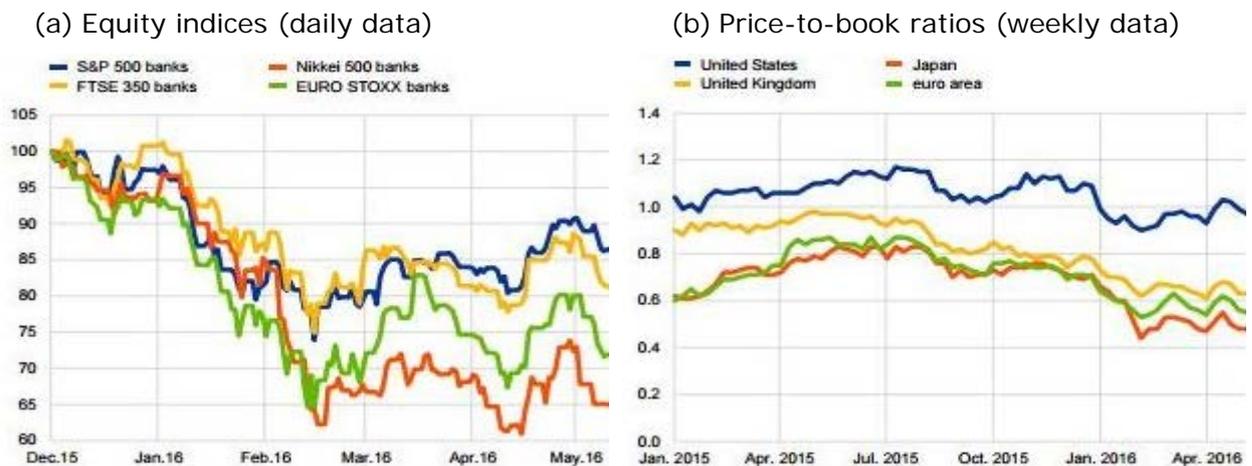
The percentage of holdings by the euro area investors of equities issued outside and inside the euro area countries started to increase slightly from the early 2015 period. By contrast, domestic equity holdings decreased slightly from around 65% in early 2008 to approximately 52% during the third quarter of 2015 (Figure 16). For the moment, portfolio rebalancing effects are thus not strong.

**2.4 Banks**

Since the global financial crisis of 2008, the euro area banking markets were tested strongly. From Figure 17 below, **banks’ profitability faced serious challenges from early 2016. In particular, the EURO STOXX banks underperformed their UK and US peers since last December.** The same trend prevailed in the banks’ price-to-book ratios (see Figure 17), where the euro area banks went well below those in the US and, to a lesser extent, in the UK. Potential reasons for a decline of market confidence in the euro area’s banking sector are the slow economic recovery outlook, low-interest rates, the prevailing low yield curve conditions, a large amount of unsettled non-performing assets in some euro area countries (see also Gerba and Macchiarelli, 2016), as well as structural challenges of the banking system itself.

**Figure 17: Euro area banks**

(Last obs. 13 May 2016)



Source: ECB (2016c)

In addition, the UK leave vote has negatively weighted on the forecasts regarding euro area banks' profitability. More specifically, being many large European banks in London, and given the uncertainty surrounding negotiations, the euro area banks' profitability will risk being at its lowest during the years 2016 and 2017 (see also ECB, 2016b; 2016c).

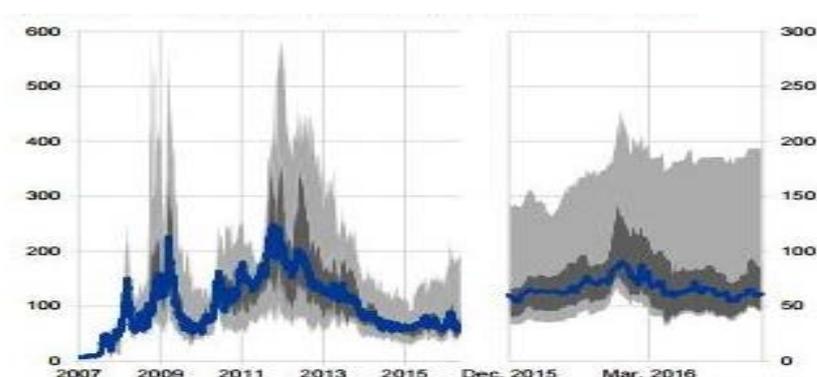
On the upside, the reported increase in the price of sovereign bonds through the APP led to a higher valuation of the assets on banks' balance sheets, thus providing them with a form of capital relief (Andrade *et al.*, 2016). Such a capital relief mechanism appears to have dominated the countervailing effects on banks' margins of the flattening of the yield curve.

In order to assess the extent to which the ensuing reduction in bank leverage can lead to an expansion in lending and support economic recovery, we shall consider price conditions on the retail banking market. **The figures for MFI lending rates to small and medium enterprises show that there are signs that credit conditions are easing overall** (see also Andrade *et al.*, 2016). Lower lending rates for corporates and households (not reported here), also as the result of the aforementioned balance-sheet effect of the euro area government bond yields, suggest indeed a lower fragmentation of the euro area banking system. Overall, however, there is still a high divergence in retail rates in lending in Portugal and Greece, thus having an impact on the real economy and the extent of economic recovery in these countries. **Such large variations in the pass-through of the reduction in the policy interest rate suggest some problems in the transmission of monetary policy.** One reason among all has to do with banks' capital. As suggested in a note by Goldman Sachs Global Investment Research, better-capitalised banks are less likely to incur in losses from new lending, thereby supporting the transmission of the monetary policy stimuli via credit accessibility. At odd in the overall picture of lending rates coming down are Greece and Portugal, where interest rates paid by small businesses haven't declined at all – on the contrary, they increased in 2016.

In this regard, it would be crucial for the ECB to act concomitantly with regulation, as we shall discuss in the next section (see also Gerba and Macchiarelli, 2015). Another issue may lie in the current approach to resolution in the European Banking Union's design. These and other concerns about euro area bank profitability seem aligned with the increased volatility in credit default swaps (CDS) signalling indeed increased probabilities of credit risk in the near future (Figure 18).

**Figure 18: CDS spread for a sample of large euro area insurers**

(Last obs. 13 May 2016, basis points, senior debt, 5-year maturity)



Source: ECB (2016b)

### 3. CRISIS, CRISIS-MANAGEMENT, AND AVAILABLE INSTRUMENTS

#### 3.1. The expected effect of Banking Union

There are two important steps in the European governance framework that are likely to affect financial integration in the future. The first is the agreement on a Banking Union for Europe, the second is the idea of a European capital market union. In this section, we focus on the former.<sup>5</sup>

It is well known that the idea of the Banking Union (BU) covers a preventive stage (i. Regulation and Supervision) and a crisis management stage (ii. Resolution and iii. Safety Nets). Albeit we will not discuss the whole details of the Banking Union here (for a discussion see European Commission, 2012; IMF, 2013b; Macchiarelli, 2016), the reason for considering the BU in this context is that it introduces, for the first time, an integrated approach in supervision and resolution of European banks, having important consequences for financial integration itself.

**Although significant measures have been taken** in this respect towards the limitation of solvency issues and moral hazards, with the establishment of the first steps of the Banking Union, the Single Supervisory Mechanism (SSM) and a Single Resolution Board in particular, **the profitability of the banks does not seem to be substantially affected as it continued to largely decrease** (see the previous section). Chiefly this is because the current stall in the agreement on resolution (i.e. the second element of the Single Resolution Mechanism, the Single Resolution Fund) and safety nets are negatively weighting on the future of European banks, leaving the so-called sovereign-banks “deadly embrace” intact. A common fiscal approach could reduce the pressure of financial fragmentation and it is thus worrisome that the resolution and safety-nets elements of the Banking Union, including a euro-area wide deposit insurance scheme for bank deposits, have been sidelined during the early stages of the negotiations, or are not likely to be implemented before 2024 –e.g., the Single Resolution Fund. **The current approach to an “incomplete” union** (Posner and Véron, 2014) **would thus not help reduce the observed “home bias” in the bond market segment** (see also Valiante, 2015), **rather leading to further uncertainty, domestic risk shifting and possibly further financial instability.** This is true particularly since the decision-making process for resolving a bank remains, within the current BU framework, quite cumbersome – and the resolution funds national (until 2024).

A second - not less important - problem with the current approach to the BU is that it minimizes the importance of cross-border externalities of bank failures across the EU. For instance, the UK’s vote to stay out of the EU will leave both the EU and the UK in uncharted waters, given the large presence of important European banks in London (Macchiarelli, 2016). This will create a challenge going ahead, particularly on the issue of giving guarantees to or resulting banks which are of systemic importance in both economic regions.

Certainly, the current bail-in provisions, together with the novel ECB’s role in banking supervision are likely to help continue bringing down financial fragmentation. However, particular attention should be given to a fragility-prone system that an “incomplete” BU creates. All in all, the BU is a positive development in addressing fragmentation of the euro

<sup>5</sup> For a comprehensive discussion see the European Commission’s “European Financial Stability and Integration Review (EFSIR): A focus on Capital Markets Union” of April 2016. Available at: [http://ec.europa.eu/finance/financial-analysis/docs/efsir/160425-efsir-2016\\_en.pdf](http://ec.europa.eu/finance/financial-analysis/docs/efsir/160425-efsir-2016_en.pdf)

area financial system. It remains unclear how swift and successful the Banking Union process will be (some comments are warranted in the next subsection).

### 3.2. Policy recommendations

Despite the ECB recently increasing its provision on forward guidance, markets have not fully normalized, lending to the real economy has not fully recovered, and a “core-periphery” divide in both risk perception and lending patterns is emerging. In addition, banks in “core” countries heavily relying on domestic sovereign debt may affect risk perceptions of the euro area as a whole.

A possible set of exceptional measures for financial intermediaries should be considered, imposing **regulations on domestic sovereign exposures on bank balance sheets**, foremost reducing the “home bias”. Corsetti *et al.* (2015), for instance, recently proposed that banks should only be allowed to apply the zero risk weight to government debt if they hold sovereign bonds of different countries in proportion to, e.g., each country’s national GDP. This would help reduce banks’ incentive to bring about a sovereign debt home bias, even if a general incentive to over-rely on national sovereign debt would remain (Horváth *et al.*, 2015).

The scope for using regulation and supervision to pressure banks to reduce their home bias could also be reduced by transferring bank regulatory and supervisory powers to the European level. An important step in this direction (and given the absence of full mutualisation of APP purchases) would be the full establishment of a European Resolution Fund and European deposit scheme. **It will thus be important to accelerate the process to a complete Banking Union or anyway leave as little uncertainty as possible during its transition.** This would tackle (even if partially) one of the most urgent legacy problems at the euro area level: the lack of fiscal mutualisation (see also De Grauwe, 2016). Alternatively, a federal sovereign-debt restructuring mechanism could also be conceived, but the latter would clearly be beyond the ECB’s will (for a comprehensive discussion see Fuest and Peichl, 2012).

SSM/ECB’s **coordination with national regulators and supervisors will also be necessary.** Macro-prudential policy, as we described in an earlier note, are crucial in order to maintain excessive risks from building up, and from avoiding a (possible) systemic crisis. The ECB/SSM or national supervisors should not be afraid of triggering these policies if indicators show that speculation is overtaking the markets. To the same token, given the existing imbalances within the euro area, and country-specific issues on banks’ capitalization possibly present in some countries, it would be crucial for the ECB to act concomitantly with national regulators and coordinate with micro-prudential policies (see also Gerba and Macchiarelli, 2015). Several studies, e.g. Klomp and de Haan (2015) more recently, examined the bank regulation and financial stability link in developing countries, suggesting that stricter bank regulation and supervision decrease banking risk. Measures normally used in the literature for assessing banking risk are the number of NPLs, the Z-score - defined as the number of standard deviations by which bank returns have to fall to exhaust bank equity - or the volatility of return on assets. These type of measures could be useful in assessing and measuring euro area banking risk (especially the risk of smaller banks) and in coordinating national and super-national policies.

**On top of Banking Union, another reform acting in the direction of strengthening and incentivising private risk sharing mechanisms through credit and capital markets would be the Capital Markets Union, as proposed by the Five Presidents’ Report. The latter would reduce fragmentation, enabling “safe” platforms for risk sharing.**

As suggested by IMF (2013a), **the ECB could take further action to support flows of liquidity to weak banks with a targeted review of existing collateral policies**, including to lower haircuts on certain assets. The Eurosystem's APP, together with regulatory requirements encouraging banks to hold high-quality collateral, have led to a situation where liquidity chases few assets, requiring more and more MFIs to optimise their collateral use and recycle high-quality collateral (Ferrari *et al.*, 2016). Ferrari *et al.* find in particular that ECB's public sector purchase programme (PSPP) has had a significant - albeit marginal - impact on sovereign collateral scarcity premia. The letter effect has been offset by the beginning of the ECB securities lending programme, making the securities purchased under the PSPP available for securities lending in a decentralised manner by the Eurosystem. A directed review of existing collateral policies could thus be an integral part of the option of liquidity provision, particularly given the pressures on system collateral and the strains of banks' balance sheets in some euro area countries.

As Gerba and Macchiarelli (2015) have reminded, **temporary measures for financial intermediaries aimed at incentivizing banks to remain on the European capital markets, releasing some of the bond supply, and engaging in private lending could also be adopted**. Examples of such measures could be to temporarily expand the list of eligible European assets for Tier I or II capital, to temporarily relax the liquidity requirements in order to allow intermediaries to go more into illiquid European alternatives and release some of their (more liquid) bonds, or to provide a State guarantee for investments into national corporate/private bonds.

**The ECB should continue, together with its asset purchases, TLTROs contingent on the provision of new lending to SMEs, directly supporting credit to this sector and improving the quality of banks' assets**. For this to prove effective, the costs to access the scheme must be less than alternative funding costs. Given the funding costs are falling quite slowly, particularly in the "periphery", lower haircuts (discussed above) could be considered at the same time (see also IMF, 2013a).

Finally, despite an increased financial integration in both price and quantities overall, it is still unclear what the driving factors behind the observed improvements really are. It remains of paramount importance to reduce the underlying financial risks in the economy, not only through a broader supervisory and banking framework but also through macroeconomic policy coordination. Through the APP, the ECB's role should be understood as instrumental to boost confidence. By removing market pressure, **QE would give indeed countries a window of opportunity to do the necessary investment and reforms to spur and rebalance growth, but it could not act as a substitute for structural restructurings**; a vision endorsed by IMF (2016a), as well as the French Central Bank governor and the ECB Executive Board's Peter Praet, among others. IMF (2016a), suggests, in particular, to give special importance to structural reforms, encouraging at the same time investment and growth, and enhancing fiscal governance. **Given the little fiscal space left in many "vulnerable" countries, however, this should happen within a joint monetary-fiscal stimulus, where – recognizing the existing asymmetries - the ECB's support could create the needed room for reforms** (see also Gerba and Macchiarelli, 2016).

## 4. CONCLUSIONS

After the OMT and Banking Union announcements, financial integration is resuming after the crisis, albeit it now remains well below pre-crisis levels. The APP has generally granted a continuation of this (positive) trend. Despite these positive developments, there are some indications of financial markets not being completely at ease, particularly in some market segments. The analysis presented here shows that one of the most impelling questions has to do with a “core-periphery” divide materializing (i) in the extent of liquidity deposits, “home bias” at the core of the Eurozone, and banks’ lending rates. Further, equity markets continuing to fall through 2016 highlight the limited (for now) expected effectiveness of the ECB’s QE in sustaining the euro area recovery, against European and global countervailing factors, despite a reduced fragmentation achieved in this market. In the last section, we discuss some of the policy measures that may assist in reducing this fragmentation. All in all, beyond monetary policy specific measures (e.g. lower haircuts on collateral of weak banks) the euro area should speed up the process of mutualization, including the transition to a complete Banking Union, and recognize the disparities existing within, by enabling “peripheral” countries to find the fiscal and political space they need in order to implement reforms.

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